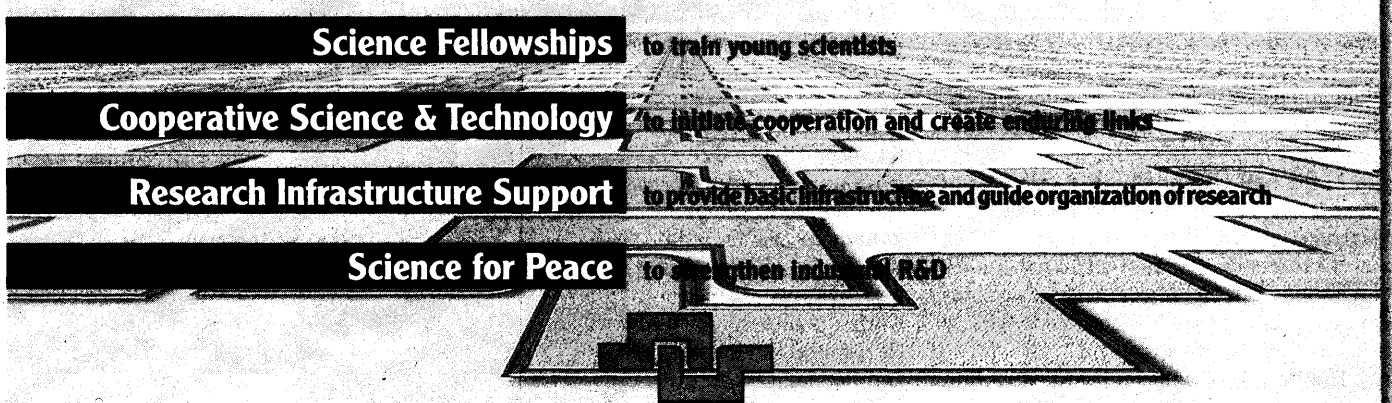
THE NATO SCIENCE PROGRAMME

"Bringing scientists together for progress and peace"

2001 - GRANT OPPORTUNITIES AND CALENDAR OF MEETINGS - 2001

The NATO Science Programme offers support for collaboration in civil science between scientists of countries of the Euro-Atlantic Partnership Council. The purpose of the Programme is to stimulate the cooperation which is essential to progress in science, to create enduring links between researchers, and to help sustain the scientific communities in transition in NATO's "Partner" countries (see countries page 4).

The Programme is structured in four sub-programmes, encompassing a variety of collaborative support mechanisms to achieve different objectives:



Science Fellowships to train young scientists

Cooperative Science & Technology to initiate cooperation and create enduring links

Research Infrastructure Support to provide basic infrastructure and guide organization of research

Science for Peace to strengthen industrial R&D

Scientists from NATO's Mediterranean Dialogue countries are also eligible to participate in the support activities of the Cooperative Science & Technology sub-programme. All participating countries are listed on page 4

Grant Opportunities

Joint applications in all fields of science are invited from researchers in participating countries for Collaborative Linkage Grants or Expert Visits, or to organize Advanced Study Institutes or Advanced Research Workshops - the activities supported under the sub-programme Cooperative Science & Technology. Application criteria, and application forms, are available at the NATO science web site. To be eligible for funding, collaboration must be between scientists in "Partner" or Mediterranean Dialogue countries and scientists in NATO countries. Collaboration between NATO-country scientists exclusively is no longer supported.

Details of other grants available are also specified at the web site, including - Science Fellowships and Networking Infrastructure Grants.

Calendar of Meetings

Overleaf is a Calendar of Advanced Study Institutes, and Advanced Research Workshops which will take place in 2001. Locations and dates may change. Further information on any meeting, as well as requests to attend, should be addressed to the co-directors listed for the individual meetings. Some grants are available from the meeting directors for participation of Partner-country or NATO-country scientists.

Further meetings will be selected for support during the year, and the Calendar appearing on the web site will be updated continuously.

http://www.nato.int/science

Scientific Affairs Division
NATO
Boulevard Leopold III
B-1110 Brussels, Belgium

ADVANCED STUDY INSTITUTES

Advanced Study Institutes (ASIs) are high-level tutorial courses of two weeks' duration where a subject is treated in depth by lecturers of international standing. Presentations are made to about 100 scientists or research students already specialised in the field, or who have an advanced general scientific background. Attendance at ASIs is open to all suitably-qualified applicants irrespective of nationality, upon application to the Co-Directors listed below.

LIFE SCIENCES

Protein Structure, Dynamics, Genomics and Function
5-15 Jun 2001 : Erice, Italy
Co-Directors: Dr. D. Moras, Lab. de Biologie et Génomique structurales, CNRS, IGBMC, 1 rue Laurent Fries, 67400 Illkirch, France
(Fax: 33 388 653276 E-mail: moras@igbmc.u-strasbg.fr)
Prof. Jacek Hennel, Institute of Nuclear Physics, Krakow, Poland
(E-mail: jacek.hennel@ifj.edu.pl) LST.977138

Disease Markers in Exhaled Breath: Basic Mechanisms and Clinical Applications
22 Jun - 1 Jul 2001 - Crete, Greece
Co-Directors: Prof. M.H. Yacoub, Harefield Hospital, Dept. of Cardiothoracic Surgery, Harefield, Middlesex UB9 6JH, UK (Fax: 44 1895 828 900)
Prof. Nandor Marczin, Medical University of Pecs, Hungary
(E-mail: Nandor.Marczin@harefield.nthames.nhs.uk) LST.977135

Free Radicals, Nitric Oxide and Inflammation: Molecular, Biochemical and Clinical Aspects
23 Sep - 4 Oct 2001 - Antalya, Turkey
Co-Directors: Dr. Aldo Tomasi, University of Modena, Medical School, Department of Biomedical Sciences, via Campi 287, 41100 Modena, Italy
(Fax: 39 059 428623 E-mail: tomasi@unimo.it)
Prof. V.P. Skulachev, Moscow State University, Russia
(E-mail: skulach@head.genebee.msu.su) LST.977056

MATHEMATICS, PHYSICS AND ASTRONOMY

Complexity from Microscopic to Macroscopic Scales: Coherence and Large Deviations
17-27 Apr 2001 - Geilo, Norway
Co-Directors: Prof. Arne Skjeltorp, Institute for Energy Technology, Physics Dept., PO Box 40, N-2027 Kjeller, Norway (Fax: 47 638 10 920 E-mail: arne.skjeltorp@ife.no)
Prof. T. Vicsek, Eotvos University, Hungary (E-mail: h845vic@ella.hu) PST.976936

Advances in the Interplay between Quantum and Gravity Physics
30 Apr - 10 May 2001 - Erice, Sicily, Italy
Co-Directors: Prof. V. De Sabbata, University of Bologna, Department of Physics, Via Irnerio 46, 40126 Bologna, Italy (Fax: 39 051 247244 E-mail: nip9566@pop.iperbole.bologna.it)
Prof. Alexsandr Zheltukhin, Academy of Science, Kharkov, Ukraine
(E-mail: zheltukhin@kipt.kharkov.ua) PST.976836

Spectroscopy of Systems with Spatially Confined Structures
15-30 Jun 2001 - Erice, Italy
Co-Directors: Prof. B. Di Bartolo, Boston College, Department of Physics, Chestnut Hill, MA 02467, USA (Fax: 617/552 8478 E-mail: dibartob@bc.edu)
Prof. A. Voitovich, The National Academy of Sciences of Belarus, Minsk, Belarus
(E-mail: inter@presidium.bas-net.by) PST.976862

Virtual Nonlinear Multibody Systems
18-29 Jun 2001 - Varna, Bulgaria
Co-Directors: Prof. Werner Schiehlen, University of Stuttgart, Institute B of Mechanics, Pfaffenwaldring 9, D-70550 Stuttgart, Germany
(Fax: 49 (0)711 685 6400 E-mail: wos@mechb.uni-stuttgart.de)
Prof. Evtim Zahariev, Bulgarian Academy of Sciences, Sofia, Bulgaria
(E-mail: evtimvz@bgcict.acad.bg) PST.977399

Symmetric Functions 2001 - Surveys of Developments and Perspectives
25 Jun - 6 Jul 2001 - Cambridge, UK
Co-Directors: Prof. Sergey Fomin, University of Michigan, Department of Mathematics, 525 East University Avenue, Ann Arbor, MI 48109-1109, USA
(Fax: 1 734 763 0937 E-mail: fomin@math.lsa.umich.edu)
Prof. Grigori Olshanski, Russian Academy of Sciences, Moscow, Russia
(E-mail:)URL: http://www.newton.cam.ac.uk/programs/sfmw03.html PST.976882

Physics of Biomolecules and Cells
2-27 Jul 2001 - Les Houches, France
Co-Directors: Dr. Henrik Flyvbjerg, Niels Bohr Institute, Blegdamsvej 17, DK-2100 Copenhagen, Denmark (Fax: 45 353 25016 E-mail: h.flyvbjerg@nbi.dk)
Dr. Pal Ormos, Institute of Biophysics, Szeged, Hungary
(E-mail: pali@nucleus.szbk.u-szeged.hu) PST.976933

Modern Methods in Scientific Computing and Applications
9-20 Jul 2001 - Montreal, Canada
Co-Directors: Prof. G. Sabidussi, Universite de Montreal, Departement de Mathematiques et de Statistique, C.P. 6128, Succ. Centre-Ville, Montreal, Quebec H3C 3J7, Canada
(Fax: 514 343 5700 E-mail: sab@mathcn.umontreal.ca)
Prof. Karol Mikula, Slovak Technical University, Slovak Republic
(E-mail: mikula@vox.svf.stuba.sk) PST.977416

Asymptotic Combinatorics with Application to Mathematical Physics
9-22 Jul 2001 - St.Petersburg, Russia
Co-Directors: Prof. Vadim Malyshev, I.N.R.I.A., Rocquencourt, B.P. 105, 78153 Le Chesnay, France (Fax: 33 1 39635372 E-mail: vadim.Malyshev@inria.fr)
Prof. Anatoly Vershik, POMI, St.Petersburg, Russia (E-mail: vershik@pdmi.ras.ru) PST.977437

Unity from Duality: Gravity, Gauge Theory and Strings
30 Jul - 31 Aug 2001 - Les Houches, France
Co-Directors: Prof. C. Bachas, Ecole Normale Supérieure, Lab. de Physique Théorique, 24 rue Lhomond, 75231 Paris, Cédex 5, France
(Fax: 33 1 4336 7666 E-mail: bachas@physique.ens.fr)
Dr. Nikita Nekrasov, Institute for Theoretical & Experimental Physics, Moscow, Russia
(E-mail: nikita@feynman.princeton.edu) PST.977343

QCD Perspectives on hot and dense matter
6-18 Aug 2001 - Cargese, Corsica, France
Co-Directors: Dr. J-P Blaizot, Service de Physique Théorique, CEA Saclay, 91191 Gif-sur-Yvette Cédex, France
(Fax: 33-169088120 E-mail: blaizot@spht.saclay.cea.fr)
Dr. A. Leonidov, Lebedev Physical Institute, Russia
(E-mail: leonidov@lpi.ac.ru) PST.977289

Heavy Flavour Physics
7-23 Aug 2001 - St.Andrews, UK
Co-Directors: Prof. Ken Peach, University of Edinburgh, Department of Physics and Astronomy, James Clerk Maxwell Building, Mayfield Road, Edinburgh EH9 3JZ, UK
(Fax: 44 131 650 7165 E-mail: ken.peach@ed.ac.uk)
Prof. Yosef Nir, Weizmann Institute of Science, Israel
(E-mail: ftnir@wicc.weizmann.ac.il) PST.976871

Field Theory of Strongly Correlated Fermions and Bosons in Low-Dimensional Disordered Systems
13-25 Aug 2001 - Windsor,UK
Co-Directors: Prof. Igor Lerner, The University of Birmingham, School of Physics & Space Research, Edgbaston, Birmingham B15 2TT, UK
(Fax: 44 121 4144719 E-mail: ivl@th.ph.bham.ac.uk)
Prof. Igor Kukushkin, Russian Academy of Sciences, Russia
(E-mail: kukush@issp.ac.ru) PST.976930

Chemical Physics of Thin Film Deposition Processes for Micro- and Nano-Technologies
3-14 Sep 2001 - Kaunas, Lithuania
Co-Directors: Prof. Yves Pauleau, National Polytechnic Institute of Grenoble, CNRS-LEMD, 25 rue des Martyrs - BP166, 38042 Grenoble Cédex 9, France
(Fax: 33 4 76 88 79 45 E-mail: pauleau@polycnrs-gre.fr)
Prof. L. Pranevicius, Vytautas Magnus University, Kaunas, Lithuania
(E-mail: liudvikas_pranevicius@fc.vdu.lt) PST.977339

Perspectives in Astrobiology
29 Sep-10 Oct 2001 - Chania, Crete, Greece
Co-Directors: Mr. R. Hoover, George C. Marshall Space Flight Center, Space Sciences Laboratory/ES82, Huntsville, AL 35812, USA
(Fax: 256 544 5056 E-mail: richard.hoover@msfc.nasa.gov)
Prof. A. Rozanov, Moscow State University, Russia (E-mail: aroza@paleo.ru) LST.975801

CHEMISTRY AND MATERIALS SCIENCE

Molten Salts: From Fundamentals to Applications
4-14 May 2001 - Kas, Turkey
Co-Directors: Dr. M. Gaune-Escard, Institute Universitaire des Systèmes Thermiques, Technopole de Chateau Gombert, 5 Rue Enrico Fermi, 13453 Marseille Cédex 13, France
(Fax: 33 4 91117439 E-mail: mge@iusti,univ-mrs.fr)
Prof. Sergiy Volkov, Ukrainian National Academy of Sciences, Kyiv, Ukraine
(E-mail: root@ionc.kar.net) SST.976305

Polyoxometalate Molecular Science
September 2001 - Tenerife, Spain
Co-Directors: Prof. E. Coronado, Universitat de Valencia, Dept. Quimica Inorganica, Doctor Moliner 50, 46100 Burjasot, Spain
(Fax: 34 96 386 4859 E-mail: eugenio.coronado@uv.es)
Prof. Leonid Kazansky, Russian Academy of Sciences, Moscow, Russia
(E-mail: leoka@ipc.rssi.ru) PST.976931

New Frontiers in Mass Spectrometry. Recent Development in Instrumentation and Applications
1-11 Sep 2001 - Tetouan, Morocco
Co-Directors: Prof. G. Sindona, Universita Della Calabria, Dipto Di Chimica, 87030 Arcavacata Di Rende (Cs), Italy
(Fax: 39 984 49 2044 E-mail: sindona@pop3.unical.it)
Dr. Adam Hachimi, University Abdelmalek Essaadi, Tetouan, Morocco
(E-mail: adam.hachimi@wanadoo.fr) PST.977444

Computational Materials Science
9-22 Sep 2001 - Il Ciocco, Italy
Co-Directors: Prof. C.R.A. Catlow, The Royal Institution, 21, Albemarle Street, London W1X 4BS, UK
(Fax: 44 207 670 2920 E-mail: richard@ri.ac.uk)
Prof. E.A. Kotomin, University of Latvia, Riga, Latvia (E-mail: kotomin@latnet.lv) PST.976509

ENVIRONMENTAL SCIENCES

In-Situ Assessment and Remediation of Contaminated Sites
24 May - 2 Jun 2001 - Prague, Czech Republic
Co-Directors: Prof. Danny Reible, Louisiana State University, HSRC/S&SW, Baton Rouge, LA 70803, USA (Fax: 225 388 5043 E-mail: reible@che.lsu.edu)
Prof. K. Demnerova, Institute of Chemical Technology, Prague, Czech Republic
(E-mail: demnerok@vscht.cz) EST.976725

Environmental UV Radiation - Impact on Ecosystems and Human Health and Predictive Models
18-28 Jun 2001 - Il Ciocco, Italy
Co-Directors: Dr. F. Ghetti, Consiglio Nazionale delle Ricerche, Istituto di Biofisica, Area della Ricerca di Pisa, Via Alfieri 1, San Cataldo, 56010 Ghezzano Pisa, Italy
(Fax: 39 050 3152760 E-mail: francesco.ghetti@ib.pi.cnr.it)
Dr. Imre Vass, Hungarian Academy of Sciences, Szeged, Hungary
(E-mail: imre@nucleus.szbk.u-szeged.hu) EST.977523

ADVANCED STUDY INSTITUTES - *continued*

APPLIED SCIENCES AND ENGINEERING

Responsive Systems for Active Vibration Control
July 2001 - Maratea, Italy
Co-Directors: Prof. A. Preumont, Universite Libre de Bruxelles, C.P. 165/42, Av. F.D. Roosevelt 50, B-1050 Bruxelles, Belgique
(Fax: 32 2 650 4660 E-mail: andre.preumont@ulb.ac.be)
Prof. R. Bansevicius, Kaunas University of Technology, Lithuania
(E-mail: bancevicius@cr.ktu.lt) PST.977415

Proof and System-Reliability
24 Jul - 5 Aug 2001 - Marktoberdorf, Germany
Co-Directors: Prof. H. Schwichtenberg, Ludwig-Maximilians-Universitat, Mathematisches Institut, Theresienstrasse 39, 80333 Munchen, Germany
(Fax: 49 89 2805 248 E-mail: schwicht@rz.mathematik.uni-muenchen.de)
Prof. J. Tiuryn, Warsaw University, Poland (E-mail: tiuryn@mimuw.edu.pl) PST.976908

Polymer Based Systems on Tissue Engineering, Replacement and Regeneration
15-25 Oct 2001 - Alvor, Portugal
Co-Directors: Prof. Rui Reis, University of Minho, School of Engineering, Dept. of Polymer Engineer., Campus de Azurem, 4800-058 Guimaraes, Portugal
(Fax: 351 253 510249 E-mail: rgreis@eng.uminho.pt)
Prof. Daniel Cohn, The Hebrew University of Jerusalem, Israel
(E-mail: danielc@vms.huji.ac.il) PST.977368

SOCIAL AND BEHAVIOURAL SCIENCES

Linguistic Relativity of Orthographic and Phonological Structures and its Role in Literacy Acquisition, Assessment and Intervention
5-16 Nov 2001 - Il Ciocco, Italy
Co-Directors: Dr. R. Malatesha Joshi, Texas A & M University, College of Education, 308 Harrington, College Station, Texas 77843-4232, USA
(Fax: 979-845 9663 E-mail: mjoshi@coe.tamu.edu)
Prof. Bozydar Kaczmarek, University of Maria Curie-Sklodowska, Lublin, Poland
(E-mail: bkaczmar@sokrates.umcs.lublin.pl) LST.977172

SECURITY-RELATED CIVIL SCIENCE

Scientific and Technical Aspects of the Implementation of the Protocol to the Biological and Toxin Weapons Convention
20-29 Mar 2001 - Budapest, Hungary
Co-Directors: Prof Malcolm Dando, University of Bradford, Dept of Peace Studies, Bradford, BD7 1DP, UK
(Fax: 44 1274 235240 E-mail: M.R.Dando@bradford.ac.uk)
Prof. Gyorgy Granasztoi, Teleki Laszlo Institute, Budapest, Hungary
(E-mail: tli@tla.hu) SST.977199

ADVANCED RESEARCH WORKSHOPS

Advanced Research Workshops (ARWs) are working meetings of about four days' duration, where scientists and engineers researching at the frontiers of a subject are able to engage in an intense but informal exchange of views, aiming at a critical assessment of existing knowledge and identification of directions for future action. Attendance at ARWs is mainly by invitation, but a few places are available for particularly well-qualified scientists of all nationalities upon application to the Co-Directors listed below.

LIFE SCIENCES

Schizophrenia and Schizotypal Personality : an Integration
24-27 Mar 2001 - Il Ciocco, Italy
Co-Directors: Prof. Adrian Raine, University of Southern California, Dept. of Psychology, Los Angeles, CA 90089-1061, USA
(Fax: 213-740-0897 E-mail: raine@usc.edu)
Dr. Janusz Rybakowski, University of Medical Sciences, Poznan, Poland
(E-mail: rybakows@wlkp.top.pl) LST.976671

Chromosomal Aberrations and Cancer Risk in Humans : Perspective of Research in Central and Eastern Europe
12-14 Apr 2001 - Lyon, France
Co-Directors: Dr. Stefano Bonassi, National Institute for Cancer Research, Department of Environmental Epidemiology, Largo Rosanna Benzi, 10, I-16132 Genoa, Italy
(Fax: 390 10 5600501 E-mail: bonassi@hp380.ist.unige.it)
Prof. Juozas Lazutka, Vilnius University, Lithuania
(E-mail: juozas.lazutka@gf.vu.lt) LST.977458

The Legacy of the Former Cold War Nuclear Programs : Analysis; Mitigation; Potential Health Effects
23-27 Apr 2001 - Varna, Bulgaria
Co-Directors: Prof Werner Burkart, Bundesamt fur Strahlenschutz, Institut fur Strahlenhygiene, Ingolstadter Landstr. 1, 85764 Oberschleissheim, Neuherberg, GERMANY
(Fax: 49-89-31603-202 E-mail: burkart@bfs.de)
Dr. Anatoly Iskra, VNIICHT, Moscow, Russia (E-mail: iskra@arrict.msk.ru) SST.977218

Endocrine Disruptors (EDS) and Carcinogenic Risk Assessment
8-12 May 2001 - Bialystok, Poland
Co-Directors: Prof. J. Amaral-Mendes, University of Evora, Department of Ecology, 7000 Evora, Portugal (Fax: 351 3975144)
Prof. Lech Chyczewski, Medical Academy of Bialystok, Poland
(E-mail: lchycz@amb.ac.bialystok.pl) LST.976639

Effects of Air Pollution on Forest Health and Biodiversity in Forests of the Carpathian Mountains
22-26 May 2001 - Stara Lesna, Slovakia
Co-Directors: Dr. Robert Szaro, USDA Forest Service, Pacific Northwest Research Station, 333 Sw 1st Ave. P.O. Box 3632, Portland, OR 97208, USA
(Fax: +503 808 2130 E-mail: rszaro@fs.fed.us)
Dr. Julius Oszlanyi, Slovak Academy of Sciences, Bratislava, Slovak Republic
(E-mail: director@uke.savba.sk) LST.977496

Creatine Kinase and Brain Energy Metabolism: Function and Disease
14-18 Jun 2001 - Tbilisi, Georgia
Co-Directors: Dr. David Holtzman, Massachusetts General Hospital, Dept. of Neurology Pediatrics & Radiology, 149 13th Street, Charlestown, MA 02129, USA
(Fax: 617 726 7830 E-mail: davidh@bwb.harvard.edu)
Dr. Tea Kekelidze, Tbilisi State University, Georgia
(E-mail: guri@hepi.edu.ge) LST.976683

Enhancing Biocontrol Agents and Handling Risks
18-25 Jun 2001 - Florence, Italy
Co-Directors: Dr. M. Vurro, Consiglio Nazionale delle Ricerche, Ist. Tossine e Micotossine da Parassiti Vegetale, Viale Einaudi 51, 70125 Bari, Italy
(Fax: 39 0805486063 E-mail: ma.vurro@area.ba.cnr.it)
Prof. Jonathan Gressel, The Weizmann Institute of Science, Rehovot, Israel
(E-mail: Lpgress2@wiccmail.weizmann.ac.il) LST.977476

A New Model for Analyzing Antimicrobial Peptides with Biomedical Applications
4-7 July 2001 : Prague, Czech Republic
Co-Directors: Prof. E. Cooper, Univ. of California School of Medicine, Lab. of Comparative Immunology, Dept. of Neurobiology, Los Angeles, CA 90095-1763, USA
(Fax: 310 825 2224 E-mail: cooper@ucla.edu)
Dr. M. Bilej, Academy of Sciences of the Czech Republic, Prague, Czech Republic
(E-mail: mbilej@biomed.cas.cz) LST.976680

MATHEMATICS, PHYSICS AND ASTRONOMY

High Spin Physics 2001
6-10 Feb 2001 - Warsaw, Poland
Co-Directors: Dr. Cyrus Baktash, Oak Ridge National Laboratory, Physics Division, Oak Ridge, TN 37831-6371, USA
(Fax: 1 865 574 1268 E-mail: BaktashC@ornl.gov)
Prof. S. Rohozinski, University of Warsaw, Poland
(E-mail: Stanislaw-G.Rohozinski@fuw.edu.pl) PST.977306

Application of Physics in Economic Modelling
8-10 Feb 2001 - Prague, Czech Republic
Co-Directors: Dr. Jean-Philippe Bouchaud, Centre d'Etudes de Saclay, Service de Physique de l'Etat Condensé, Orme des Mérisiers 91, 191 Gif-sur-Yvette Cédex, France
(Fax: 01 69 088786 E-mail: bouchau@spec.saclay.cea.fr)
Dr. Frantisek Slanina, Czech Academy of Sciences, Czech Republic
(E-mail: slanina@fzu.cz) PST.976425

Applications of Algebraic Geometry to Coding Theory, Mathematical Physics and Computation
25 Feb - 2 Mar 2001 - Eilat, Israel
Co-Directors: Prof. Ciro Ciliberto, University of Roma Tor Vergata, Dip. di Matematica, Via Della Ric. Scient., 00173 Roma, Italy
(Fax: 0672599699 E-mail: ciliberto@ext.mat.uniromal.it)
Prof. Mina Teicher, Bar-Ilan University, Ramat-Gan, Israel
(E-mail: teicher@macs.biu.ac.il) PST.976385

Cosmic Radiation: From Astronomy to Particle Physics
21-23 Mar 2001 - Oujda, Morocco
Co-Directors: Prof. G. Giacomelli, University of Bologna, Physics Dept, Via Berti-Pichat 6/2, I-40127 Bologna, Italy
(Fax: 0039 0512095269 E-mail: giacomelli@bo.infn.it)
Prof. Mohammed Derkaoui, Mohamed 1st University, Oujda, Morocco
(E-mail: derkaoui@sciences.univ-oujda.ac.ma) PST.976946

Hydrogen Isotope Recycling at Plasma Facing Materials in Fusion Reactors
25-27 Apr 2001 - Argonne, Illinois USA
Co-Directors: Dr. Ahmed Hassanein, Argonne National Laboratory, 9700 South Cass Avenue, Argonne, IL 60439, USA
(Fax: 630 252 5287 E-mail: hassanein@anl.gov)
Prof. A. Zakharov, Russian Academy of Science, Moscow, Russia
(E-mail: a.p.zakharov@ipc.rssi.ru) PST.977357

New Kinds of Phase Transitions : Transformations in Disordered Substances
30 May -3 Jun 2001 - Russia
Co-Directors: Prof. H.E. Stanley, Boston University, Ctr for Polymer Studies, Dept. of Physics, 590 Commonwealth Avenue, Boston, MA 02215, USA
(Fax: 1-617 353 3783 E-mail: hes@argento.bu.edu)
Prof. V. Brazhkin, Russian Academy of Sciences, Troitsk, Russia
(E-mail: brazhkinv@hppi.troitsk.ru) PST.977374

ADVANCED RESEARCH WORKSHOPS - *continued*

The Nuclear Many-Body Problem 2001
2-5 Jun 2001 - Brijuni, Pula, Croatia
Co-Directors: Prof. W. Nazarewicz, University of Tennessee,
Dept. of Physics and Astronomy, Knoxville, TN 37996, USA
(Fax: 1 865 5744745 E-mail: witek-nazarewicz@utk.edu)
Prof. Darioa Vretenar, University of Zagreb, Croatia
(E-mail: vretenar@phy.hr) PST.977305

Acceleration and Radiation of Relativistic Electrons in Dense Media
25-29 Jun 2001 - Yerevan, Armenia
Co-Directors: Prof. Helmut Wiedemann, Stanford University,
SLAC/SSRL, P.O. Box 4349, Stanford, CA, USA
(Fax: 650 926 4100 E-mail: wiedemann@slac.stanford.edu)
Dr. Robert Avagyan, Academy of Sciences of Rep. of Armenia, Yerevan, Armenia
(E-mail: ravakian@hermes.desy.de) PST.976943

Interpretation of the New Diffractive Phenomena in Quantum Chromodynamics and in the S-Matrix Theory
4-8 Sep 2001 - Yalta, Crimea, Ukraine
Co-Directors: Prof. Roberto Fiore, Universita della Calabria, Dipartimento di Fisica,
I-87036 Rende (Cosenza), Italy
(Fax: 39 0984 493187 E-mail: fiore@cs.infn.it)
Prof. L. Jenkovszky, National Academy of Sciences of Ukraine, Kyiv, Ukraine
(E-mail: jenk@gluk.org) PST.977335

CHEMISTRY AND MATERIALS

Frontiers of High Pressure Research II : Application of High Pressure to Low-Dimensional Novel Electronic Materials
10-15 Jun 2001 - Pingree Park, CO, USA
Co-Directors: Prof. H.D. Hochheimer, Colorado State University,
Department of Physics, Fort Collins, CO 80523, USA
(Fax: 970 491 7947 E-mail: dieter@lamar.colostate.edu)
Prof. B. Kuchta, Wroclaw University of Technology, Poland
(E-mail: kuchta@kchf.ch.pwr.wroc.pl) URL: http://lamar.colostate.edu/~natoarw/ PST.975583

Atomistic Aspects of Epitaxial Growth
26-30 Jun 2001 - Corfu, Greece
Co-Directors: Prof. L.T. Wille, Florida Atlantic University, Department of Physics,
777 Glades Road, Boca Raton, FL 33431, USA
(Fax: +1 561 297 2662 E-mail: willel@fau.edu)
Dr. Miroslav Kotrla, AVCR, Praha, Czech Republic (E-mail: kotrla@fzu.cz) PST.977014

Magnetic Resonance in Colloid and Interface Science
26-30 Jun 2001 - St-Petersburg, Russia
Co-Directors: Prof. Jacques Fraissard, Université Pierre et Marie Curie,
Lab de Chimie des Surfaces, CNRS-URA1428,
4 Place Jussieu, Case 196, Tour 54-55, 75252 Paris Cédex 05, France
(Fax: 33 (0)1 44 275536 E-mail: jfr@ccr.jussieu.fr)
Prof. Valentin Parmon, Boreskov Institute of Catalysis, Novosibirsk, Russia
(E-mail: parmon@catalysis.nsk.su) PST.977387

Molecular Low Dimensional and Nanostructured Materials for Advanced Applications
3-7 Sep 2001 - Poznan, Poland
Co-Directors: Prof. A. Graja, Polish Academy of Sciences, Institute of Molecular Physics,
ul. Smoluchowskiego 17, 60-179 Poznan, Poland
(Fax: 48 61 86 84 524 E-mail: graja@ifmpan.poznan.pl)
Prof. V.M. Agranovich, Russian Academy of Sciences, Troitsk, Russia
(E-mail: agran@isan.troitsk.ru) PST.977256

EARTH SCIENCES

Mineral Resource Base of the Southern Caucasus and Systems for its Management in the XXI Century
5-8 Apr 2001 - Tbilisi, Georgia
Co-Directors: Mr. Georges Morizot, Bureau de Recherches Géologiques et Minierès,
Av. de Concyr, BP 6009, 45060 Orléans Cédex 2, France
(Fax: 33 2 3864 3305 E-mail: g.morizot@brgm.fr)
Prof. Alexander Tvalchrelidze, Georgian Academy of Sciences, Tbilisi, Georgia
(E-mail: sandro@kheta.ge) EST.977164

Underwater Failure Mechanisms on Tsunami Generation, Modeling, Tsunami Risk and Mitigation
1-4 May 2001 - Istanbul, Turkey
Co-Directors: Prof. Ahmet Yalciner, Middle East Technical University,
Civil Engineering Department, Ocean Engineering Research Center, 06531 Ankara, Turkey
(Fax: 90 312 2101412 E-mail: yalciner@metu.edu.tr)
Prof. Dr. Efim Pelinovsky, Institute of Applied Physics, Nizhny Novgorod, Russia
(E-mail: enpeli@hydro.appl.sci-nnov.ru) EST.977541

Current Problems of Hydrogeology in Urban Areas, Urban Agglomerates and Industrial Centres
29 May - 1 Jun 2001 - Baku, Azerbaijan
Co-Directors: Prof. K.W.F. Howard, University of Toronto, Scarborough Campus,
1265 Military Trail, Scarborough ON M1C 1A4, Canada
(Fax: 416 287 7279 E-mail: gwater@scar.utoronto.ca)
Prof. Rauf Israfilov, Azerbaijan Academy of Sciences, Baku, Azerbaijan
(E-mail: gia@azdata.net) EST.977464

ENVIRONMENTAL SCIENCES

New Paradigms in River and Estuarine Management
26-28 Mar 2001 - Boise, Idaho, USA
Co-Directors: Prof. P. Goodwin, University of Idaho, College of Engineering - Boise,
800 Park Blvd., Suite 200, Boise, ID 83712, USA
(Fax: 208 387 1246 E-mail: pgoodwin@uidaho.edu)
Mr. Peter Tomka, Representative of Slovakia to United Nations
(E-mail: mission.sloval@ties.itu.ch) EST.976343

Geographical Information Systems (GIS) for Emergency Preparedness and Health Risk Reduction
22-27 Apr 2001 - Dubrovnik, Croatia
Co-Directors: Prof. David Briggs, Imperial College of Science, Technology and Medicine,
Department of Epidemiology & Public Health, Nordolf Place, W2 1PG LondonUK
(Fax: 44 0 207 402 2150 E-mail: d.briggs@ic.ac.uk)
Mr. Spase Vulic, MED-EKON, Zagreb, Croatia (E-mail: med-ekon@zg.tel.hr) EST.977557

An Evaluation of Progress in Coastal Policies at the National Level : A Transatlantic and Euro-Mediterranean Perspective
1-3 Jun 2001 - Ljubljana, Slovenia
Co-Directors: Prof. Biliana Cicin-Sain, University of Delaware,
Center for the Study of Marine Policy, 301 Robinson Hall, Newark, DE 19711, USA
(Fax: 1 302 831 3668 E-mail: bcs@udel.edu)
Prof. Aleksandra Kornhauser, University of Ljubljana, Slovenia
(E-mail: aleksandra.kornhauser@uni-lj.si) EST.977506

Global Atmospheric Change and its Impact on Regional Air Quality - Physical Chemical Processes in the Atmosphere
29 Jul - 2 Aug 2001 - Irkutsk, Lake Baikal, Russia
Co-Directors: Prof. K.H. Becker, Universitat Wuppertal, Physikalische Chemie / FB 9,
Gauss-Strasse 20, D-42097 Wuppertal, Germany
(Fax: 49 202 439 2505 E-mail: becker@physchem.uni-wuppertal.de)
Prof. Igor Morozov, Russian Academy of Sciences, Moscow, Russia
(E-mail: morozov@center.chph.ras.ru) EST.977492

APPLIED SCIENCES AND ENGINEERING

Telemedicine in Central Asia: Applications in Emergency Medicine
2-4 Apr 2001 - Tashkent, Uzbekistan
Co-Directors: Dr. Jeffrey Smith, George Washington University, Medical Center,
2140 Pennsylvania Avenue, Washington, DC 20037, USA
(Fax: 202 994 3924 E-mail: emdjps@gwumc.edu)
Prof. Zukhra Adilova, Acad. of Sciences of Uzbekistan, Tashkent, Uzbekistan
(E-mail: z.adilova@ic.ac.uz) CN.977230

Limitations and Future Trends of Neural Computation
11 - 13 Jun 2001 - Pontignano, Siena, Italy
Co-Directors: Prof. Marco Gori, Universita di Siena, Dipartimento di Ingegneria
dell'Informazione, Via Roma 56, 53100 Siena, Italy
(Fax: 39 0577 233602 E-mail: marco@ing.unisi.it)
Prof. Liviu Goras, Technical University of Iasi, Romania
(E-mail: lgoras@zeta.etc.tuiasi.ro) PST.977432

SECURITY-RELATED CIVIL SCIENCE

New Scientific and Technological Developments of Relevance to the Biological and Toxin Weapons Convention
2 - 6 May 2001 - Prague, Czech Republic
Co-Directors: Dr. Graham Pearson, University of Bradford, Department of Peace Studies,
Bradford, BD7 1DP, UK (Fax: 44 1672 539582 E-mail: Graham_Pearson@Compuserve.com)
Mr. B. Kriz, National Institute of Public Health, Prague, Czech Republic
(E-mail: bohumir.kriz@szu.cz) SST.977570

SCIENCE AND TECHNOLOGY POLICY

Intellectual Property in Market Conditions for Transition-Economy Countries
May 2001 - Tashkent, Uzbekistan
Co-Directors: Prof. U. Del Canuto, Consorzio Roma Ricerche, Centro per l'Innovazione,
Via della Ricerca Scientifica, 00173 Rome, Italy
(Fax: 39.06.20 42 74 97 E-mail: ucanuto@maas.ccr.it)
Prof. Ali Akhunov, State Committee of Science and Technology, Tashkent, Uzbekistan
(E-mail: zakhidov@itc.silk.org) STP.976802

Countries participating in the NATO Science Programme

NATO countries:
Belgium, Canada, Czech Republic, Denmark, France, Germany, Greece, Hungary, Iceland, Italy, Luxembourg, Netherlands, Norway, Poland, Portugal, Spain, Turkey, United Kingdom, United States.

EAPC Partner countries eligible for support:
Albania, Armenia, Azerbaijan, Belarus, Bulgaria, Croatia, Estonia, Georgia, Kazakhstan, Kyrgyzstan, Latvia, Lithuania, Moldova, Romania, Russian Federation, Slovak Republic, Slovenia, Tajikistan, the former Yugoslav Republic of Macedonia[1], Turkmenistan, Ukraine, Uzbekistan

Mediterranean Dialogue countries:
Algeria, Egypt, Israel, Jordan, Mauritania, Morocco, Tunisia

[1] *Turkey recognises the Republic of Macedonia with its constitutional name.*

NATO Graphics Studio 1741/3-00

Finally –
Affordable Array

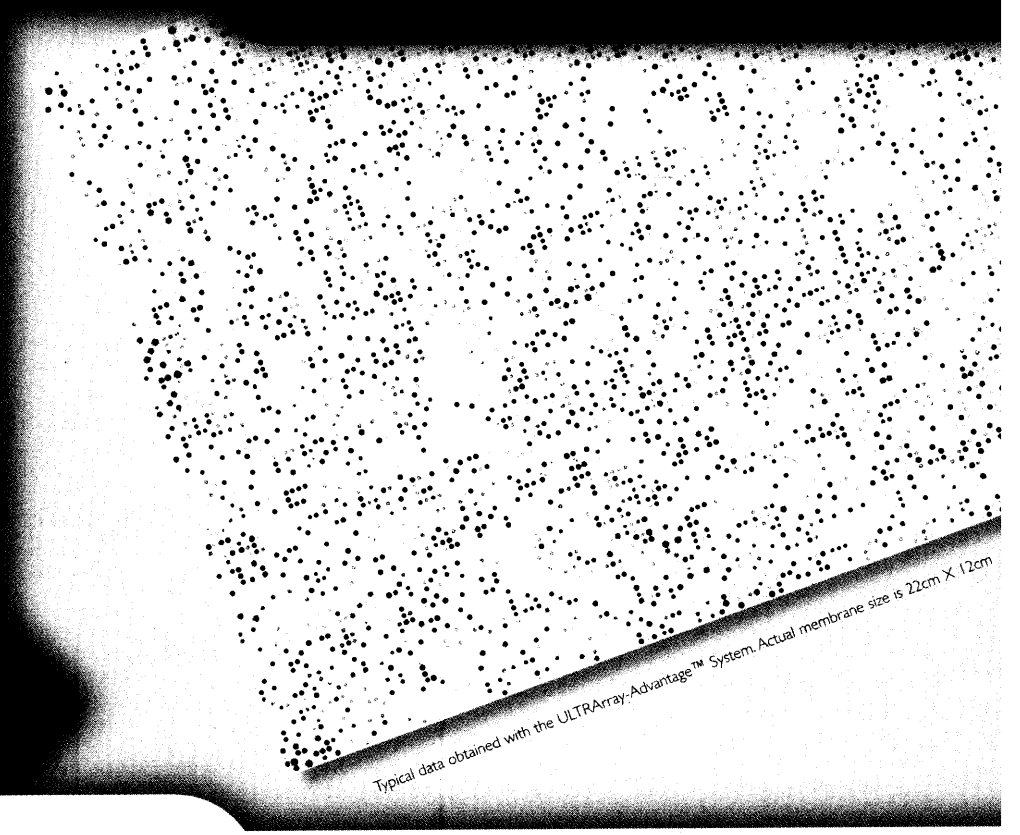
Hybridize each membrane array 10 times or more

•

Complete array system contains two ULTRArrays™ with all necessary reagents for probe labeling, and blot hybridization, washing, and stripping

•

High quality array for the analysis of more than 8400 human mRNAs in a single experiment



Typical data obtained with the ULTRArray-Advantage™ System. Actual membrane size is 22cm X 12cm

Gene array analysis is a powerful way to simultaneously analyze thousands of sequences; the only big drawback is the expense of the arrays. The new ULTRArray-Advantage™ System decreases your cost of membrane array analysis by allowing each membrane to be hybridized 10 or more times with no loss of signal. This innovative System contains 2 identical high-density membrane arrays, plus all the reagents necessary for probe synthesis, membrane hybridization, washing and stripping. All you supply is the RNA samples, ^{33}P-dATP for probe labeling and a phosphoimager for analysis.

Each ULTRArray is spotted in duplicate with more than 8400 human sequences drawn from Incyte Genomics' proprietary cDNA clones. More than 6,000 of these cDNAs are annotated, leaving thousands for gene discovery. The Human ULTRArray-Advantage System is a simple way for any lab to afford the power of array analysis.

The ULTRArray Membrane is manufactured for Ambion, the RNA Company, by Incyte Genomics.
The ULTRArray-Advantage reagent System contains patent pending and novel technologies developed by Ambion.

Circle No. 26 on Readers' Service Card

iBlink™ Info

PRODUCT INFO IN A BLINK!

For an instant iBlink™ email regarding ULTRArray™-Advantage System information, contact us at iblinkarray@ambion.com. Information may also be obtained by phone or fax.

U.S. (800)888-8804

Canada (800)445-1161

For a complete list of distributors visit http://www.ambion.com

Ambion®

THE RNA COMPANY™

AMBION, INC. • 2130 WOODWARD ST. • SUITE 200 • AUSTIN, TX 78744-1832
tel(512)651-0200 • fax(512)651-0201 • email: moinfo@ambion.com • www.ambion.com

NEW PRODUCTS

Visual Cloning 2000
Redasoft

Academic, $399.00;
corporate, $599.00
www.redasoft.com

BROWSER PLASMID TOOL

Visual Cloning 2000 (VC 2000) is a Windows-based program that includes an integrated Web browser. This clever design allows for a quick and easy way to draw plasmid maps and to use the vast power of the Web. Basic analyses such as restriction digests, primer design, open reading frame (ORF) identification, and subsequence search can also be performed on imported DNA sequences. Buttons to the left of the work window enable easy navigation through the VC 2000 options. Clicking "Map View" displays the map drawing area where plasmid maps can be drawn. A plasmid drawn without an associated sequence file can contain specified regions and labels but cannot be analyzed with the use of any of the other program tools.

Sequences can be imported into VC 2000 from text or HTML files, or they can be downloaded from an online database. After a map type (circular or linear) has been specified, a graphical image of the sequence appears. Regions can easily be assigned by defining their starting and ending position, direction, and name. In this manner, important regions such as antibiotic resistance genes can be visually defined within the plasmid map. The plasmid sequence can be restriction mapped, yielding a list of all enzymes that cut within the sequence. Specific enzymes may be selected for restriction site searches, and the user may choose to display restriction sites based on the number of cuts, resulting overhangs, or length of the recognition site.

VC 2000 can search for ORFs in all six frames, and these can be added to the image map by simply selecting them. Translated ORF sequences can be analyzed by entering the Redasoft Web site. From there, the user can take advantage of many analysis tools, including a variety of algorithms to analyze hydrophobicity and even search for known protein motifs against the Prosite (protein sequence motif) database.

VC 2000 can locate subsequence domains and primer pairs for polymerase chain reactions or hybridizations. For the user who is more brave, an advanced settings dialog box allows the specification of variables such as percent GC content, salt and primer concentration, melting temperature, and oligonucleotide length.

In short, VC 2000 is powerful in its ability to quickly draw plasmid maps. The advantage of a direct link between the Internet and the workspace that this program provides cannot be overemphasized. There is virtually no learning curve for VC 2000; anyone can pick it up and draw a professional-looking map within minutes.

—Yiannis A. Ioannou

Gene Therapy and Molecular Medicine, Department of Human Genetics, The Mount Sinai School of Medicine, New York, NY 10029, USA. E-mail: yiannis.ioannou@mssm.edu

Pierce

For more information call
800-874-3723 or
circle 139
on the Reader Service Card
www.piercenet.com

CHEMILUMINESCENT EMSA KITS

The electrophoretic mobility shift assay (EMSA) is a powerful tool for evaluating DNA-protein interactions. Often referred to as gel shift or gel retardation, the assay is based on the principle that when subjected to electrophoresis, free DNA migrates differently than a DNA-protein complex. The Pierce LightShift Chemiluminescent EMSA Kit is a nonradioactive system for performing EMSA using the manufacturer's proprietary chemiluminescent detection technology. Capable of subfemtomole detection levels, the kit offers the sensitivity and speed of radioactive gel shift assays without the accompanying hazards, waste, and probe instability.

Genotech

For more information call
314-645-2050 or
circle 140
on the Reader Service Card
www.genotech.com

REAGENT FOR ENHANCING PCR AMPLIFICATION

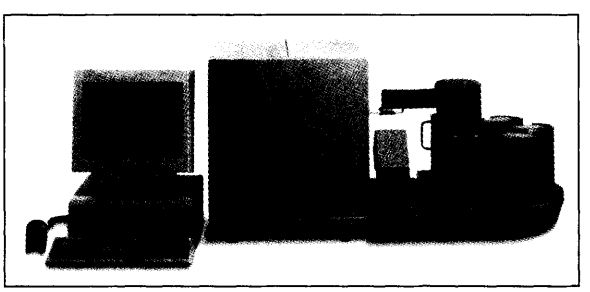
The *Gen-N-hancer* reagent is designed to enhance polymerase chain reactions (PCR) and facilitate amplification of difficult templates and GC-rich sequences. The user simply adds the reagent to the PCR reaction mixture to encourage higher primer specificity and broader annealing temperature optima by modifying the melting behavior of DNA.

Applied Biosystems

For more information call
650-638-6126 or
circle 141
on the Reader Service Card
www.appliedbiosystems.com

SEQUENCE DETECTION SYSTEM

The ABI Prism 7900HT Sequence Detection System is a real-time polymerase chain reaction (PCR) instrument designed for gene expression quantitation and detection of single nucleotide polymorphisms (SNPs). Identifying promising targets is the first step in developing new drug compounds, traditionally a slow, tedious, and expensive process. The 7900HT sequence detector offers a choice of assay chemistries to facilitate this goal. The probe-based, fluorogenic 5′ nuclease assay provides excellent sensitivity and the ability to multiplex reactions for real-time quantitation and SNP genotyping. The SYBR Green 1 double-stranded, DNA-binding dye assay is suited for target identification or for assays requiring only a small number of reactions. This system accommodates a higher plate density than previous-generation instruments, with no loss of speed, resolution, or reproducibility.



Universal Imaging Corp.

For more information call
610-344-9410 or
circle 142
on the Reader Service Card
www.universal-imaging.com

BIOIMAGING SOFTWARE

Version 4.5 is a full upgrade of the MetaMorph bioimaging software system. It includes a streamlined interface for greater ease of use, an interactive training CD, and powerful new functions for advanced image acquisition, processing, and analysis. To make live-cell imaging more accessible to new users, the system now features application-specific toolbars, such as the Fluorescence Tools for acquiring multiple wavelengths from digital cameras, measuring colocalization between probes and overlaying images. Advanced features added to the program in-

CONTINUED ON PAGE 678

clude two deconvolution commands for removing haze from image planes and new functions for High Content Screening. MetaMorph 4.5 runs under Microsoft Windows 95, 98, and NT, with support for a variety of black and white and color cooled charge-coupled device cameras from major manufacturers.

Invitrogen
For more information call
800-955-6288 or
circle 143
on the Reader Service Card
www.invitrogen.com

UV-FREE GEL PURIFICATION KIT

The S.N.A.P. UV-Free Gel Purification Kit makes use of a unique crystal violet staining reagent to allow detection of DNA in agarose gels under ambient light. Traditional methods require staining agarose gels with ethidium bromide and visualizing DNA with ultraviolet (UV) light. Exposure to UV light nicks and damages DNA, reducing cloning efficiency. After visualization, DNA up to 20 kb can be rapidly isolated using a simple spin column format. The eluted DNA is intact, ultrapure, and ready for use in transfection, sequencing, or cloning.

Bio-Rad Laboratories
For more information call
510-741-1000 or
circle 144
on the Reader Service Card
www.bio-rad.com

PROTEIN STAINS

SYPRO Ruby protein gel stain, SYPRO Ruby protein isoelectric focusing (IEF) stain, and SYPRO Ruby protein blot stain are simple, single-reagent stains that provide highly sensitive detection of protein or peptides on one-dimensional or two-dimensional sodium dodecyl sulfate–polyacrylamide gel electrophoresis gels, IEF gels, or Western blots. These fluorescent proteins are quantitative and easily visualized with simple ultraviolet or blue-light transilluminators or laser scanners. An additional advantage of the stains for two-dimensional work is compatibility with downstream applications, such as microsequencing and mass spectrometry.

NEN Life Science Products
For more information call
800-446-0035 or
circle 145
on the Reader Service Card
www.nen.com

DIRECT FOCUSED ARRAYS

A new family of cDNA microarrays allows researchers to apply microarray technology in analysis of specific functional families of genes. The initial offerings of MICROMAX Direct Focused Arrays are suited for gene expression research in the fields of cancer and neuroscience. The product includes sets for three areas of research: human kinases and phosphatases, human transcription factors, and human oncogenes and tumor suppressors. Each Focused Array contains 250 to 350 specific genes for signal transduction research, gene expression regulation, or cancer research, providing broad coverage of a particular family of genes, resulting in data reduction efficiency. Overall assay time is 2 days.

Arcturus Engineering
For more information call
650-962-3020 or
circle 146
on the Reader Service Card
www.arctur.com

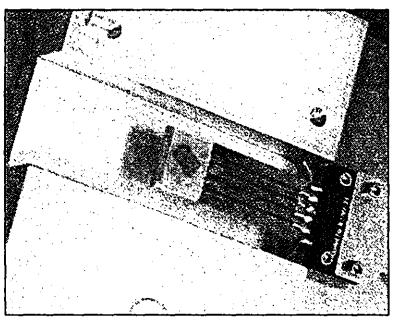
DNA EXTRACTION

An innovative DNA Extraction Kit is optimized for laser-capture microdissection (LCM) captured cells. Based on the proteinase K extraction method, this kit allows complete extractions from a variety of tissue types. The extracted DNA can go directly from digestion to gel electrophoresis, polymerase chain reaction (PCR), quantitative real-time PCR, and other molecular analyses without any additional clean-up steps.

ThermoMicroscopes
For more information call
408-747-1600 or
circle 147
on the Reader Service Card
www.thermomicro.com

TEMPERATURE CONTROL FOR SCANNING PROBE MICROSCOPES

A new temperature control capability for a line of scanning probe microscopes (SPM) permits investigators to explore the effects of temperature on material properties measured with the SPM's high spatial resolution. Such effects are of particular interest to polymer scientists for whom the temperature dependence of mechanical properties such as compliance and adhesion are of paramount importance. The new capability includes a temperature control stage and an environmental enclosure. The temperature control stage has an operating range of –20°C to 300°C.



SensIR Technologies
For more information call
203-207-9700 or
circle 148
on the Reader Service Card
www.sensir.com

MOBILE FT-IR SYSTEM

The Travel*IR* is the first mobile Fourier transform infrared spectroscopy system that performs fast, accurate, lab-quality analysis on location. The Travel*IR*, using available spectral libraries, permits an on-location analyst to immediately identify the chemical composition of most samples, both liquid and solid. The instrument's innovative technology enables micro or macro analysis without sample preparation, and presents single- or multi-bounce crystal options to achieve superior spectra, even on highly absorbent samples.

Micromass
For more information call
+44 (0) 161 945 4170 or
circle 149
on the Reader Service Card
www.micromass.co.uk

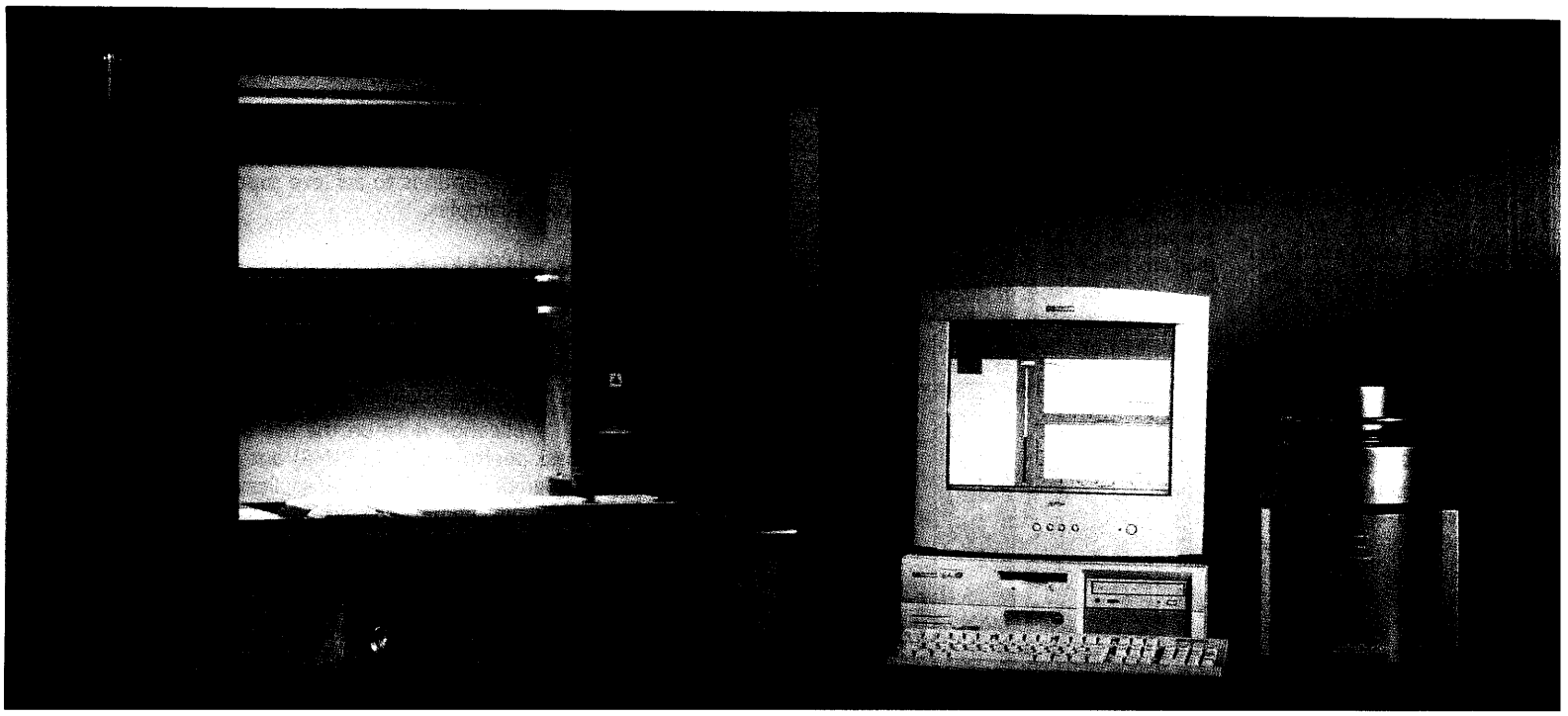
LITERATURE

Ion Optics of Multi-Collector ICP-MS Systems for Precise and Accurate Isotope Ratio Measurements is a technical note and *The Quantitative Analysis of DNA Adducts Using MicroHPLC/Platform ICP-MS* is an application note on the use of inductively coupled plasma–mass spectrometers (ICP-MS) and high performance liquid chromatography (HPLC) in these applications.

VWR Scientific Products
For more information call
800-932-5000 or
circle 150
on the Reader Service Card
www.vwrsp.com

VWR bioMarke is a 52-page magazine offering equipment, chemicals, and supplies for life science research. It features product news, technical articles, and application guides that can help the researcher with product selection and productivity. The current issue emphasizes products and application discussions geared to drug discovery applications.

Newly offered instrumentation, apparatus, and laboratory materials of interest to researchers in all disciplines in academic, industrial, and government organizations are featured in this space. Emphasis is given to purpose, chief characteristics, and availability of products and materials. Endorsement by *Science* or AAAS of any products or materials mentioned is not implied. Additional information may be obtained from the manufacturers or suppliers named by circling the appropriate number on the Reader Service Card and placing it in a mailbox. U.S. postage is free.



From Sample to Results in Less Than Three Hours

Perform nucleic acid purification and analysis more quickly and more precisely with MagNA Pure LC and the LightCycler Instrument.

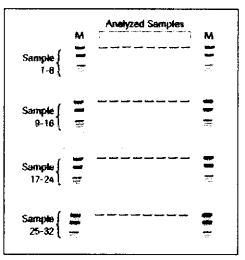
Process samples faster: Isolate DNA, RNA, or mRNA in less than two hours, then view quantitative PCR results on-line only 30 minutes later.

Fully automate sample processing: Combine MagNA Pure LC, the LC Carousel Centrifuge, and the LightCycler Instrument to process samples with minimal "hands-on" time, freeing technicians for other research.

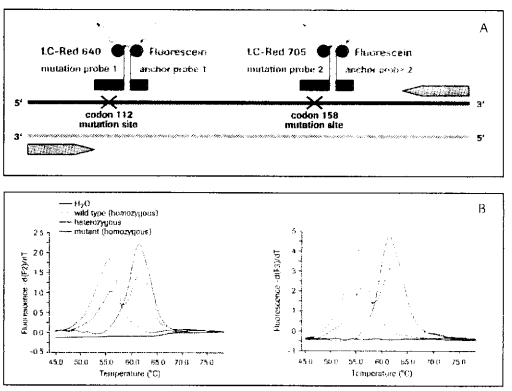
Achieve greater precision and flexibility: Precisely control pipetting, reaction set-up, and thermal-cycling temperatures to obtain more accurate, reproducible results.

For more information, visit our web site **http://biochem.roche.com/lightcycler** or contact us at **(800) 428-5433.**

Order 24 hours per day at www.IbuyRMB.com



Genomic DNA isolation from 32 samples of human whole blood using MagNA Pure LC. *No visible intra-assay variance.*



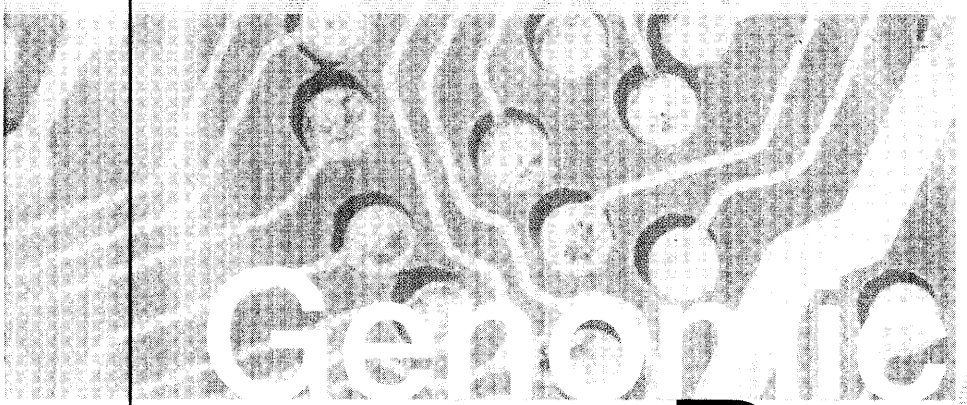
Dual-color genotyping using the LightCycler Instrument.
A. *Schematic of the PCR.*
B. *Melting curve analysis was performed on different genotypes at codons 112 and 158 of the Apo E sequence (in channels 2 and 3) to discriminate wild type, heterozygous, and mutant genotypes.*

Roche

Roche Diagnostics Corporation
Roche Molecular Biochemicals
Indianapolis, IN

Circle No. 65 on Readers' Service Card

Functional Genomics



Genomic Revolution

Having successfully sequenced the genomes of humans and other organisms, life scientists plan to use sequence data to understand precisely how genes operate. Their vehicle: a group of technologies that goes under the collective name functional genomics.

BY PETER GWYNNE AND GARY HEEBNER

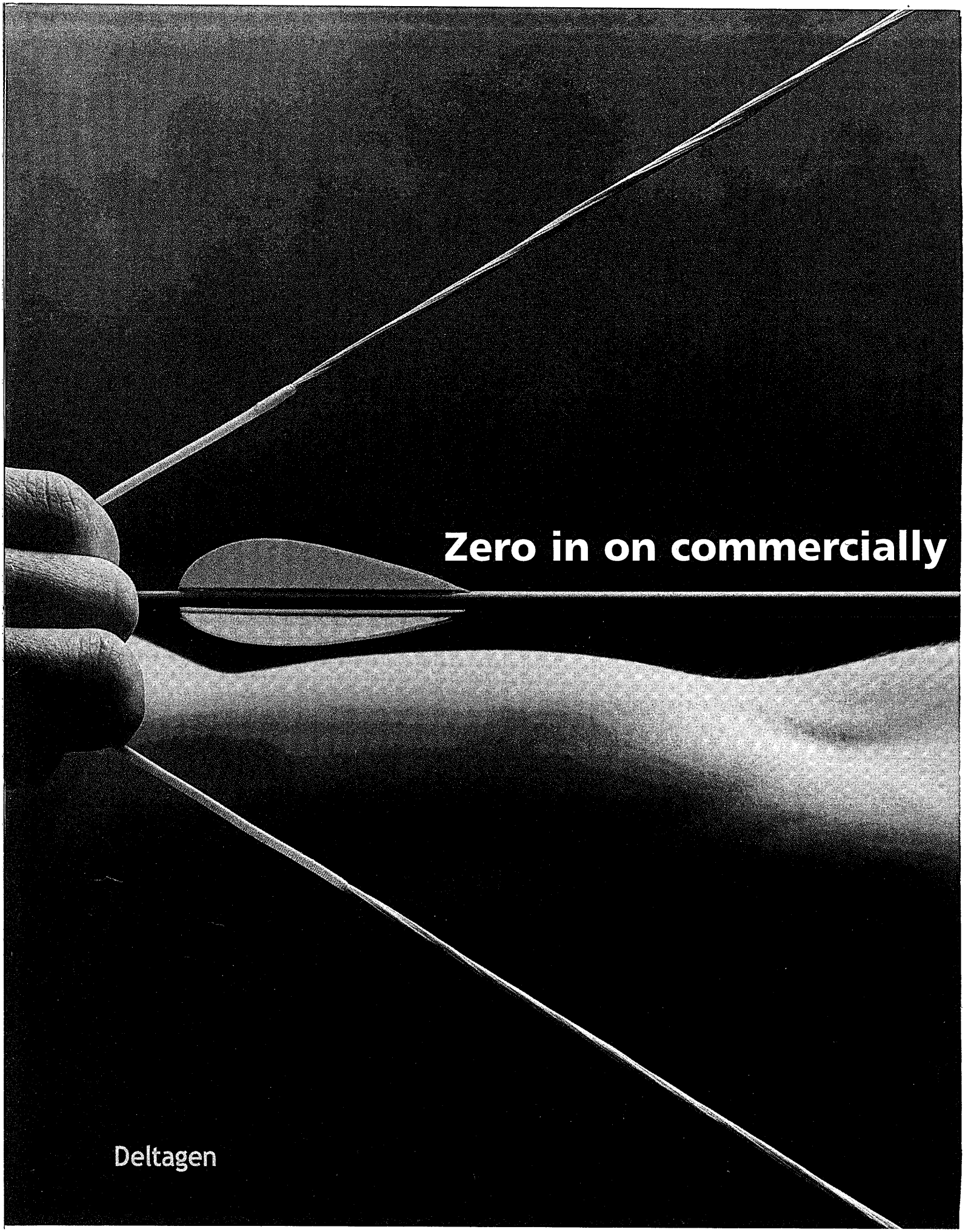
Section Headings:

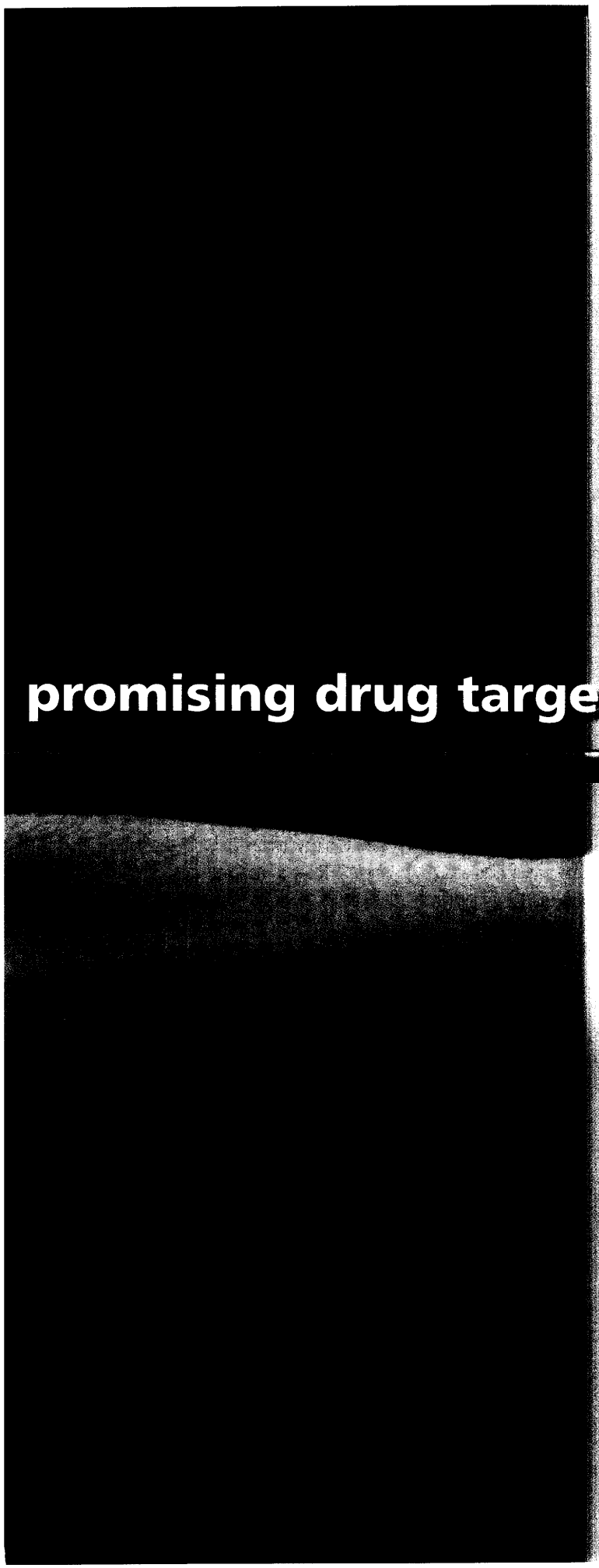
The companies in this article were selected at random. Their inclusion in this article does not indicate endorsement by either AAAS or *SCIENCE*, nor is it meant to imply that their products or services are superior to those of other companies.

For scientists exploring the underlying basis of living organisms, last year was an *annus mirabilis*. Both the government-backed Human Genome Project and Celera's commercial sequencing project completed working drafts of the roughly three billion-base DNA sequence of the human genome. Those drafts represented the culmination, well ahead of schedule, of a long-sought and ambitious goal. But far more than an end, or even a milestone, the successful sequencing of the genomes of humans and other organisms represents the beginning of an endeavor whose results will revolutionize research in life science and the practice of medicine.

The sequencing efforts have led to new banks of data that scientists are painstakingly trying to understand. The situation resembles the discovery of a lost language. Capable linguists reading a textbook written in such a language would have occasional revelations of the subject matter's

continued ➢


Zero in on commercially
Deltagen



With so many potential targets, where do you direct your discovery effort?

DeltaBase provides extensive *in vivo* functional information on hundreds of disease-relevant mammalian genes. Armed with this information, you can move directly to validated targets and make faster decisions about therapeutic value.

promising drug targets with DeltaBase™

To experience the power of DeltaBase, aim your browser to **www.deltagen.com.** Register for our online demo and receive a **FREE** t-shirt.

DeltaBase™

Take the lead

Circle No.17 on Readers' Service Card

meaning. But most of the time they would be unable to decipher the contents. Life scientists trying to comprehend genome sequences know the various sequences of DNA in the human and other genomes. But for the most part they have little information on what most of the DNA codes actually mean. "We have hieroglyphics and are trying to understand them," explains Frank Bayliss, professor of genetics at San Francisco State University.

The next step in this journey begun by the successful sequencings will be to determine what each of the many human genes code for. This field of study, functional genomics, consists of all the work done to bridge the knowledge gap from DNA (or genes) to proteins (or function). The field is growing rapidly as scientists and commercial vendors continually develop innovations and new tools for research. In particular, researchers are discovering new ways of managing the tremendous volumes of sequence, conformation, and functional data now pouring out of the sequencing laboratories, while manufacturers are scrambling to keep their products at the state of the art, and thereby serve the needs of these pioneering researchers more effectively.

Functional genomics flows naturally from life's chemical foundation. Deoxyribonucleic acid (DNA) is the basic building block from which genes are made. Different arrangements of DNA's four bases code for different genes. The set of 23 human chromosomes consists of 30,000+ genes, almost all of which code for proteins. The proteins perform several tasks. They can build up structures in tissue, such as collagen. They can regulate processes in cells, such as protein kinases. And they can participate in cellular communication, via receptors for example. Knowing the proteins for which each individual gene codes will help scientists unravel the nature of life at the molecular level.

That research will also put investigators on the move toward "personalized medicine" — the treatment of individual patients based on their individual genetic traits. That approach is desirable because variations occur in the DNA sequences of specific genes in different individuals. Those variations appear to be linked to each individual's likelihood of contracting a particular disease. The variations, called Single Nucleotide Polymorphisms, or SNPs, usually occur at a single base position in the DNA sequence. In the human population, says John Stubbs, professor of molecular genetics at San Francisco State University, "SNPs occur perhaps once every 100 base pairs." Researchers have already associated some SNPs with increased risk of certain diseases. They have shown that they can use other SNPs to help predict an individual patient's response to a particular drug treatment.

Fuzzy Definition for Functional Genomics

Functional genomics has almost as many definitions as practitioners. That's hardly surprising because scientists are only beginning to figure out the emerging discipline's fundamental parameters. "Everyone has a different definition because they do different biology," explains Colin Collins, assistant professor in the University of California, San Francisco's Cancer Research Institute. Collins's own view: "I think functional genomics is applying genome sequences to solve biological problems, be they clinical problems or basic science questions." Hilary Clark, a bioinformatics specialist at Genentech, Inc., agrees that genome sequencing segues naturally into functional genomics. "I see functional genomics as the second generation of the Human Genome Project," she says.

Other scientists point to functional genomics' place in the broad swathe of progress in life science. "They see it as covering areas that have to do with the expression of the genome and the identification of genes, subjects associated with disease and development," says Randy Dimond, chief technology officer at Promega Corporation. "They see it also going downstream to cover proteomics and cellomics. In other words they look at how gene function affects cell behavior." Bayliss echoes that thought. "It's the idea that you can relate the phenotype to the genotype and then do something about it," he says.

The pharmaceutical industry takes a more utilitarian attitude to the role of functional genomics. "We come from a pragmatic point of view that defines the function of a protein or a biological macromolecule as a drug target," explains Manfred Auer, head of the flourescence-based high throughput screening program at the Novartis Forschungsinstitute in Vienna, Austria. "From our point of view drug discovery is in the center of the issue." The definition posted on the Novartis website emphasizes that point: "Functional genomics describes a platform of technologies which aims to establish a functional relationship between a particular genotype and a given disease state, including technologies such as differential display, proteomics, model organisms and bioinformatics, among others."

That doesn't mean that functional genomics represents a new and entirely different form of life science. "There's nothing new quantitatively in functional genomics," points out Maynard Olson of the University of Washington's Genome Center. "It involves applying the methods of biochemistry, molecular biology, and cell biology worked out in recent decades to look at all the genes and all the proteins. What's new is the scale." Gary Pelz, head of the genetics and inflammatory diseases unit at Roche Biosciences, puts that point more pithily. Functional genomics, he says, "is conventional biology performed in a high-price environment."

continued ➢

What's behind the genomic revolution?

InforMax®
High-Throughput Research™

GenoMax™
Enterprise Bioinformatics System for High-Throughput Research

Vector NTI® Suite
Desktop Software for Integrated Sequence Analysis and Data Management

www.informaxinc.com | 800-357-3114 | 301-984-2206 | 44 (0) 1865 784 580

Circle No. 43 on Readers' Service Card

Ample Rewards

But if it carries a large price tag, functional genomics also promises ample rewards. Potential benefits range from improving agricultural crops and animals to diagnosing illness and combating disease. Ultimately it may even give the medical profession the ability to use gene therapy to restore order to a cellular control system that has gone haywire.

Functional genomics has already pointed the way to food crops genetically enhanced to withstand drought, resist potent weed killers, and even produce natural pesticides genetically coded for by the food crop itself. It can also enhance the natural ability of animals to produce milk or yield meat.

Life scientists tempted to think that their work will effortlessly lead to a genetic nirvana have learned a hard lesson from the controversy that has surrounded genetically modified organisms. Protests against what many groups regard as the stealthy introduction of genetically modified foods have blossomed, particularly in Europe. The concerns focus on the foods' possible impact on both human health and the environment. In response, many consumers have shown great reluctance to buy such foods.

The prospect for genetically enhanced foods isn't entirely bleak, however. With more controlled testing, better understanding of the effects of genetically altering animals and crops, and more sensitivity to the general pubic, this area of applied science seems likely to produce great benefits for people worldwide.

Few observers expect medical applications of functional genomics to attract the same type of controversy. After all, researchers in that area have the example of their agricultural peers to warn them of the dangers of hubris. Just as important, medical applications offer a much more obvious benefit-risk ratio than agricultural uses. Further, the relatively slower advance of medical uses will give the public more time to accept the idea of genetically based intervention against disease.

SNPs appear likely to play a very significant part in molecular diagnostics; after all, life scientists have shown that several of these DNA base changes help to determine an individual's risk of developing a specific disease. As research associates SNPs with various diseases, clinicians expect to develop diagnostic tests to screen populations for individuals at increased risk of disease. These tests will have particular value in identifying individuals who show no symptoms at the time of conventional screening. "SNPs will create a major direction for functional genomics," says Stubbs. "We can foresee individualized therapy based on them."

Getting to that point won't be easy. "There are now millions of SNPs in the public databases, compared with thousands a few months ago," says Olson. "But the fact is that we know almost nothing about genetic variation among individuals. We need to expand research into model organisms such as yeast, worms, and fruit flies." That, he says, will determine the feasibility of personalized medicine. "If a small number of genetic variants has a major effect, that could lead to personalized medicine," he explains. "We really don't know if that will be the case, but we need to approach it as a science project rather than one that will lead quickly to practical applications."

"I'm basically a genomics scientist working on cancers," says Colin Collins of the University of California at San Francisco's Cancer Research Institute. His approach: using functional genomics to classify similar-looking cancers into different types. "We hope to be able to stratify patients into different treatment modalities based on the genetics of their tumors," Collins explains. "For example, we will be able to tell whether a tumor is relatively indolent or highly aggressive and respond accordingly."

For its first project the team has chosen to concentrate on prostate cancer, which kills more individuals than breast cancer. The team has gathered tissues from 800 prostate tumors, along with complete clinical records and follow-up observations of the patients' responses to therapy. "We need to correlate those phenotypes with the genomes," Collins points out. "Prostate tumors often look very similar, as can breast cancer tumors. However, similar-looking tumors can have very different conclusions. It is like trying to predict the performance of an automobile without looking under the hood. Genomics will let us look under the hood for the first time."

The team has also started to apply the same methodology to ovarian cancers. Prediction of genetic predisposition is critical here, Collins says, because "by the time you know you have it, it is usually in an advanced stage."

The work demands a good deal of hubris. After all, the observations occasionally suggest therapies at odds with the opinions of experienced clinicians. Says Collins: "We have to analyze masses of data and be so good at our analysis that clinicians trust us when their intuition says otherwise."

Proteins, Pathways, and Leads

Investigation of SNPs represents just one application of functional genomics. As life scientists gain better understanding of the function of each gene, they will almost certainly discover proteins that are components of pathways critical for cell survival, or that are involved in a disease process. The regulation of those pathways will be a main area of focus for biopharmaceutical and biotech companies.

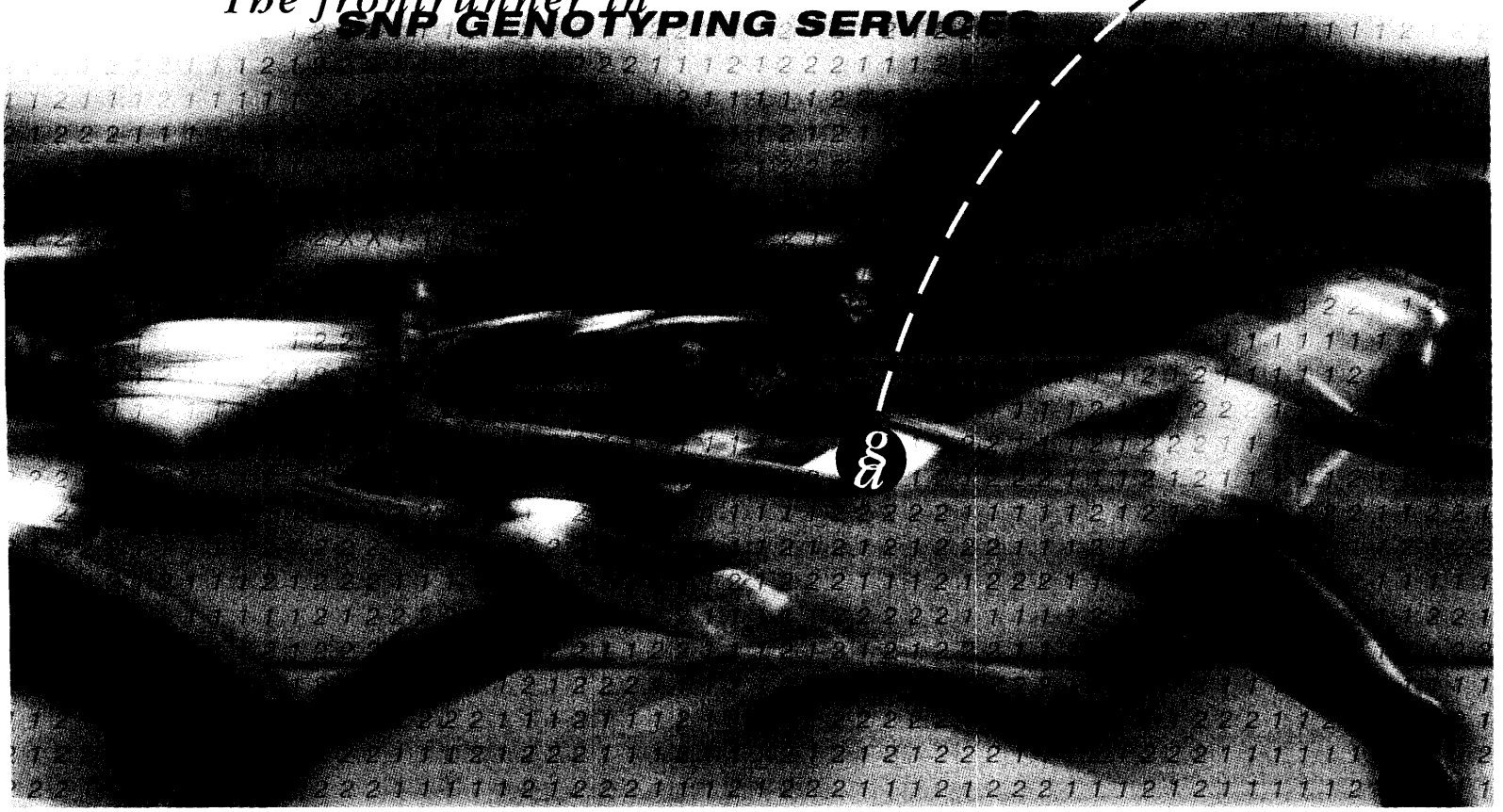
Targets are the specific points for drug intervention in the biochemical pathways. Drugs that affect these targets can block or enhance a desired activity or function. Pharmaceutical companies are working on screening for and development of drugs that affect these targets. By identifying new proteins and determining their activities, researchers using functional genomics will produce potential new targets for drug therapy. Companies in the business of finding potent drugs to inhibit or stimulate the activity of a target are being flooded with new potential targets.

continued ➢

www.qiagengenomics.com

The frontrunner in

SNP GENOTYPING SERVICES



fast, reliable, proven

QIAGEN Genomics is your SNP genotyping solution. Our powerful Masscode™ DNA tagging system allows us to use incredibly small amounts of gDNA — and to multiplex 15 SNPs deep. Results are reproducible and delivered on time in an easily integrated report format. For medium to high throughput genotyping projects, we can help your team get to the finish line faster. For more information about our affordable and flexible SNP genotyping services, call 1-866-QGI-SNPs (1-866-744-7677).

QIAGEN Genomics, Inc., a member of the QIAGEN group

QIAGEN genomics

Circle No. 79 on Readers' Service Card

The work will demand advances in producing, screening, and validating leads (that is, compounds that act on the targets). Methods of analyzing and managing data must continue to progress at impressive rates if scientists are to maintain control of the databanks that are increasing, both in absolute number and the amount of data they contain overall.

Not surprisingly, vendors that provide reagents, equipment, and services for academic and industrial researchers and their laboratories have moved rapidly to establish positions in the field. "Everyone wants to be involved," says Kimberly Hansen, product manager for genetic analysis reagents at Applied Biosystems. "The trend to go into functional genomics is developing now as more customers have big plans to do comparative sequencing."

More customers mean more compounds and more screening. As the number of gene-protein relationships grows, so does the number of targets to consider for possible drug intervention in a disease process. To deal with that extra number, researchers need faster screening methods. Systems and instruments capable of handling very small volumes and performing repetitive pipetting and washing operations have enabled researchers to produce and screen large numbers of samples without being overwhelmed by the repetitive and boring work associated with these procedures.

Smaller volumes and greater automation allow researchers to obtain their results faster. And as reagent volumes decrease, so does the cost of reagents. Equally significant, lower volumes reduce the sometimes heavy cost of disposing of chemical wastes. Since regulations have forced institutions to become more environmentally conscious, that saving means an attractive benefit.

Paying attention to needs of their customers, manufacturers are adapting their instruments and sampling systems, such as microwell plates, to handle ever-decreasing sample sizes and ever-increasing numbers of samples. High throughput screening (HTS) is now pushing into the area of ultrahigh throughput screening (UHTS) with sample volumes in the microliter range and formats that handle 1,536 samples per plate. LJL Biosystems and Packard Instruments, among other companies, specialize in instruments for HTS.

Novel Screening Method

A novel method of screening stems from assays developed by German company EVOTEC BioSystems AG. It uses a unique detection technology based on confocal fluorescence microscopy. "We want to leverage the technology across the drug discovery chain," says Rodney Turner, EVOTEC's senior vice president for new business systems. "An application called PICKOscreen that we have developed with Novartis uses the platform to unify the disciplines of chemistry and functional genomics." In conjunction with Novartis's own patented dye system, called AIDA, Auer uses the technology to examine the surface-bound chemistry of beads. "We are addressing the question of how to use novel reagents from functional genomics programs, such as proteins and RNA, in an effective way for drug screening and functional characterization of potential targets," he explains.

Life scientists use several common methods to identify SNPs. One examines populations of individuals with and without a given disease or other trait to identify differences in their genes that might account for the variations in phenotype, or physical trait. Myriad Genetics, for example, has developed a test based on identifying a SNP in the gene that codes for angiotensinogen, a precursor to the vasoconstrictor angiotensin I. The test helps to determine an individual's risk of developing heart disease. Another SNP strategy is based on sequencing the human genome and then looking for variations from this sequence in individuals that may account for a particular disease. As the number of such finds grows for a particular disease-related SNP, the evidence grows to support that SNP's association with a particular disease or trait.

Databases are critical for detecting SNPs. In 1999 an international group of scientists organized the SNP Consortium to identify and provide public access to up to 300,000 SNPs. By July of last year the consortium had identified over 140,000 SNPs and had mapped 102,719, on the way to completing the database late this year. The access to data on newly identified SNPs should provide new targets for drug development. The pharmaceutical industry stands to benefit from the project in another way: SNPs identified through the consortium's efforts will not be patented and kept from use by others.

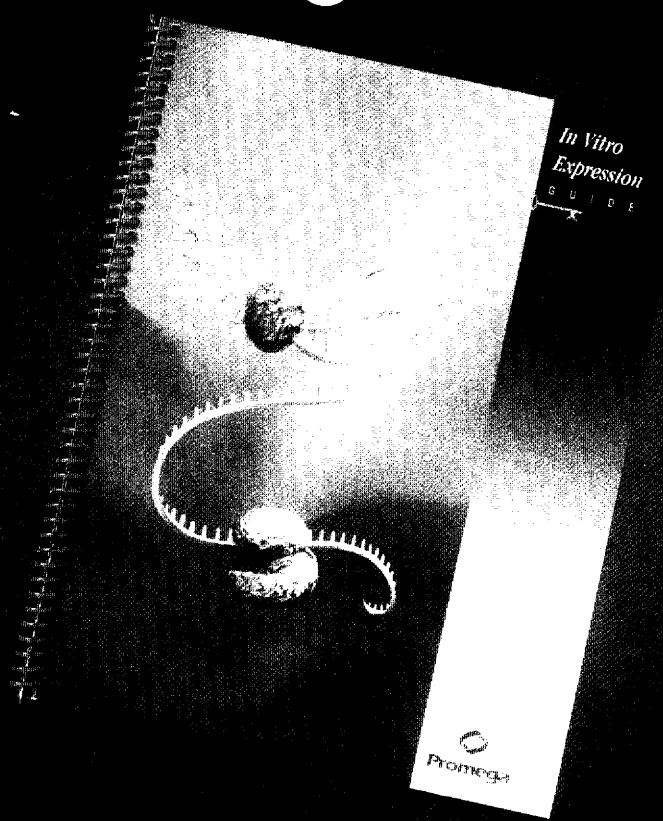
Standard Techniques

The tools used in functional genomics include reagents and supplies, instruments, and computer software. Researchers want to run larger numbers of tests in a given time, to see less variability between tests, and to work with ever-smaller volumes of samples. Those requirements are driven by the need to improve efficiency and throughput and to lower costs.

Functional genomics relies on several standard

continued ➢

Hidden Identities. Secret Relationships. Drug Use.



It's The Tell-All Book Of The Year.

Our new In Vitro Expression Guide helps you uncover the secrets of protein functionality and interaction. Over 70 pages of helpful information on bridging the gap between genomics and proteomics. For your free copy, circle the reader service card or visit our "tell-all" website.

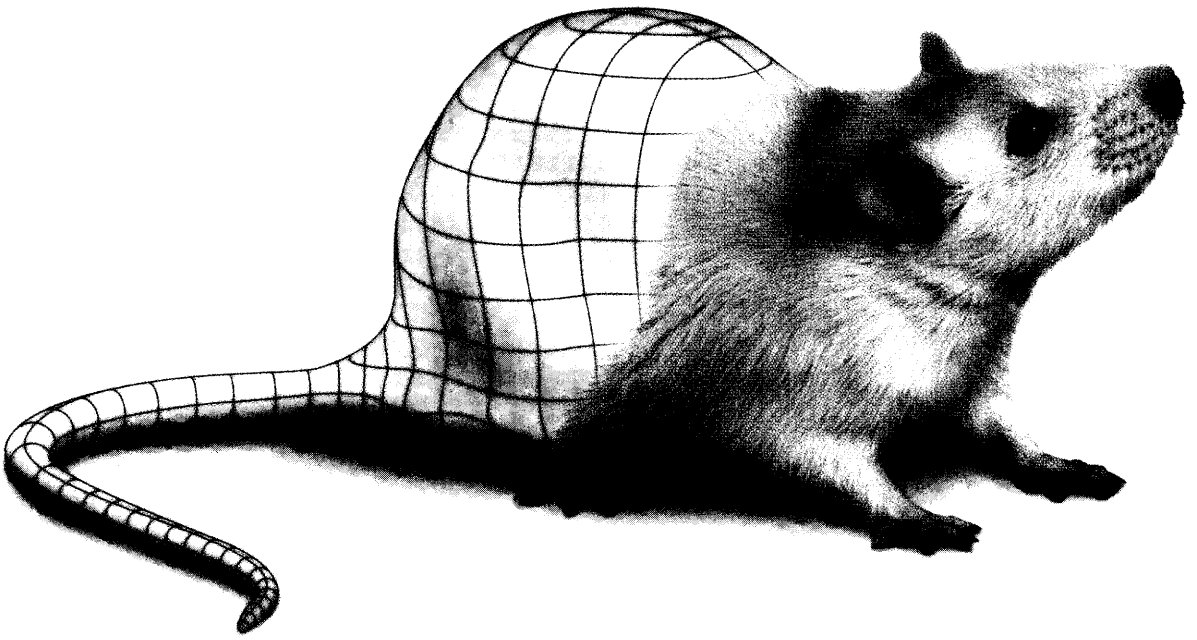
www.promega.com/exp/invitro1

Circle No. 8 on Readers' Service Card

Promega Corporation • 2800 Woods Hollow Road • Madison, WI 53711-5399 USA • Telephone 608-274-4330
Fax 608-277-2601

Promega
www•promega•com

Bring your genomic expression data to life.



GeneSpring™

EXPRESSION ANALYSIS SOFTWARE

Turning complex data sets into something useful requires an effective tool, and GeneSpring is the most comprehensive and user-friendly analysis tool available. Use GeneSpring to analyze and visualize large sets of multi-dimensional genomic expression data in order to identify trends and understand relationships within them. GeneSpring will help you see your data in a whole new way.

PLEASE VISIT OUR WEBSITE WWW.SIGENETICS.COM TO VIEW A TUTORIAL OR DOWNLOAD A DEMO OF GENESPRING.

SILICON GENETICS

2601 SPRING STREET, REDWOOD CITY, CA 94063 • PHONE: 650-367-9600 · WWW.SIGENETICS.COM

Circle No. 7 on Readers' Service Card

NEXT STOP: PROTEOMICS

Why stop at genes? A few life scientists regard genomics as a brief way station on the path to the real purpose of current research in life science, which is expressed through proteomics. This emerging subdiscipline relates to proteins in the same way that genomics relates to genes.

"I think people are interested in function. That's where drug targets, new drugs, diagnostics, and understanding of complexity come from," says Keith Williams, CEO of Australian company Proteome Systems Pty. Ltd. "At the end of the day, scientists are really interested in proteins as functional molecules. It is important to understand that proteins are not just strings of amino acids but that real proteins are decorated with various modifications that are crucial to their activity state. Hence people are beginning to be interested in protein modification." In other words, he continues, "We believe in real proteins."

Expressing that belief, "We are focused on developing integrated proteomic technologies that speed discovery," says Williams. "We are committed to innovation, collaboration, and high throughput analysis." The company is already working with Sigma-Aldrich and Japanese instrument company Shimadzu to adapt its proteomics platform to the needs of proteomics researchers.

A large part of the company's commitment involves simplifying the technically challenging world of protein science with the goal of persuading molecular biologists to put confidence in the company's technical solutions. "People say that you can't fractionate very large or small proteins or handle membrane proteins," Williams says. "We have solved those problems and are building new instruments that enable high throughput analysis using microfluidic printing techniques. We're getting very confident that we can apply any technique used in protein chemistry to our 'chemical printing' approach. Our new technologies not only allow us to build protein chips from authentic proteins, but we can also archive our samples for future analysis."

techniques. One uses restriction enzymes to cut DNA at precise locations and then separates the fragments by electrophoresis on agarose gels. Researchers then compare data from different digests to determine the actual DNA sequence of longer stretches of DNA. Companies such as Amersham Pharmacia Biotech, Life Technologies Inc. (Gibco/BRL), New England Biolabs, Promega, and Roche Molecular Biochemicals have played important roles in making restriction enzymes readily available.

The key development that enabled genomics, however, was introduction of the polymerase chain reaction (PCR) discovered by Cetus Corporation scientist Kary Mullis in the early 1980s. By allowing scientists to replicate DNA to amounts of sample that could be analyzed with biochemical methods, PCR helped to transform the way molecular biologists approached their work. In the early 1990s Perkin-Elmer, which commercialized the technology developed by Cetus, formed a strategic alliance with Hoffmann-La Roche to advance the technology. Over time many more companies have entered this market with their own versions of Taq polymerase, the enzyme at the heart of PCR.

Manufacturers have improved Taq polymerase over time to yield better copy fidelity and to enable longer copy runs. Most recently they have developed a hot start version of this enzyme designed to prevent Taq polymerase from amplifying DNA sequences at room temperature, before the intended start of an experiment. Clontech, Invitrogen, Stratagene, and several other companies offer this most recent version of Taq.

The first PCR experiments took place in heating blocks or water baths. A routine laboratory setup might have included a bench covered with individual heating block devices or baths, each of which would be set at a different temperature to control the Taq polymerase's activity. Of course, the researcher would need to be present at just the right time to carry out the tedious job of moving the samples from one unit to the next. Many experiments were ruined because scientists were in the wrong place when the timer (often clipped to their lab coats) sounded. The variability between experiments was often just too great to allow use of these data.

Manufacturers soon developed microprocessor-controlled heating blocks, called thermal cyclers. These programmable devices allow researchers to preset the temperature and the time periods for each temperature in advance and then let the thermal cycler run unattended. The units decreased the variability between experiments in a lab and also made it easy for labs to compare their results using the same parameters with standardized instruments. Applied Biosystems offers many specialized units to handle small-scale applications as well as high throughput needs. Other suppliers of thermal cyclers include Eppendorf Scientific, Ericomp, Hybaid, Stratagene, and Techne Ltd. Promega has just released a test version of a PCR product that combines Taq with buffers in a Mastermix compatible with high throughput screening. With the mixture, says Promega's product manager for PCR products Rick Smith, "You can set up a robotic application and leave for the day. You don't need to worry about temperature control in the room or at the robot."

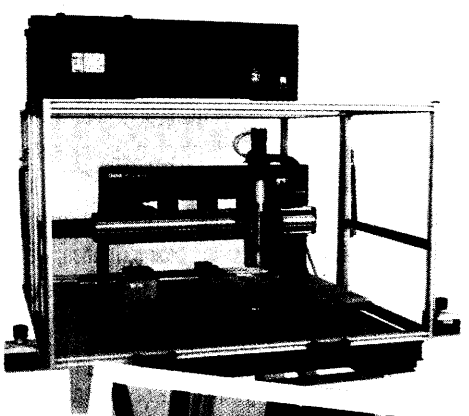
From PCR to Sequencing

Boosted by those technical developments, PCR pointed the way to genome sequencing. "All the molecular biology that led to understanding DNA polymerization has brought us to the point at which we can generate sequence data," says Bayliss of San Francisco State. And like PCR technology, DNA sequencing has grown spectacularly in technical sophistication. Just a decade ago it was a slow and laborious process that mainly used gel electrophoresis to separate DNA digests and determine their sequences. These methods had such poor reproducibility and accuracy that scientists often had to repeat experiments several

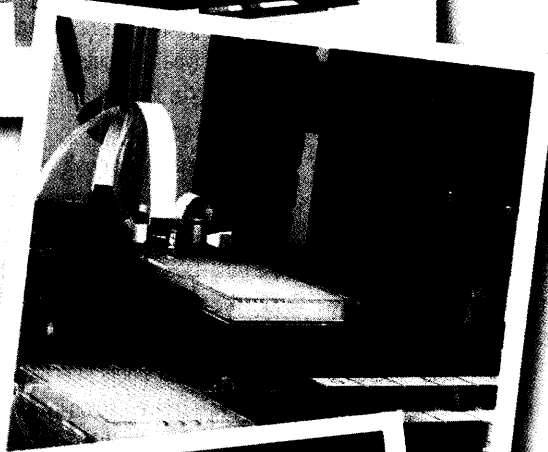
continued ➢

OmniGrid™: The most advanced high-throughput microarrayer.

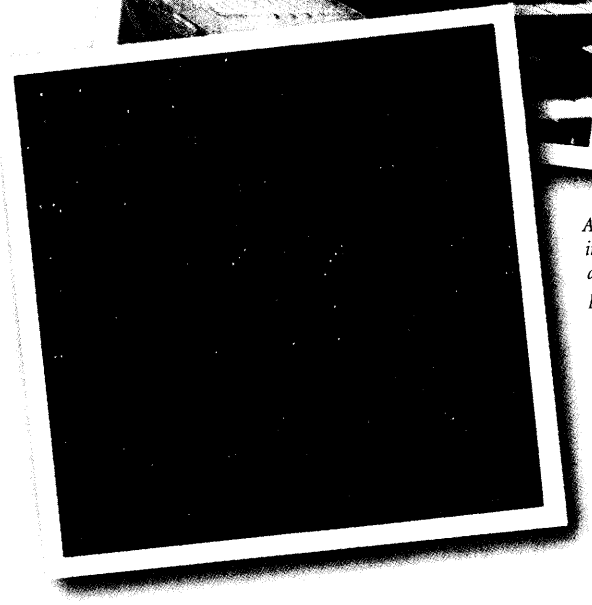
Omni. Potent.



OmniGrid microarrayer with complete environment control.



Exclusive GeneMachines® ServerArm allows fully unattended runs.



A scanned image of an array prepared using OmniGrid microarrayer. Data courtesy of David Galbraith and Mike Deyholos at University of Arizona.

1. 25K spots on 100 slides in 8.5 hrs–fully unattended.
2. 40K+ spots per slide.
3. 74-plate capacity.
4. Up to 48 pins.
5. Effortless sample tracking.
6. Flexible placement of samples & controls.
7. Random plate access.
8. Custom cleaning procedures.
9. Random sample access.
10. Plate lid removal/replacement.
11. ±2.5 micron accuracy.
12. Blotting capability.
13. Humidity control/HEPA filter.
14. Multiple pin types/brands.
15. 20+ pin configurations.
16. Easy-to-use GUI interface.
17. Multi-level user access.
18. State-of-the-art engineering.
19. 2-year warranty.
20. Available now.

Dependable microarrayers were hard to find. Until now.

The OmniGrid microarrayer combines industrial-strength components and elegant design to deliver quality samples fast. And do it day-in-and-day-out.

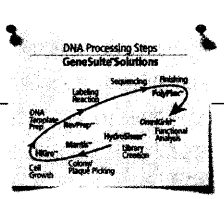
Just set up the easy-to-use software with your custom protocols, insert 96- or 384-well plates with desired substrate, start it up and walk away.

So choose the OmniGrid microarrayer for the long haul.

Call 1-877-855-GENE (4363) or visit www.genemachines.com today.

GENEMACHINES

WORK LESS. DO MORE.™



GeneSuite™:	HydroShear™	Mantis™	HiGro™	RevPrep™	PolyPlex™	OmniGrid™
	DNA shearing device	Intelligent colony/plaque picker	High-throughput incubated shaker	Walkaway DNA sample preparation machine	96-channel synthesizer for low-cost oligos	High-throughput, high-speed microarrayer

Circle No. 40 on Readers' Service Card

times to obtain useful and reliable data. The sequencing process included a fair amount of guesswork and the size of the DNA sequence which could be determined was also limited to around 1,000 bases. "The system was fraught with error," recalls Stubbs of San Francisco State. "The hybridization was very variable and a lot of factors were not controlled."

That has all changed. Advances in instrumentation and software resulted in DNA sequencing instruments which are now almost error free. These systems can be based on gel electrophoresis, and for high throughput applications they use capillary electrophoresis techniques. "We offer a variety of technologies to infer DNA sequences," says Applied Biosystems' Hansen. "They include mass spectrometry, real-time PCR sequence detection systems, and DNA arrays." Other companies that specialize in these sophisticated systems include Beckman Coulter and LI-COR. The manufacturers collectively provide a range of systems from small-scale DNA sequencing to stand-alone systems for high throughput sequencing and genetic analysis.

Swedish company Pyrosequencing AB recently unveiled a sequencing system for applied genetic analysis that has application to SNP analysis and Taq sequencing. "We expect within a few months to have tools for general short-to-medium length DNA sequencing," says Mårten Winge, the company's vice president of marketing and sales.

Technology for Tomorrow

Probably the most promising technology for future research in functional genomics is that of DNA microarrays. Based originally on work by Pat Brown of Stanford University and commercialized by Affymetrix, these offer high throughput capabilities and miniaturization of assays.

Traditional methods of molecular biology allowed scientists to study no more than a few genes at a time. That limited the throughput of samples and made quantitative comparisons between one experiment and another very difficult. Microarray technology, by contrast, permits comparisons of levels of expression among genes in an organism's genome by hybridization of messenger RNA to its counterpart DNA sequence. Microarrays enable researchers to study the properties of thousands of genes on a microscope slide in a single experiment. Companies that offer the tools needed to make DNA microarrays include GeneMachines, Hitachi Genetic Systems, and MWG Biotech.

Despite their relative novelty, these high throughput research tools have experienced rapid advances. The first chips required relatively large sample sizes or spots on the arrays. Vendors soon adapted manufacturing technologies from other industries to produce smaller and more consistent samples on these microscope slides.

Research scientists originally expected to design their own arrays suited to their own needs. Recently, however, several firms have started to offer microarrays customized to users' needs. "We are developing specific DNA arrays," says Jutta Huber, business unit manager for genomic discovery at German company MWG Biotech AG. "We focus on human arrays and other model organisms such as yeast, which is already sequenced, and rat, which is not well sequenced yet. We also support customers with specific requests for custom-designed arrays. And we offer complete genomic solutions." Display Systems Biotech, DoubleTwist, Genpak, and Operon Technologies also offer custom microarray services.

The Bioinformatic Imperative

As high throughput methods yield increasing amounts of data, the need for more sophisticated and intelligent ways of sorting that information grows. Imagine sitting at a laboratory bench trying to count a large number of repeating bases only to lose count after reading almost the entire run. To overcome that embarrassment and cope with the huge amount of data becoming available scientists use computer software. Such bioinformatics tools permit scientists who want to discover the function of an unknown gene, say, to search other sequence databases in hopes of finding a matching sequence in another organism whose function may already be known.

Many researchers have developed their own software programs for bioinformatics. To do so, though, they must know a great deal about programming or work with a programmer who understands biology and its medical applications well enough to be able to integrate the basic molecular biology with those applications.

Most life scientists can't acquire either the knowledge or a dedicated programming department. So they turn to specialists in bioinformatics to develop customized software tools for specific needs. At Genentech the mission is to develop drugs and meet unmet medical needs. "With microarrays, assays, and bioinformatics understanding we're able to screen through virtually all the molecules selected from cells and to test them all," explains Hilary Clark. "Using bioinformatics, we're able to do much more comprehensive searching for drug targets. We're examining a whole variety of human diseases, particularly heart disease and cancer. We're also studying inflammatory diseases such as arthritis, asthma, type 1 diabetes, and psoriasis. For these diseases we're looking at molecules expressed in the immune system."

Researchers who don't have a bioinformatics department down the corridor have an alternative. They can turn to bioinformatics companies such as DNASTAR, DoubleTwist, Genomic Solutions, and Oxford Molecular Group that offer suites of data analysis programs and services.

The list of providers keeps growing. Take MWG Biotech, which invented online ordering for oligos in 1993. "So far we have been offering private accounts on our servers that customers can log onto," says Stephan Bauer, division manager for genomic services worldwide. "This year we will offer complete integrated bioinformatics services for functional genomics." The basic philosophy of many new bioinformatics companies is to free up valuable research time for their customers. "Our thrust is to build a work space and a framework for bioinformatics all the way through," explains Tim Littlejohn, founder and chief scientific officer of Australian company eBioinformatics. "Our emphasis is on the biologists who will make discoveries using our tools. Because we make our system very usable, scientists can learn our protocols. We call ourselves a virtual facility."

Of Mice and Men

To study the function of a single gene, scientists must move it from the parent organism to a system where it can be replicated and expressed as a protein. DNA cloning allows researchers to isolate a

continued ➢

Take a More Productive Path

for DNA Sequencing and Fragment Analysis

Flexibility

Short or long runs from the sample plate

Automatic switching between sequencing and genotyping

Performance

- Longer read length
- Faster cycle times

Results

- Sequence up to 80,000 bases per day
- Manage difficult and complicated sequences

Make the Right Move

Trade up your sequencer to a CEQ™ 2000XL

- See our web site for details

Take a more productive path by visiting our web site at

www.beckmancoulter.com/CEQ2000

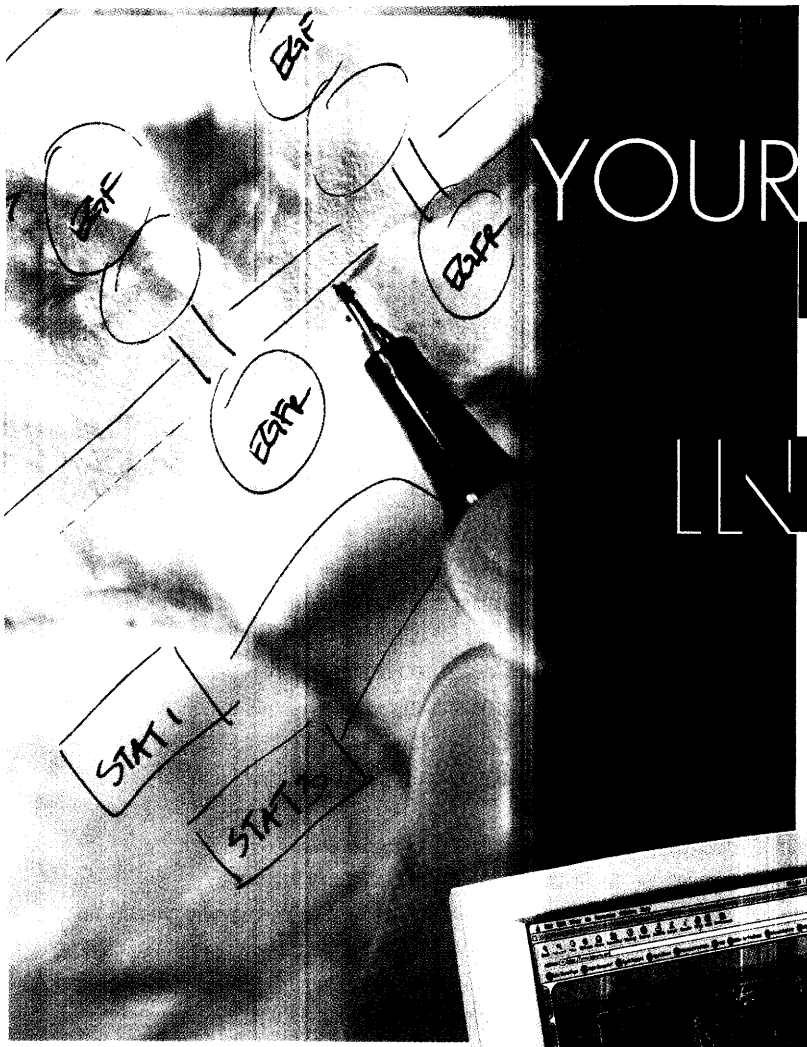
BECKMAN COULTER™

Innovate SIMPLIFY Automate

Worldwide Bioresearch Division Offices:

Australia (61) 2 9844-6000 **Canada** (905) 819-1234 **China** (86) 10 6515 6028 **Eastern Europe, Middle East, Africa** (41) 22 994 07 07 **France** 01 49 90 90 00 **Germany** (89) 358700 **Hong Kong** (852) 2814 7431/2814 0481 **Italy** 02-95-3921 **Japan** 03-5404-8359 **Mexico** 525-559-1635 **Netherlands** 0297-230630 **Singapore** (65) 339 3633 **South Africa** (27) 11-805-2011/5 **Spain** 91 728 7900 **Sweden** 08-98 53 20 **Switzerland** 0800 850 810 **Taiwan** (886) 2 2378 3456 **U.K.** 01494 441181 **U.S.A.** 1-800-742-2345.

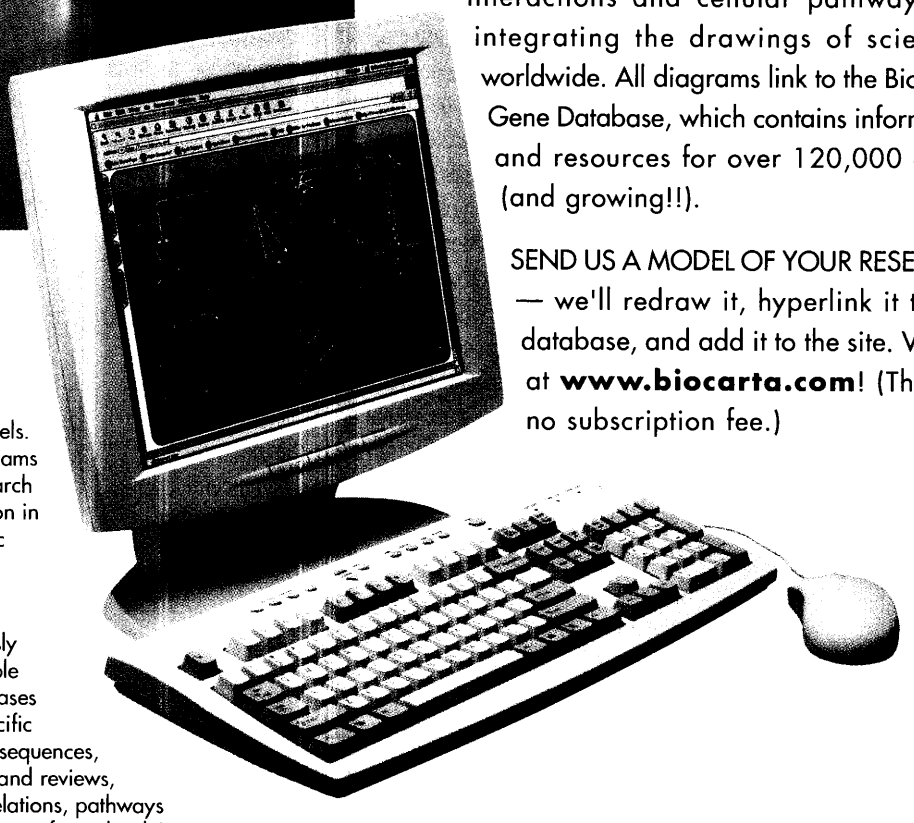
Circle No. 48 on Readers' Service Card



YOUR DOODLING CAN INFLUENCE MILLIONS.

BioCarta aims to provide the most comprehensive model of known protein interactions and cellular pathways, by integrating the drawings of scientists worldwide. All diagrams link to the BioCarta Gene Database, which contains information and resources for over 120,000 genes (and growing!!).

SEND US A MODEL OF YOUR RESEARCH — we'll redraw it, hyperlink it to our database, and add it to the site. Visit us at **www.biocarta.com**! (There is no subscription fee.)



View protein and cell signaling pathways through interactive graphic models. Submit diagrams of your research for publication in the Proteomic Pathway Project (P3).

Simultaneously search multiple online databases for gene-specific information (sequences, publications and reviews, disease correlations, pathways containing a specific molecule).

Present your research online as an ePoster to get immediate feedback from the scientific community. Browse descriptions of experiments and participate in online discussion with other ePoster authors.

Source reagents useful for your research from scientists worldwide in the Reagent Exchange. Advertise reagents you have or search for reagents you need.

Comment on pathways: suggest additions or corrections to pathways, help review the updates suggested by others in your field.

BIOCARTA

www.biocarta.com
info@biocarta.com

Circle No. 41 on Readers' Service Card

gene and transfer it into another, transgenic, organism. There, it will naturally replicate, producing multiple copies of the gene. It will also be expressed as protein. This method allows researchers to examine the function of a DNA sequence and determine what the gene actually codes for.

Recent advances in products for cloning include pretested kits that contain virtually all the reagents needed for conducting this work. Kits for DNA cloning are supplied by BD Biosciences-PharMingen, Epicentre Technologies, Invitrogen Corporation, Roche, and other molecular biology specialty companies. These kits allow researchers with little experience in molecular biology to conduct such experiments without having to spend many hours learning to optimize their own home brew systems.

Scientists can change the genetic makeup of an organism to study the roles of genes. Genetically engineered mice, referred to as knockout mice, harbor a particular gene sequence that is altered to keep it from being expressed. This can help scientists to determine what effect the loss of a specific protein in an organism has on other proteins. Knockout mice can also be used to examine the effect of changes in the base sequence of a gene.

Surprisingly, the mouse provides a good model for studying human gene function. Mice resemble humans at the basic level; humans and mice have about the same amount of DNA, for example. And since mice reproduce rapidly and have short life spans, researchers can study their inheritance profiles and their gene functions over several generations in a short time. "We've been using mouse genetic models for complex diseases," says Pelz of Roche Biosciences. "We use our genetic technology to identify a region that contributes to a trait. Then we use genomics technology to look at target organisms to see how genes are differentially expressed."

Several firms, among them Eurogentec, Lexicon Genetics, and Taconic, offer knockout production services. These companies allow researchers and pharmaceutical companies access to very sophisticated and specialized technology without the large setup costs and learning curves associated with developing these services in-house.

Understanding the Causes of Disease

One reason scientists pursue the function of each gene is to understand the disease process and the role that genes might play in altering individuals' metabolisms. In addition to identifying new functional proteins important in the disease process, scientists need to know more about how to regulate a biochemical or signal transduction pathway with drugs to block the action of a defective component. Improved knowledge will lead to new drugs that are targeted more effectively.

Several companies have begun discovery programs based on the design and development of small-molecule drugs that inhibit signal transduction pathways in cells responsible for diseases such as allergies and asthma, immune disorders, and cancer. Typically these target the intracellular proteins believed to be critical to the disease process. The small-molecule drugs bind to specific targets on these disease-causing proteins. Companies developing such pharmaceutical products include Kinetix, Merck, Millennium, and Mitotix.

In addition to modifying the activities of components in a signal transduction pathway, some companies hope to find cures for diabetes, Parkinson's, and other diseases by the ultimate application of functional genomics: replacing the defective gene with one that is functioning properly. This is the basis of stem cell therapy. While the concept is relatively straightforward, it has had little success so far.

Beyond slow scientific progress, stem cell therapy faces a political problem because the cells originate in human fetuses. Britain's House of Commons recently voted to permit research on stem cells to go ahead. But the outlook is cloudier in the United States. A recent article in *Science* (*289:* 1442-1443, 2000) reviewed the National Institutes of Health's guidelines for stem cell research; these allow scientists to derive plenipotent stem cells from fetal tissue but not from embryos. These guidelines were welcomed by many researchers who have great hopes for this new technology. The scheme for integrating these therapeutic genes into a patient's DNA involves placing the gene of interest into a viral vector that allows the gene to integrate into the patient's genome.

Several companies at the leading edge of stem cell research supply specialized media, growth supplements, and cell separation products. These include BioWhittaker, Gene Therapy Systems, and StemCell Technologies. Growing cells for this application is difficult because animal serum can not be used to culture the cells used in these procedures. Researchers often use very expensive growth supplements instead. Companies are constantly working on improving growth media and eliminating any unnecessary components from the formulations.

The Future of Pharmacogenomics

Scientists have long wondered why patients don't always respond in the same way to the same drug prescribed for the same illness. Several published reports have linked SNPs with the likelihood that an

continued ➢

MicroGrid II

The NEW Entry-Level Microarrayer from BioRobotics

From the team that created MicroGrid II, the delivers:

- High-Density Microarraying at speeds up to 200 spots/second
- Ability to produce up to 48 replicate arrays in a single run
- Unattended processing of up to 6,100 samples
- Compatibility with 96, 384 and 1536 format microplates
- Excellent customer support, as always from BioRobotics
- size - takes up only 70cm (28") of bench space

New MicroGrid II

...The new microarrying robot
for medium-throughput applications

To find out more,
visit our website:

www.biorobotics.com

*Bio*Robotics Ltd, Cambridge, UK
Tel: +44 1223 873500
Fax: +44 1223 873589
Email: info@biorobotics.co.uk

*Bio*Robotics Inc, Boston, USA
Tel: 877-BIOROBO
Tel: +1 781 376 9791
Fax: +1 781 376 9792
Email: info@biorobotics.com

BioRobotics

Discover more

individual will benefit from a particular drug therapy. These differences in response are related to variations in the enzymes that metabolize drugs, receptors, and other molecules involved in cellular metabolism. Genetic testing can predict a patient's response to a given drug, at least in theory. Knowing which drugs will be effective for an individual can lead to dramatically different approaches to medicine for each patient. This personalized approach to medicine is called pharmacogenomics.

Screening for drug tolerance might also indicate whether a patient will metabolize a drug as expected. A practical example of this would involve examining one of a patient's alleles for the cytochrome P450 gene to determine what level of the anticoagulant warfarin to administer to the patient. Since patients show significant differences in their responses to warfarin, clinicians often avoid prescribing it for older patients; they fear that it could harm them if it shows more activity than expected. Screening would identify those patients and allow others to benefit fully from the warfarin. Similarly, clinicians could minimize adverse side effects from drugs if they know more about individual patients' metabolisms.

"Applied Biosystems and Celera Genomics envision the development of personalized medicine as requiring multiple tools and multiple sets of information that will be used by disease, pharmaceutical, and biotechnology researchers as well as scientsts who are developing standardized technology applications," says Kimberly Hansen. "We are actively integrating and accessing multiple industry segments."

Collins of UCSF sees a bright future for the application of functional genomics to medicine. "Twenty years ago nobody understood the pathways. Now we understand them in excruciating detail," he says. "In the near term we'll be able to manage prostate and breast cancer in the same way we manage HIV. People won't be dying in the way they do now. The more we understand, the more effectively we can treat." In other words, the efforts to learn the meaning of the lost language that life scientists have found will yield remarkable dividends. ■

Peter Gwynne is a freelance science writer based on Cape Cod, Massachusetts, U.S.A. Gary Heebner is president of Cell Associates, a scientific marketing firm in Chesterfield, Missouri, U.S.A.

Advertisers

Arcturus Engineering, Inc.....www.arctur.com
Beckman Coulter, Inc.....www.beckman.com/ceq2000
BioCarta.....www.biocarta.com
BioRobotics.....www.biorobotics.com
Biosearch Technologies..www.biosearchtech.com
Commonwealth Biotechnologies, Inc. .....www.cbi-biotech.com
Deltagen, Inc.....www.deltagen.com
Entigen Corp. .....www.bionavigator.com
GeneMachines.....www.genemachines.com
Harvard.....www.mcb.harvard.edu
Informax .....www.informaxinc.com
MWG Biotech AG.....www.mwg-biotech.com
Promega Corporation.....www.promega.com
Pyrosequencing .....www.pyrosequencing.com
Qiagen.....www.qiagen.com
Roche Molecular Biochemicals.....http://biochem.roche.com
Silicon Genetics .....www.sigenetics.com
Takara Shuzo Co., Ltd....www.takara.co.jp/english

Featured Companies & Organizations

Affymetrix.....www.affymetrix.com
Amersham Pharmacia Biotech.....www.apbiotech.com
Applied Biosystems.www.appliedbiosystems.com
BD Biosciences-PharMingen.....www.bdbiosciences.com
Beckman Coulter, Inc...www.beckmancoulter.com
BioWhittaker .....www.biowhittaker.com
Celera.....www.celera.com
Clontech Laboratories .....www.clontech.com
Display Systems Biotech, Inc. .....www.displaysystems.com
DNASTAR .....www.dnastar.com
DoubleTwist.....www.doubletwist.com
eBioinformatics.....www.bionavigator.com
Epicentre Technologies .....www.epicentre.com
Eppendorf Scientific.....www.eppendorf.com
Ericomp, Inc.....www.ericomp.com
Eurogentec, SA.....www.eurogentec.be
EVOTEC BioSystems GmbH.....www.evotec.com
Gene Therapy Systems, Inc....www.genetherapysystems.com
GeneMachines .....www.genemachines.com
Genentech, Inc. .....www.gene.com
Genomic Solutions....www.genomicsolutions.com
Genpak, Inc. .....www.genpak.com
Hitachi Genetic Systems .....www.hitachi-soft.com/gs
Hoffmann-La Roche .....www.rocheusa.com
Human Genome Project..... www.ornl.gov/TechResources/Human_Genome
Hybaid UK Ltd. .....www.hybaid.co.uk
IBC USA Conferences.....www.ibcusa.com
Invitrogen Corporation .....www.invitrogen.com
Kinetix Pharmaceuticals.....kinetixpharm.com
Lexicon Genetics.....www.lexgen.com
LI-COR, Inc. .....www.licor.com
Life Technologies, Inc. (Gibco/BRL).....www.lifetech.com
LJL Biosystems, Inc. .....www.ljlbio.com
Merck .....www.merck.com
Millennium Pharmaceuticals, Inc. .....www.mlnm.com
Mitotix, Inc. .....www.mitotix.com
MWG Biotech AG.....www.mwg-biotech.com
Myriad Genetics .....www.myriad.com
New England Biolabs .....www.neb.com
Novartis.....www.novartis.com
Operon Technologies.....www.operon.com
Oxford Molecular Group.....www.oxmol.co.uk
Packard Instruments.....www.packardbioscience.com
Perkin Elmer ....http://instruments.perkinelmer.com
Promega Corporation.....www.promega.com
Proteome Systems, Pty. Ltd.....www.proteomesystems.com
Pyrosequencing .....www.pyrosequencing.com
Roche Biosciences.....www2.roche.com
Roche Molecular Biochemicals.....http://biochem.roche.com
Sigma-Aldrich Corporation.....www.sigma-aldrich.com
StemCell Technologies .....www.stemcell.com
Stratagene.....www.stratagene.com
Taconic.....www.taconic.com
Techne, Inc. .....www.techneusa.com

Note: Readers can find out more about the companies and organizations listed by accessing their sites on the World Wide Web (WWW). If the listed organization does not have a site on the WWW or if it is under construction, we have substituted its main telephone number. Every effort has been made to ensure the accuracy of this information. The companies and organizations in this article were selected at random. Their inclusion in this article does not indicate endorsement by either AAAS or *Science* nor is it meant to imply that their products or services are superior to those of other companies.

Increase Speed, Efficiency and Accuracy in your Laboratory!

Defining the Future in Biotechnology

Genetix are the leading suppliers of Automated Colony Pickers, Gridders, Replicators, Re-arrayers, Microarrayers, Liquid Handling Systems and related consumables to the Genomic industry.

Discover the Future of Automation for yourself, visit our Website at *www.genetix.co.uk* or contact our sales department at *sales@genetix.co.uk*

Here are just a few companies we supply our products to:

Millennium Pharmaceuticals, Celera Genomics, Amgen, Whitehead Institute, Novartis Pharmaceuticals, Maxygen, CalTech, University of Washington

GENETIX

Genetix Limited
Queensway, New Milton, Hants, BH25 5NN, UK

Tel: **+44 (0) 1425 624600**
Fax: **+44 (0) 1425 624700**

Email: **sales@genetix.co.uk**
Web: **www.genetix.co.uk**

Circle No. 85 on Readers' Service Card

GRADUATE PROGRAMS

GRADUATE FELLOWSHIPS, HMAP

HMAP, History of Marine Animal Populations (**website: http://www.cmrh.dk/hmapindx.html**), is the historical component of the international project titled "Census of Marine Life," funded by the Sloan Foundation. The focus of HMAP is to improve historical understanding of changes in marine ecosystems and assess the human role in driving those changes. A significant commitment has been made by HMAP to support interdisciplinary graduate education in marine environmental history and historical ecology. Students will be expected to develop primary skills in either environmental history or marine ecology and a working knowledge of the other. Graduate study will take place at one of the three HMAP institutions, with significant involvement in workshops and short courses at each of the institutions. The first of these joint initiatives will be an interdisciplinary summer school to be held August 2001 in Esbjerg, Denmark.

Application deadline is 1 March 2001 for each participating institution. Participating institutions and degree programs available include:

University of New Hampshire, Durham, New Hamphire, U.S.A. Interdisciplinary Ph.D. program in natural resources; interdisciplinary M.A. program in environmental education; Master's and Ph.D. degrees in natural resources, zoology, history, sociology. Particular faculty strengths include marine biology, resource management, policy, and the history of human exploitation of marine resources. Contact: **Dr. Andy Rosenberg (e-mail: andy.rosenberg@unh.edu)** for further information.

University of Southern Denmark, Esbjerg, Denmark. Hosts the Center for Maritime and Regional History led by **Poul Holm**. Master's and Ph.D. degrees in history, biology, environmental economics. Contact: **Poul Holm (e-mail: pho@hist.sdu.dk)** for further information.

University of Hull, University of Hull, East Yorkshire, England. The Maritime Historical Studies Centre provides M.A. and Ph.D. programs in maritime history (including optional modules in marine environmental science). Contact: **David J. Starkey (e-mail: D.J.Starkey@hist.hull.ac.uk)** for further information.

At each participating HMAP institution, full-tuition scholarships and graduate stipends are available on a competitive basis. For consideration by HMAP, please direct initial inquiries to one of the participating institutions.

POSITIONS OPEN

ECOLOGICAL GEOSPATIAL MODELING

The Department of Ecology, Evolution, and Natural Resources and the Grant F. Walton Center for Remote Sensing and Spatial Analysis at Rutgers, The State University of New Jersey, are searching for an academic-year, **TENURE-TRACK POSITION** in ecological geospatial modeling. The successful candidate will be expected to establish a vigorous and externally funded research program in the field of geospatial modeling as applied to ecosystem or landscape ecology or natural resource management, as well as contribute to the multidisciplinary research programs of the New Jersey Agricultural Experiment Station. Undergraduate and/or graduate teaching assignments will be in the areas of ecological geospatial modeling and environmental geomatics with opportunity to develop instructional programs in related areas.

A Ph.D. in ecology, natural resource management, environmental science, physical geography, or related field with significant coursework and experience in geospatial modeling and geomatics is required.

Send a letter of application describing qualifications and interest; curriculum vitae; transcripts; and three letters of reference by March 15, 2001, to: **Dr. Richard Lathrop, Search Committee, Chair, Department of Ecology, Evolution, and Natural Resources, 14 College Farm Road, Cook College, Rutgers University, New Brunswick, NJ 08901-8551.**

Rutgers University is an Affirmative Action/Equal Opportunity Employer.

GRADUATE PROGRAMS

REPRODUCTIVE BIOLOGY

The Graduate and Postdoctoral training program established by The Center for Reproductive Biology between Washington State University, Pullman, Washington, and the University of Idaho, Moscow, Idaho, is seeking applicants. The Center has 50 independent faculty and over 120 trainees and staff and integrates eight colleges and 15 departments. The training program involves 14 different established degrees involving molecular, cellular, and physiological aspects of reproduction in areas such as gamete biology, mammary biology, cattle reproduction, reproductive toxicology, neuroendocrinology, gonadal biology, fish reproduction, plant reproduction, pregnancy/implantation, and reproductive medicine. Individuals interested in taking part in one of the largest reproductive biology centers across the country can obtain application information by viewing our **website: www.reproduction.wsu.edu/** and/or contacting: **Training Program, Center for Reproductive Biology, Washington State University, Pullman, WA 99164-4231. Telephone: 509-335-2473; FAX: 509-335-2176; e-mail: crb@mail.wsu.edu.**

The UI and WSU are Affirmative Action/Equal Opportunity Employers.

The Center for Study of Gene Structure and Function at Hunter College invites students committed to careers in biomedical research to enroll in **PH.D. PROGRAMS** in molecular and cell biology, biochemistry, biopsychology, and chemistry at the Graduate School and University Center of the City University of New York. The Gene Center offers excellent graduate research opportunities and a competitive support package in the range of a $22,000 stipend, full tuition, and health insurance. We provide state-of-the-art research facilities and outstanding and supportive mentors. Research areas include cancer, neuroscience, molecular immunology, signal transduction, behavioral endocrinology, drug design and synthesis, and structural and developmental biology. We also offer Master's programs and summer research opportunities for undergraduates.

For more information and applications, visit our **website: http://sonhouse.hunter.cuny.edu/genecenter.**

POSITIONS OPEN

VACCINE RESEARCH ASSISTANT PROFESSOR

The Vaccine Research Division of the Institute of Human Virology, University of Maryland Biotechnology Institute, University System of Maryland, invites applications for a nontenure-track faculty position at the **ASSISTANT PROFESSOR** level. The successful applicant will join a multidisciplinary team that develops and evaluates potential vaccine strategies against HIV. Candidates should have a demonstrated expertise in cellular immunology and bacteriology and an ability to work in a team environment. This position requires that the successful candidate have specific experience using *Salmonella* and/or other gram-negative bacteria as a protein-antigen and DNA vaccine delivery system, developing novel HIV vaccine strategies, and evaluating these vaccine strategies in small animal models. The candidate should also have published research showing specific experience defining serological correlates to protection or disease progression in HIV-infected subjects and developing the necessary correlative assays. Demonstrated ability to collaborate with Investigators in diverse areas of molecular biology and immunology is also required.

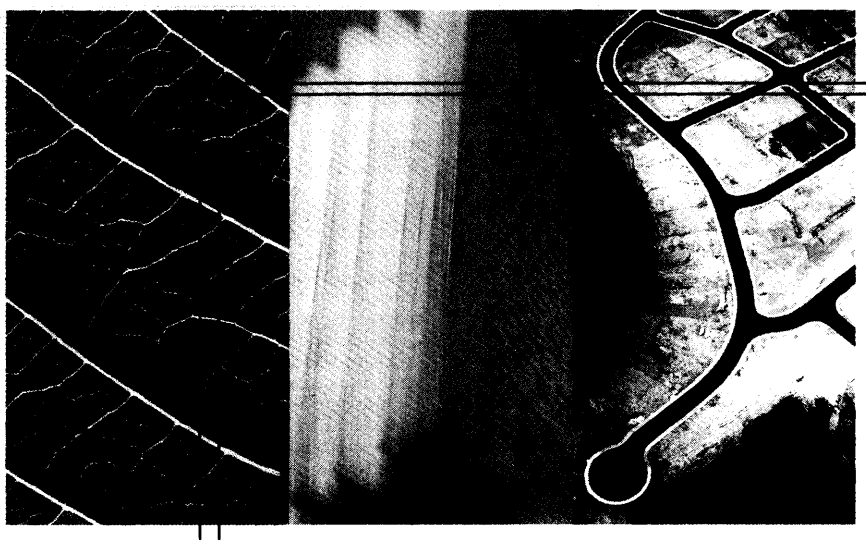
Please send curriculum vitae, research interest statement, and names of three references to: **Search Committee, Position F3-0105, Institute of Human Virology, University of Maryland Biotechnology Institute, University System of Maryland, 725 West Lombard Street, Baltimore, MD 21201.** Filing deadline for this position is March 2, 2001.

The University of Maryland Biotechnology Institute is an Equal Opportunity/Affirmative Action Employer. Women, minorities, veterans, and candidates with disabilities are encouraged to apply.

FOCUS ON CAREERS Graduate Programs

New Routes to Higher Degrees

BY PETER GWYNNE



Nontraditional graduate programs in life science provide excellent alternatives for individuals to obtain advanced degrees that help them to land jobs in industry. Here's a look at some possibilities and advice for students eager to apply to such programs.

Dartmouth College

Harvard University

Howard University

Ohio State University

University of California, San Francisco

For graduate programs in life science, the old order is changing rapidly. Graduate departments in individual fields that jealously guard their independence and concentrate only on developing students' narrow scientific skills have virtually disappeared. Students aiming for a doctoral degree in life science now have a wide choice of nontraditional programs. Even the traditional programs no longer train students in the way they did for much of the past century.

Today both old and new graduate programs encourage their students to explore the opportunities for learning and research across disciplinary boundaries. Increasingly, graduate programs train their students to become broad-spectrum scientists capable of working in multidisciplinary surroundings rather than narrow specialists.

Administrators also recognize that top-notch scientific ability, while essential, is no longer sufficient to land good jobs in academe or industry. Thus, several graduate programs expose students to courses in scientific writing, presentation, management of scientific teams, and other communication skills. Some students now choose to combine Ph.D. courses with M.B.A.s.

To enter Ph.D. programs, students must demonstrate their readiness for the rigors of graduate research. They need strong training in basic science and, most important, research experience gained in academic laboratories or industrial internships. Entering students must also show a passion for science that will carry them through the difficulties they will inevitably encounter.

In this report we discuss these issues with the heads of five prominent programs. They provide perspectives on the changes in graduate education and advice for students eager to apply to their programs.

COLUMBUS, OHIO: The Integrated Biomedical Science Graduate Program (IBGP), based in the School of Biomedical Science in Ohio State University's Medical School, sets out in an unorthodox way to provide broad and deep graduate training in biomedical research. It takes a completely interdisciplinary approach to teaching and research. "We merged the existing graduate programs into one integrated program that will start in the summer of 2001," explains IBGP director Allan Yates, a pathologist. "We have 140 faculty members from 19 different departments. We will have a good core curriculum with the best teachers and minimal overlap of subject matter."

Courses in the program will move seamlessly from fundamental understanding to medical applications. "We start with the biochemical

A former science editor of Newsweek, *Peter Gwynne writes about science and technology from his base on Cape Cod, Massachusetts, U.S.A.*

CONTINUED ➢

Graduate Programs in Life Sciences

Interdisciplinary Graduate Training Programs

Vanderbilt University has been a leader in scientific research for over forty years.

Our research faculty has grown to over 200 members with active research laboratories. Our interdisciplinary approach to scientific research is fostered by a collegial faculty and is facilitated by the adjacency of the main campus and the medical center. Successful candidates receive full tuition and benefits with a yearly stipend of $18,000 which may be supplemented for applicants with exceptional qualifications.

Areas of research include animal physiology, biotechnology, cancer biology, computational biology and molecular modeling, developmental biology, genetics, virology, molecular immunology growth factors, gene regulation, mechanistic enzymology, molecular and clinical pharmacology, molecular endocrinology, metabolic regulation molecular pathology, molecular toxicology, neurobiology, proteomics, reproductive biology, signal transduction, structural biology, molecular biophysics, and vascular biology

Vanderbilt University is located in Nashville, Tennessee. A rapidly growing vibrant city of more than one million, Nashville is a livable city, hub of the nation's health care industry and at the heart of ecomonic boom in the Southeast. Vanderbilt has one of the nation's premiere medical centers. Its programs in basic biological sciences are among the best funded in the country. Vanderbilt is ideally located just five minutes from downtown Nashville, but its 330-acre campus is a great refuge and national arboretum.

Interdisciplinary Graduate Program in Biomedical Sciences (IGP)

The IGP is designed for students with research interests in the biological and biomedical sciences. This program provides students with a two semester core course that utilizes the primary scientific literature to teach foundational principles of biology and biochemistry to prepare students for research in any discipline in the biomedical sciences. In addition to the core course, students are required to rotate in the three laboratories which may be selected from any of the ten participating departments and programs. After the first year, students elect to enter the department or program of their choice to continue their PhD dissertation research.

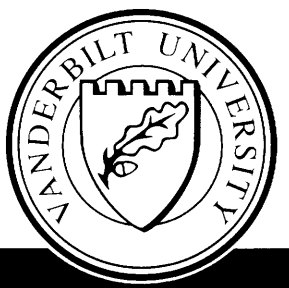
Chemical and Physical Biology Program(CPB)

The CPB is a new program developed for students with undergraduate emphasis in the quantitative sciences such as chemistry, computer science, engineering, mathematics or physics, who wish to pursue graduate training with a multidisciplinary approach to the biological sciences. Successful candidates will participate in a core course that emphasizes principles of the quantitative sciences as they relate to biology to prepare for research careers at the chemistry-biology interface, in structural biology, molecular biophysics, or in computational biology.

Medical Scientist Training Program (MD/PhD)

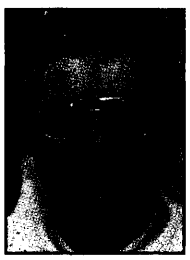
The MSTP is a combined degree program for students who wish to to pursue a career in medicine and scientific research. Students begin the program with the basic medical sciences and then transition into the graduate, PhD phase. After completion of the PhD, students return to medical school for completion of coursework and clinical rotations. During each phase, MD/PhD students participate in the MSTP seminar and yearly retreat to create a cohesive, collegial atmosphere. Graduates from this program enter into the most competitive medical residencies in the country with further opportunities for biomedical research.

For more information contact Michelle Grundy at 1-800-810-8993 or 1-615-343-2573, or email michelle.grundy@mcmail.vanderbilt. edu



http://grad-ed.vanderbilt.edu

"... get a good basic training in the traditional disciplines before you apply."



Allan Yates

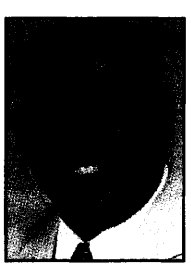
aspects, move through the cellular aspects, and then go on to development," says Yates. "By that point students have enough background to talk about more complex phenomena such as host defense and immunology. From there we move to systems, such as cardiopulmonary and renal." Students will work their way through laboratory rotations with different advisers, a process that will help individuals to choose their own mentors.

The program will not ignore conventional teaching. "We're making sure that we cover what are considered to be traditional courses, but in such a way that students understand how they fit into the overall picture," Yates continues. "This becomes much more efficient. It doesn't duplicate subject matter in the way that traditional courses do. And the knowledge flows more rationally in understanding the mechanisms of human disease."

A planned course in problem-solving provides a typical example of that flow of knowledge. "Students will be given a real problem, such as raw data, a rejected grant application, or a manuscript, and will be expected to identify the problem and its source," says Yates. "Four days later they'll come back with their solutions. They will have to think about the areas of information that have been presented to them."

IBGP will prepare its Ph.D. and M.D.-Ph.D. students for life in clinical work and industry as well as academe. Yates expects to give students the chance to work in collaborative research with pharmaceutical or biotechnology companies. IBGP will also offer a program on presentation skills.

What does Yates expect of applicants for the new program? "First, make the decision whether or not you want to investigate human disease," he recommends. "This program is designed to prepare scientists for that. And get a good basic training in the traditional disciplines before you apply."



Orlando Taylor

WASHINGTON, D.C.: A broad approach to graduate education in life science is not new to Howard University's Graduate School of Arts and Science. "We have been promoting interdisciplinary programs in a very aggressive way for the past five years," says dean Orlando Taylor. "My view is that people who do not have the ability to work across disciplines and in teams with good communication skills are not competitive."

Taylor's school is so dedicated to that approach, he says, that "we are considering several new graduate programs that require an interdisciplinary focus." For example, Howard is planning to launch a major initiative in the environmental sciences that will involve a number of disciplines, including biology, engineering, toxicology, economics, law, and atmospheric science, among others.

Howard gives its graduate students opportunities to fine tune their skills for careers in life science. "Students might work in summer internships at the National Institutes of Health, other universities, or companies, or take off the better part of a year to work in a laboratory compatible with their career goals and research interests," Taylor explains. "We also have a program on preparing future faculty. And we are developing a series of workshops that will focus on oral presentational skills. No matter what line of work our graduates will engage, they'll find themselves in a position to communicate their research, or advocate on behalf of their disciplines, or communicate to their colleagues."

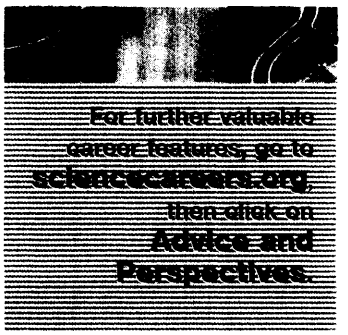
That commitment to broad preparation of Ph.D.s doesn't mean that Howard students can take a shallow approach to their major fields. "As you're building the breadth in the interdisciplinary domain, you have to treat the depth in a primary discipline," Taylor states.

That requirement applies to all applicants for graduate study at Howard but particularly to those in the life science disciplines. "Students in these fields must have a very strong preparation in basic science, including mathematics which is absolutely essential," says Taylor. "It's also important that they try to get some research experience, sharpen writing and speaking skills, and have a good grade point average. We pay more attention to previous performance than to GRE scores. We also urge prospective students to build good rapport with faculty members and people in industry who can speak to their research potential. They must also demonstrate high motivation and persistence. There are many bars over which one must climb to get a Ph.D. The weak at heart tend to burn out."

Cliff Attkisson

SAN FRANCISCO, CALIFORNIA: The University of California, San Francisco (UCSF) has recently received an interdisciplinary plum: The state government has designated UCSF's new Mission Bay campus as the main site of a new Institute for Bioengineering, Biotechnology and Quantitative Biomedicine. "With regard to implications for graduate education, the Institute will provide a home and integrative structures for graduate students in bioengineering, biophysics, biological and biomedical informatics, and chemistry and chemical biology," says Cliff Attkisson, UCSF's associate vice chancellor and dean of graduate studies. In addition, graduate studies in biomedical, social, and behavioral sciences (anthropology, sociology, and psychology) will gradually expand and be co-located in the recently refurbished UCSF Laurel Heights campus. "Our social and behavioral science programs have enjoyed something of a renaissance in the past two years as faculty have recognized that the etiology and course of treatment of disease have many social and behavioral components," Attkisson continues. "Graduate education at UCSF will also be richly stimulated by the development of a new Comprehensive Cancer Center funded by the National Institutes of Health that is located at the Mt. Zion campus."

UCSF already offers three solidly multidisciplinary areas of interest. "The pioneering Program in Biological Sciences [PIBS] integrates biochemistry, genetics, cell and developmental biology, as well as neuroscience," explains Attkisson. "The Biomedical Science Program [BMS] provides graduate education in the biological sciences in the context of the molecular and cell biology of organ and regulatory systems and their relationship to health and disease." A third multidisciplinary cluster of allied graduate programs is also emerging at UCSF. These include bioengineering and bioinformatics which have been expanding over the past several years, a newly organized



CONTINUED ➢

The College of Natural Sciences and Mathematics at the University of Houston...Realize your potential in a dynamic environment!

- Nationally and internationally recognized faculty
- Six academic departments offering numerous programs, including interdisciplinary training
- Strong national and international research agenda
- State-of-the-art facilities and instrumentation
- Collaborative relationships with the Texas Medical Center, major universities, national laboratories and international corporations

The University — The University of Houston (UH), located in Houston, Texas, is a public, comprehensive university, classified as a Carnegie Doctoral/Research University I. The campus is located within short distances of downtown Houston, the Texas Medical Center, the NASA/Johnson Space Center, and the offices of numerous national and international businesses.

Shaping Scientists of the Future — The College of Natural Sciences and Mathematics (NSM) is a research powerhouse. Interdisciplinary research is strong within and among departments, with other UH colleges, and other institutions. Many faculty have joint appointments within the College and with other departments at UH, facilitating collaborative research and providing rich training opportunities for graduate students.

"I have access to cutting edge technology, collaborative opportunities with the Texas Medical Center, and some of the best minds in the world."
—UH graduate student in Biology

The range of faculty expertise among the six NSM departments makes it possible to match student and faculty interests closely. Some examples of faculty interests include: molecular design • physical, organic and inorganic chemistry • computational biomedicine • mathematical biology • pure mathematics • computational science • scientific computing • computer vision • biological clocks • developmental biology • infectious diseases • nucleic acids • structural and computational biology • molecular and cellular neurobiology • microbiology • population biology • coral reef biology • materials science • experimental and theoretical particle physics • non-linear dynamics • experimental space physics • applied and fundamental geophysics • geochemistry • tectonics/structure • stratigraphy/sedimentation• hydrogeology

Houston - Expect the Unexpected — Only 30 minutes from the ocean and 3 hours from San Antonio and Austin, Houston's mild climate fosters year-round outdoor activity. Home to the Houston Symphony, Ballet, Museums of Fine Arts and Natural History, a world-class zoo, modern sports and concert venues, and restaurants featuring local and international cuisines, Houston is a dynamic and culturally diverse city in which to live.

For more information on programs, financial support, including scholarship opportunities and applications, contact the departmental representatives listed. Also, visit the University of Houston website at www.uh.edu, and the College of Natural Sciences and Mathematics website at www.uh.edu/academics/nsm.

UNIVERSITY OF HOUSTON
Learning. Leading.

The University of Houston provides equal treatment and opportunity to all persons without regard to race, color, religion, national origin, sex, age, disability, veteran status or sexual orientation except where such distinction is required by law.

DEGREES OFFERED

Department of Biology and Biochemistry

Teaching and Research Assistantships provide financial support. Dr. A. Delcour (713)743-2633. graduate-affairs@bchs.uh.edu.
www.bchs.uh.edu.
Biology. M.S. and Ph.D. degrees in Biology with emphasis on Cell and Molecular Biology, and Ecology and Evolution. **Biochemistry.** M.S. and Ph.D. degrees in Biochemistry.

Department of Chemistry

Graduate fellowships and training programs provide TA and RA support. Dr. S. Halasyamani (713) 743-3278. www.chem.uh.edu. M.S. and Ph.D degrees in Chemistry, with emphasis in Physical, Organic, and Inorganic Chemistry.

Department of Computer Science

Contact department about available support. Dr. S. Huang (713) 743-3350. www.cs.uh.edu. M.S. and Ph.D. degrees in Computer Science.

Department of Geosciences

Graduate fellowships and training programs provide TA and RA support. Dr. C. Sullivan (713) 743-3415. esulliva@bayou.uh.edu.
http://garnet.geosc.uh.edu.
M.S. and Ph.D. degrees in Geology and Geophysics. M.A. in Geosciences.

Department of Mathematics

Graduate fellowships and training programs provide TA and RA support. Dr. J. Hausen (713) 743-3500. hausen@uh.edu. www.math.uh.edu.
M.S. and Ph.D. degrees in Mathematics. M.S. with Applied Mathematics option.

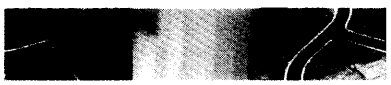
Department of Physics

Graduate fellowships and training programs provide TA and RA support. Dr. B. Mayes (713) 743-3550
www.uh.edu/~phys.
M.S. (both thesis and non-thesis) and Ph.D. degrees in Physics.

INTERDISCIPLINARY PROGRAMS

Chemical Physics. M.S. and Ph.D. degrees can be earned in either Chemistry or Physics under the direction of faculty in Chemical Physics and Physical Chemistry. Graduate fellowships and training programs provide TA and RA support. Dr. S. Halasyamani (713) 743-3278. www.chem.uh.edu.

Computational Science. M.S. and Ph.D. degrees in Chemistry, Physics, Mathematics, Computer Science. Financial support is available as is the custom of the home department. Dr. B.M. Pettitt (713) 743-3263. www.chem.uh.edu.



"... disciplines have started to work together to advance human knowledge."

program in chemistry and chemical biology, and a separate program in pharmaceutical science and pharmacogenomics which Attkisson expects will obtain formal approval shortly.

"The excitement for us has been the way in which disciplines have started to work together to advance human knowledge," says Attkisson. "Our faculty are very keen to organize graduate studies at the cutting edge where new knowledge can emerge." That cutting edge is not restricted to the academic campus. "Many substantive biotechnology companies in our area are successful in the marketplace and in stimulating new knowledge and treatments." Attkisson continues, "Our students can see that successful applications of research are possible through these companies. Increasingly students and faculty are finding creative ways of collaborating with biotechnology industrial partners."

UCSF encourages students to consider several career options. "We think our students can play many roles in government, academe, and industry," Attkisson says. To that end, the university has pioneered a career center that focuses on broad job skills. It also collaborates with faculty members, the UCSF Postdoctoral Scholars Association, and the Office of Academic Enrichment to offer a course on "the practice of science." This includes segments on writing grants, managing a budget, and leading scientific teams. Information on entrepreneurship and research in the biotechnology industry is also starting to appear in some graduate course offerings.

Becoming one of the roughly 640 Ph.D. students on the UCSF campus isn't easy. "We are very competitive, especially in biochemistry and related disciplines," cautions Attkisson. "Our faculty place heavy weight on prior research experience. It's very important to have worked in a laboratory or research program under the supervision of a master scientist who can provide training in perspectives as well as techniques."

Cliff Tabin

BOSTON, MASSACHUSETTS: Harvard University has a proud record that makes its graduate programs in life science exceptionally selective. "We have about 450 applicants a year for our Ph.D. program," says Cliff Tabin, associate head of Harvard's Biological and Biomedical Sciences (BBS) program. "We accept 90 and 45 matriculate."

Those 45, along with about five M.D.-Ph.D. candidates from Harvard Medical School, receive a broad-based program of education in modern biology via courses given by the Medical School's basic science faculty. Students rotate through several laboratories as they seek a suitable subject and mentor for their thesis. Students also receive training in ancillary skills such as proposal writing and presentation. In the new presentation course, Tabin says, "students talk about the work in their labs. We tell them what's important in a science presentation."

In recent years the program has broadened its focus beyond preparation for academic careers. "The vast majority of this talented group will find excellent academic jobs if they want them," Tabin points out. "But to get there you must take a long road, and some students may enjoy the business world or other alternatives more than academe."

Tabin believes that the fundamental training should not differ according to career choice. "We teach people to be scientists," he explains. "We believe that to be the best possible training for work in academe, teaching, science writing, bench work in industry, and other careers." However, certain aspects of the program address students' desires to learn about different career possibilities. "We have established an alternative career forum at which Ph.D.s come to talk about what it's like to be a high school teacher, patent attorney, or policy maker in Washington," Tabin says.

A new initiative stemmed from students' requests to do laboratory rotations at local biotechnology and pharmaceutical companies. Harvard has set up an internship program that permits students to spend 3-12 months at an industrial lab after they obtain their Ph.D.s and before they start on postdoctoral fellowships. "In effect you do a rotation at a time when it won't affect your career," says Tabin. "So when they look for jobs after finishing their postdoctoral work they will be better informed about what industry is like." The first group of students in the program is now choosing companies to join after they receive their Ph.D.s in May.

Mark McPeek

HANOVER, NEW HAMPSHIRE: "Our department is a little schizophrenic," says Mark McPeek, chair of the Department of Biology at Dartmouth College. "It has two graduate programs." The molecular and cell biology (MCB) program admits about 25 Ph.D. candidates each year from a pool of 70-80 applicants, while ecology and evolutionary biology (EEB) admits 6-10 students per year from about 30-40 applicants.

The schizophrenia emerges in the programs' different cultures. "In molecular and cell biology, graduate students typically rotate through at least three laboratories in their first year or two before deciding which to settle in. They tend to look for a diverse group of faculty that covers a range of topics to give them plenty of choice," says McPeek. "EEB students typically contact individual faculty members to discuss their interests. They have much more of a one-on-one interaction in choosing faculty."

While Dartmouth has taken a relatively traditional view of Ph.D. training in life science, McPeek notes signs of change. For example, the school has set up a couple of courses on teaching, designed to help the majority of students who will land academic positions. "They run like seminars, examining teaching methodologies and better ways to engage people in learning," McPeek explains.

In addition, he says, "A fair number of our graduates are seriously looking at nonacademic jobs. On the ecology side there's a growing interest among students in government work and in educational fields such as teaching at smaller universities and science writing. And on the MCB side I see much more opportunity for students to move directly into industry."

Corporations have made the same observation. "Industry is becoming a bigger component of recruitment of Ph.D.s," notes McPeek. "The scuttlebutt is that recruiters are interested in finding very good scientists who can interact with the business side."

What does Dartmouth expect of entering Ph.D. candidates? "Think very hard whether this is what you really want," McPeek advises. "You really have to want to do the work. If you don't, there are too many other committed people who will study you into the ground."

Wadsworth Center

New York State Department of Health

Graduate Studies at the Wadsworth Center

in partnership with University at Albany, State University of New York

We are seeking outstanding students with backgrounds in the biological, chemical, or physical sciences. Graduate student stipends range from $18,000 to $21,000 with full tuition waiver.

Training is individualized, with course selection based on the area of specialization and on the background and interests of each student.

The Wadsworth Center offers broadly based research training in the areas of molecular genetics, structural and cell biology, immunology and infectious diseases, neuroscience, toxicology, environmental chemistry, and environmental and occupational health.

At the Wadsworth Center, faculty and student research is supported by outstanding core facilities in biochemistry, genetics, imaging, immunology, molecular structure, mass spectrometry, NMR, as well as national centers in Biological Imaging (NIH/NCRR), Genetics (CDC) and NanoBioTechnology (NSF).

The nation's most comprehensive state health laboratory, the Wadsworth Center is dedicated to science in the pursuit of public health. The opportunity to train the next generation of researchers further stimulates this vibrant scientific community.

Additional information on the research interests of faculty and academic opportunities can be obtained at:

www.wadsworth.org/BMS/
www.wadsworth.org/EHT/

Research Areas

- Molecular biology
- Molecular virology
- Genomics, proteomics, bioinformatics
- Chromatin structure and function
- Immunology and Immunomodulation
- Immunotoxicology
- Neuroimmunology
- Microbial and bacterial pathogenesis
- Bacterial drug-resistance
- Vector-born diseases
- Host-parasite interactions
- Brain and spinal cord injury
- Brain development and spinal cord plasticity
- Brain computer interfaces
- Neuron networks in culture
- Genetics of neurodegenerative diseases
- Neural prostheses
- Neurotoxicology
- High resolution biological structure analysis
- Cytokinesis and molecular motors
- Hormone receptors and signal transduction
- Glycoproteins
- Pharmacogenetics
- Drug metabolism and resistance
- Molecular epidemiology
- Environmental microbiology
- Atmospheric chemistry
- Environmental analytical chemistry
- Drinking water quality and treatment
- Risk assessment

For more information, contact:
Ms. Caitlin Reid, Graduate Program Coordinator
Wadsworth Center, Room C-236
Empire State Plaza, P.O. Box 509
Albany, N.Y. 12201 USA
reid@wadsworth.org
Phone: 518 473-7553
Fax: 518 473-8520

UNIVERSITY AT ALBANY
STATE UNIVERSITY OF NEW YORK

MCP HAHNEMANN SCHOOL OF MEDICINE

BIOMEDICAL GRADUATE PROGRAMS

MCP Hahnemann School of Medicine offers a range of master's and doctoral biomedical programs that combine laboratory research with a broad-based course curriculum.

- **Biochemistry**
- **Interdepartmental Medical Science**
- **Laboratory Animal Science**
- **M.D./Ph.D.**
- **Microbiology and Immunology**
- **Molecular and Cell Biology**
- **Molecular and Human Genetics**
- **Molecular Pathobiology**
- **Neuroscience**
- **Pharmacology/Physiology**

MCP Hahnemann University

Operated by Drexel University

FOR MORE INFORMATION
CALL 215/991-8571
VISIT WWW.MCPHU.EDU
E-MAIL MICHELE.TYMES@DREXEL.EDU

Case Western Reserve University
Training in Molecular Therapeutics

The Department of Pharmacology announces an interdepartmental training program leading to a Ph.D. in Pharmacology. Our training faculty represent 11 basic science and clinical departments with common research interests in understanding drug action, molecular and genomic drug targets, as well as receptor signaling systems. Areas of emphasis include hormone-responsive cancers, pharmacogenomics, apoptosis, endocrine systems and signaling. Highlights include:

- **competitive stipends and full tuition remission**
- **comprehensive health care plan**
- **travel stipends for national meetings**
- **sponsored seminar series**
- **personal computers for all students**
- **career counseling and mentoring programs**
- **highly collaborative research environment**
- **tradition of Nobel Laureate research**
- **rich cultural campus area, low cost of living**
- **consistent ranking in top 20 in NIH funding**

Visit us at http://pharmacology.cwru.edu or phone 216-368-4617

Medical University of South Carolina
College of Graduate Studies

The College of Graduate Studies offers programs leading to Ph.D., M.D./Ph.D. and D.D.S./Ph.D. degrees in biochemistry, biometry & epidemiology, marine biomedicine, microbiology & immunology, molecular and cellular biology, pathology & laboratory medicine, pharmaceutical sciences, pharmacology, and physiology & neuroscience. The first year core curriculum features a broad interdisciplinary approach, which encompasses the principles of the basic sciences, laboratory rotations, journal clubs, experimental design and analysis, principles of manuscript and grant writing, oral and written communication skills, exposure to state-of-the-art technology and important questions in human diseases. The goals of the College's research training programs are to:

1) Develop a broad-based understanding of basic biomedical sciences and their interdisciplinary nature
2) Develop critical thinking skills necessary for comprehension and critical analysis of the biomedical literature
3) Expose students to the individual scientific disciplines and technologies
4) Promote written and oral communication skills
5) Exposure to faculty and laboratories enabling the students to make informed career decisions

Faculty are committed to creating an environment that fosters the excitement of scientific discovery and prepares graduates for their career choice. Competitive stipends of $17,000 are available. The application fee is waived for students applying for Ph.D. programs. Tuition is reduced for students on stipends. Contact: **College of Graduate Studies, Medical University of South Carolina, P.O. Box 250617, Charleston, SC 29425. Email: youngh @musc.edu. World Wide Web: http://www2.musc.edu/grad/gradhome.htm. Apply on line: http://www.applyweb.com/aw?musc. Telephone: 1-800-589-2003.**

Brain Science Graduate Program

Brown University
Brain Science Program

Brown University's Brain Science Program offers a new graduate program in Brain Sciences. The Brain Science Graduate Program involves interdisciplinary study spanning physics, computer science, mathematics, cognitive and linguistic sciences, neuroscience, and psychology. Graduate study in brain science is also available through any of the 10 affiliated graduate programs.

The main goal of the Brain Science Graduate Program is to create a culture of interaction and a strong collegial interdisciplinary faculty to train students in developing their mathematical and computational skills along with training in cognitive science and neuroscience. The program incorporates behavioral, theoretical, analytical and computational approaches into biological, cognitive and behavioral studies of the brain.

The Brain Science Graduate Program is funded in part by the Burroughs Wellcome Interfaces Program.

For more information see:

http://www.brainscience.brown.edu/apply.html

Or contact:

John Donoghue or David Mumford, Co-Directors
Brain Science Graduate Program
Brown University
Box 1953
Providence, RI 02912
(Phone) 401-863-9524; (Fax) 401-863-1074
Email: Brainscience@Brown.edu

McGill

FACULTY OF SCIENCE

The Faculty of Science at McGill University is dedicated to the creation of new knowledge and understanding for the benefit of society. Today's fundamental breakthroughs create the future and we are determined to continue our leading role in the advancement of science. Therefore we extend an invitation to outstanding young student scientists to join our stimulating community.

In addition to traditional core areas, the Faculty addresses major areas of intellectual interest including but not limited to: the Environment, Information Sciences, Life Sciences and Materials Science. The Departments in the Faculty are:

Atmospheric & Oceanic Sciences
Biology
Chemistry
The School of Computer Science
Earth & Planetary Sciences
Geography
Mathematics and Statistics
The McGill School of Environment
Physics
Psychology
The Redpath Museum

We invite interested graduate students to visit our departmental web pages (accessible through **www.mcgill.ca/science**) to learn more about our exciting graduate programs.

Come to the Faculty of Science at McGill and help us to create the future.

Biology of Human Disease

The Ohio State University
www.ibgp.org

Goal: Prepare Ph.D. graduates for successful careers in Biomedical Research

- Breadth and depth of high quality training in the biology of human disease
- Over 140 Graduate Faculty
- 19 Departments in the College of Medicine and Public Health
- Efficient, rigorous interdisciplinary curriculum designed specifically for IBGP students

Financial Support:
All students are supported by generous stipends and receive complete tuition waivers as well as other benefits

For detailed information visit our web site (www.ibgp.org), telephone 614-292-0857. FAX 614-247-7175 or write to the IBGP: **Room 268 Meiling Hall, 370 West 9th Avenue, Columbus, Ohio 43210.**

www.lsc.psu.edu

PENNSTATE
Life Sciences Consortium

INTEGRATIVE BIOSCIENCES GRADUATE PROGRAM

The Pennsylvania State University's Life Sciences Consortium (LSC) is pleased to offer an interdisciplinary graduate program in Integrative Biosciences. This program spans the Colleges of Agricultural Sciences, Engineering, Health and Human Development, Liberal Arts, the Eberly College of Science on the University Park campus and the College of Medicine in Hershey. The goal of this program is to foster collaborative, innovative research in the life sciences and to provide unique training experiences for graduate students.

Options include:

- Biomolecular Transport Dynamics
- Cell and Developmental Biology
- Cellular and Molecular Mechanisms of Toxicity
- Chemical Biology
- Ecological and Molecular Plant Physiology
- Immunobiology
- Molecular Medicine
- Neuroscience
- Nutrition Sciences

40 Fellowships are available to candidates with outstanding credentials. Information and applications can be obtained from the LSC web site: www.lsc.psu.edu/GradEd/home.html or from Janice Kennedy, 519 Wartik Laboratory, The Pennsylvania State University, University Park, PA 16802. E-mail address: lscgradadm@mail.biotec.psu.edu and phone: (814) 865-3155.

Penn State is an Affirmative Action/Equal Opportunity Employer. Women and minorities are encouraged to apply.

Harry and Elsa Jiler International Visiting Scientist Program

The purpose of the *Harry and Elsa Jiler International Visiting Scientist Program* is to facilitate research in multiple myeloma, amyloidosis, and related diseases being conducted in the laboratories of American Cancer Society Clinical Research Professor Alan Solomon, MD at the University of Tennessee Graduate School of Medicine. Particular emphasis is directed towards elucidating the chemical and biological bases of pathologic light chain deposition and the development of novel diagnostic and therapeutic strategies for patients with these disorders. Applications are solicited from qualified senior or junior investigators with demonstrated expertise in cell biology, particularly leukocyte physiology or experimental pathology, who are citizens of a foreign country (not citizens, permanent residents or non-citizen nationals of the US). On-going program with positions presently available. Appointments are for a one-year term, that in some cases can be extended for a second year. Send statement of research interest and background, curriculum vitae, and three letters of recommendation to:

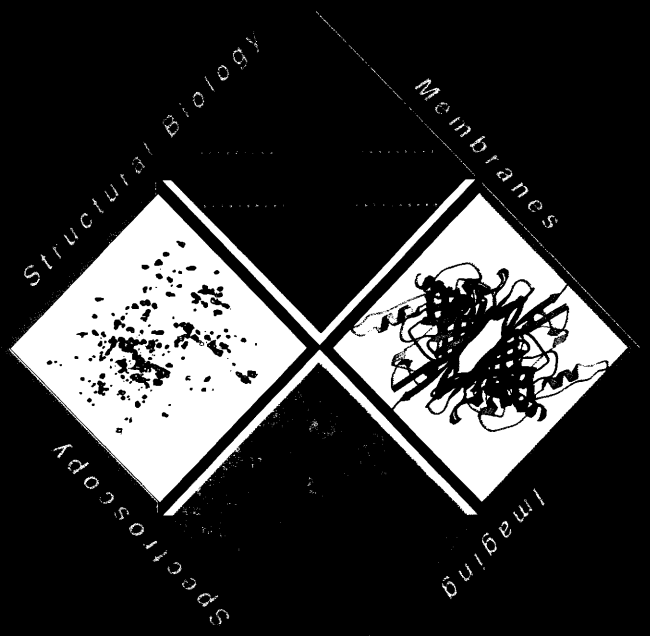
Alan Solomon, MD
Professor of Medicine and Head,
Human Immunology & Cancer Program
University of Tennessee Graduate School of Medicine
1924 Alcoa Highway, Knoxville, TN 37920 USA

The University of Tennessee Graduate School of Medicine/Knoxville is an Equal Opportunity/ Affirmative Action/Title IXC/Section 504/ADA Employer

Interdisciplinary Ph.D. Program

BIOPHYSICS
University of Virginia

Biophysics Faculty at the University of Virginia



Thermodynamics of membrane interactions
Molecular dynamics and magnetic relaxation
Protein structure by NMR spectroscopy
Protein-membrane interactions: EPR spectroscopy
Basic mechanisms of exocytosis
Protein structure by X-ray diffraction
Structure of macromolecular assemblies
Interactions of pharmaceutical proteins
Bacterial migration and adhesion
Computer modeling of biophysical processes
Protein structure by NMR spectroscopy
Structure and evolution of proteins
Mechanism of the sarcoplasmic Ca2+-ATPase
X-ray diffraction methodology
Mechanism of the FOF1-ATP synthase
Structure of ion channels by EPR spectroscopy
X-ray crystallography of nuclear hormone receptors
High-resolution imaging: scanned probe microscopy
Compositional imaging in smooth muscle
Signal transd. and myosin kinetics in smooth muscle
Receptor-mediated regulation of ion channels
Structure and interactions of membrane proteins
Mechanisms of neural death
X-ray crystallography of integral membrane proteins

www.med.virginia.edu biophysics

medgpo22@virginia.edu

CANADA RESEARCH CHAIRS

Memorial University of Newfoundland
invites applications from exceptional scholars for Canada Research Chairs in the following areas:

Tier I (Senior Chair)	Tier II (Junior Chair)
• Viral Hepatitis/ immunology	• Human nutrition
• Marine bioscience (fish health/fish nutrition)	• Boreal and cold ocean systems
• Petroleum reservoir engineering and characterization	• Petroleum geoscience
• Modelling and scientific simulation	• Limbic system plasticity
• North Atlantic archaeology	• Irish studies
• Traditional music/ ethnomusicology	

Tier I appointees will be outstanding established researchers. Tier II appointees will be outstanding emerging researchers.

Applicants should submit a curriculum vitae, a statement of research interests and plans and names of three references to: Dr. Evan Simpson, Vice-President (Academic)
Memorial University of Newfoundland
St. John's, NF Canada A1C 5S7
Fax: (709) 737-2074
E-mail: *vpacad@mun.ca.*

Consideration of files will begin on Feb. 1, 2001. Memorial University is an equal opportunity employer. There is no restriction with regard to nationality or residence.
For further information:
www.mun.ca/research/crc/.

Memorial
University of Newfoundland

Research Excellence

Memorial University is home to a vibrant and innovative research community.

Our Strategic Research Plan for the Canada Research Chairs program focuses on internationally recognized research in:

- **Industrial development and environmental sustainability**
- **Ocean and coastal studies**
- **Health**
- **North Atlantic/Newfoundland studies**

Memorial is Atlantic Canada's largest comprehensive university, offering degree programs in 15 faculties and schools to 16,000 students.

The main campus is located in St. John's, capital of Newfoundland and Labrador, a major centre for business activity with vigorous private and public investment in culture, science and technology.

We have nearly 1,000 faculty members who are committed to excellence in the advancement of their fields and to the economic wealth and social well-being of the people of Newfoundland and Labrador — and the world beyond.

Molecular Microbiologist

Microbial Genomics and Ecology

Scientists and engineers at ORNL conduct basic and applied research and development to create scientific knowledge and technological solutions that strengthen the nation's leadership in key areas of science; increase the availability of clean, abundant energy; restore and protect the environment; and contribute to national security.

ORNL also provides an environment that encourages collaborative research and development, and promotes access to the Laboratory's facilities by researchers from other research organizations, industry and academia.

To learn more about opportunities at ORNL, see our Web site at: http://www.ornl.gov/

The Microbial Genomics and Ecology Group in the Environmental Sciences Division (ESD) at the Oak Ridge National Laboratory is seeking a highly qualified Molecular Microbiologist to contribute to research on microbial functional genomics and the quantification and functioning of microorganisms in the environment. ESD currently has several investigators and numerous DOE-funded projects using state-of-the-art technology, including microarrays for the analysis of microbial physiology and communities. We are seeking an experienced researcher to conduct laboratory and field-scale research on microbial physiology and microbial ecology using modern molecular methods in the Division's well-equipped laboratories. The applicant should have demonstrated skills and knowledge in analysis of DNA sequences, DNA sequencing, development of PCR probes and primers, isolation of DNA from environmental samples, cloning and genetic engineering of bacteria, and developing and using DNA microarray-based genomic technology for analyzing microbial community structure.

The position requires a PhD in microbiology or molecular biology with a background in physiology, and skills and experience in allied areas. The successful applicant will have experience in laboratory and field investigations of microbial genomics, microbial diversity, bioremediation and DNA repair. Experience writing successful grants and a significant publication record are expected. The applicant will work with other staff members in developing an interdisciplinary research program targeting the needs of the DOE. The position requires a highly motivated investigator who is comfortable working in a team setting and has experience in the supervision of students and technicians meeting programmatic objectives.

Qualified candidates are invited to send a current resume and a list of three or more references to: Dr. Anthony V. Palumbo, Environmental Sciences Division, PO Box 2008, Dept. SCI, Oak Ridge National Laboratory, Oak Ridge, TN 37831-6038; e-mail: palumboav@ornl.gov

For more information, please visit our Web sites at:

http://www.ornl.gov
http://www.esd.ornl.gov
http://www.esd.ornl.gov/programs/microbes/

ORNL, a multipurpose research facility managed by UT-Battelle, LLC for the US Department of Energy, is an equal opportunity employer committed to building and maintaining a diverse workforce.

UT-BATTELLE

St. Jude Children's Research Hospital
ALSAC • Danny Thomas, Founder

Postdoctoral Position in Molecular Oncogenesis

A Postdoctoral Position is available to study the role of chimeric oncogenes created by chromosomal translocations in the genesis of human solid tumors. Ongoing studies of the *EWS/FLI* fusion gene found in Ewing's sarcoma show that this class of oncogene disrupts regulation of transcription, splicing, and differentiation. Related chimeric oncogenes are found in half of all human solid tumors with characterized translocations. The project includes analysis of *EWS/FLI* and related genes in a novel *in vitro* system as well as *in vivo* studies using genetically engineered mice. This position is ideally suited for applicants who have recently received a Ph.D. with experience in molecular biology, biochemistry, cell culture, and/or genetic manipulation in mice.

St. Jude Children's Research Hospital has a highly interactive research environment and state-of-the-art facilities including core laboratories for microarray analysis of gene expression and transgenic/knock-out technology. A competitive stipend and benefits package including funds for professional travel is available. Interested candidates should send a curriculum vitae and names and addresses of three references to:

Suzanne J. Baker, Ph.D.
Department of Developmental Neurobiology
St. Jude Children's Research Hospital
332 North Lauderdale
Memphis, TN 38105
SJCRH is an Affirmative Action/
Equal Opportunity Employer.

GRADUATE PROGRAMS

Graduate Studies in

MICROBIOLOGY & MOLECULAR GENETICS

Our Program is ideal for Ph.D. candidates seeking state-of-the-art training in molecular biology, genetics, biochemistry, and cell biology. We study prokaryotic and eukaryotic microorganisms as model systems for understanding fundamental life processes and for their intrinsic medical importance. Areas of research include:

- ❑ ***Cell-Cell Interactions***
- ❑ ***Cell Division***
- ❑ ***Development & Differentiation***
- ❑ ***Gene Regulation & Metabolic Control***
- ❑ ***Genomics***
- ❑ ***Membrane Dynamics & Cell Surfaces***
- ❑ ***Microbial Pathogenesis***
- ❑ ***Protein-Nucleic Acid Interactions***
- ❑ ***Signal Transduction***
- ❑ ***Structural Biology***

The Program's distinguished faculty is drawn from The University of Texas-Houston Medical School, M.D. Anderson Cancer Center, Texas A&M Institute for Biomedical Technology, and Baylor College of Medicine. Together these institutions comprise the Texas Medical Center, one of the world's largest and most dynamic research centers.

Throughout their training, students receive an annual stipend of $20,000 plus benefits, and enjoy Houston's vibrant culture and affordability. For applications and additional information, please visit our website: ***mmg.uth.tmc.edu***.

THE UNIVERSITY OF TEXAS
HOUSTON
HEALTH SCIENCE CENTER

UTHSC-Houston is an equal opportunity employer. Women and minorities are encouraged to apply.

BATTLE AGAINST CANCER

As one of the world's top five pharmaceutical organizations, AstraZeneca is on the front lines of drug discovery and development. Together, our nine R&D centers around the world have delivered some of the most effective and widely used pharmaceuticals available. The ongoing challenge to develop innovative and effective drugs against the complexities of cancer requires intellectual, scientific, and technological resources second-to-none. At AstraZeneca we have the necessary resources with the world's brightest and most experienced talent.

We continue to look forward to strengthening our world-leading edge in cancer drug discovery in order to discover the anti-cancer drugs for the 21st century. Working in our new state-of-the-art facility in Waltham, MA, our newly created US-based **Cancer Research Group** is concentrating on three key areas: target evaluation, drug discovery, and pre-clinical biology. With an integrated strategy in mind, we are exploring new therapeutic approaches in areas such as cell signaling, cell cycle, and apoptosis.

ONE GLOBAL FORCE

FIRST FOR INNOVATION

Our mission requires innovative, progressive thinkers with drug discovery experience and proven skills in molecular biology, cellular biology, biochemistry, and/or pharmacology with the potential and willingness to push the limits of personal development. At AstraZeneca R&D Boston, you will find the best minds, the best resources, and the best reason: the Battle Against Cancer.

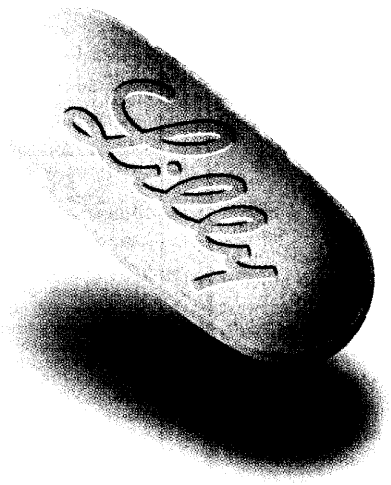
- **Ph.D. Team Leaders**
  You will lead and motivate a team of bioscientists dedicated to the discovery of new cancer fighting drugs. You should have two to five years of post-doctoral experience with proven productivity in the areas such as cell signaling, cell cycle, apoptosis, or emerging anti-cancer areas. Excellent interpersonal, management, and communications skills, and a commitment to excel in a team-oriented, project-driven environment are essential. **Job Code: 2001-1CS**

- **Research Bioscientists**
  You will have a BS/MS with proven investigative laboratory skills and the desire to join a dynamic team of cancer biologists in actively identifying new anti-cancer molecular targets and cancer fighting agents. We are looking for professionals in the areas of cell biology, biochemistry, molecular biology, and protein expression and purification. Experience in automated assay development (in vitro, in vivo, whole cell) is desirable. Excellent interpersonal and communication skills are essential. **Job Code: 2001-2CS**

When you join the AstraZeneca Cancer Research Team, you will receive superb compensation and benefits, deserved recognition, and outstanding opportunities to develop your career. Please forward your resume to: **AstraZeneca R&D Boston, Job Code:_____, 35 Gatehouse Drive, Waltham, MA 02451; E-mail: hr@astrazeneca.com; Fax: 781.839.4500.** Diversity is a force to embrace. We are an Equal Opportunity Employer.

AstraZeneca

Join the battle against cancer: astrazeneca-boston.com



A cure for the common career.

As one of the largest biotech facilities in the world, we offer unprecedented opportunities for scientists to do great things. Add to that a whopping amount of creative freedom and the chance to work with knowledge achieved through cutting-edge genomics efforts, and it's no wonder we've reached a level of excellence other pharma only dream of. A cure for the common career? You could say that.

We are an equal opportunity employer who recruits, hires, trains, and promotes persons in all job titles without regard to race, color, religion, national origin, age, disability, or veteran status. ADSCICHBH

lilly.com/careers

Lilly

Answers That Matter.

GLOBAL OPPORTUNITIES

IRRI
International Rice Research Institute
Position Announcements

IRRI is seeking to fill two positions - Biochemist and Soil Scientist/Agronomist - at its headquarters south of Manila. The Institute is one of 16 members of the Consultative Group on International Agricultural Research (CGIAR), which is cosponsored by the World Bank, FAO, and UNDP. It is a nonprofit, autonomous organization engaged in research and training on rice-related technology, and its scientists work in partnership with agricultural research institutions in major rice growing countries throughout the world.

Salary and perquisites for the positions are internationally competitive. These include support for education of children, car and housing, medical and retirement benefits. IRRI provides a gender-sensitive environment and welcomes women applicants. The positions require international travel, especially within Asia, and the ability to work collaboratively in multi-cultural environments and in interdisciplinary teams. Interested candidates can learn more about IRRI and its activities by visiting the Institute's Web Site at http://www.cgiar.org/irri.

Biochemist
The successful candidate is expected to: 1) enhance IRRI's capacity to assay micronutrients and other parameters of grain quality in rice germplasm, breeding lines, and rice mutants; 2) develop an interdisciplinary research program that will contribute to a better understanding of the genetic basis of grain quality; 3) collaborate with plant breeders and other scientists at IRRI, national agricultural research systems (NARS), and advanced research organizations to enhance the nutritive value and grain quality of rice; and 4) provide oversight of IRRI's Grain Quality Laboratory. Candidates must have: 1) a Ph.D. in biochemistry or a related discipline and 2) a demonstrated record of achievement in analytical biochemistry. At least 3 years postdoctoral experience is an advantage. Familiarity with high-throughput assays of micronutrients, metabolites and enzymes is highly desirable.

Soil Scientist/Agronomist
The successful candidate is expected to: 1) contribute soil and nutrient management expertise to IRRI's research on crop and natural resource management in rainfed lowland and upland rice ecosystems; 2) conduct strategic and applied research on soil and nutrient management, leading to the development of technologies for improved natural resource management and rice production in rainfed environments; and 3) collaborate with scientists from national agricultural research systems in developing countries and from advanced research institutions. Candidates must have a Ph.D. in soil science or agronomy, with training in the fundamentals of soil science. A strong record of research and publications, preferably including the management of infertile or problem soils, and a strong commitment to field-oriented research are essential. Candidates should have a working knowledge of quantitative soil classification and the targeting of crop management to site-specific environmental conditions. Experience in rice production in rainfed environments is highly desirable.

Applications
For either of these positions, please send applications enclosing a full Curriculum Vitae and the names of three referees and their telephone and fax numbers, and or e-mail addresses to:
Dr. John Bennett (j.bennett *a* cgiar.org)
Chair of Biochemist Search Committee
Deadline: **31 March 2001**
or
Dr. Roland Buresh (r.buresh *a* cgiar.org)
Chair of the Soil Scientist/Agronomist Search Committee
Deadline: **15 March 2001**

International Rice Research Institute
MCPO Box 3127
1271 Makati City, Philippines
Fax no.: (63-2) 891-1292

Please refer to code: IR01-SCIENCE

University of Massachusetts Amherst
UMASS

DEAN OF THE COLLEGE OF NATURAL SCIENCES AND MATHEMATICS

Located in the historic Pioneer Valley of Western Massachusetts and established in 1863 under the Morrill Land Grant Act, the University of Massachusetts Amherst seeks a dynamic and visionary leader with a record of scholarly achievement and professional accomplishment to lead the College of Natural Sciences and Mathematics. Amherst, the flagship campus of the five-campus University of Massachusetts system and home to 1,200 faculty, 19,000 undergraduate and 6,000 graduate students is poised to enhance its stature as a leading public research university. UMass Amherst is a Carnegie Doctoral/Research Extensive, land-grant institution with external support in excess of $75 million annually for research and scholarship.

Reporting to the Senior Vice Chancellor for Academic Affairs and Provost, the Dean is the principal academic and administrative officer for the College of Natural Sciences and Mathematics. The College contains nine departments including Astronomy, Biochemistry and Molecular Biology, Chemistry, Computer Science, Geosciences, Mathematics and Statistics, Physics, and Polymer Science and Engineering. Four graduate degrees are offered through interdisciplinary programs including Organismic and Evolutionary Biology, Molecular and Cellular Biology, Neuroscience and Behavior, and Plant Biology. The College has 250 faculty members, and approximately 1,400 undergraduate majors and 450 graduate students, many of them pursuing doctorates.

Qualifications for this position include:

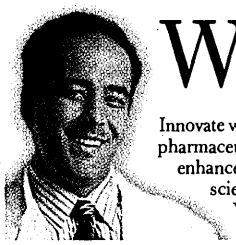
- A distinguished record of research and scholarship in the biological, physical or mathematical sciences appropriate for appointment as a tenured full professor in an academic department of the University;
- Demonstrated commitment to promoting, encouraging and facilitating the pursuit of excellence in teaching, research and other scholarly activities;
- The demonstrated ability to serve as a vigorous spokesperson and advocate for the College on campus, within the Commonwealth, nationally, and in the capital campaign;
- The demonstrated ability to work effectively with faculty members, students, staff, administrators, and public and private funding agencies.

The appointment will be effective on or about September 1, 2001. To ensure full consideration, nominations and applications, including vitae, a one page statement of the candidate's educational and administrative philosophy, and the names and addresses of three references, should be received by February 28, 2001. Acceptance of nominations and applications will begin immediately and continue until the position is filled. Please send nominations and applications to **Dean of the College of Natural Sciences and Mathematics Search Committee, Office of the Senior Vice Chancellor and Provost, 362 Whitmore Administration Building, University of Massachusetts, Amherst, MA 01003.**

The University of Massachusetts is an Affirmative Action/Equal Opportunity Employer
Women and members of minority groups are encouraged to apply.

ASSISTANT OR ASSOCIATE PROFESSOR IN ENVIRONMENTAL PATHOLOGY
The University of Vermont College of Medicine
Burlington, Vermont

The Department of Pathology at the University of Vermont (UVM) College of Medicine is seeking a PhD, MD, or PhD/MD at the Assistant or Associate Professor level to participate in an Environmental Pathology Program with emphasis on mechanisms of environmental diseases including lung cancers, pulmonary fibrosis, asthma, and acute lung injury. We are particularly interested in individuals with established programs in funded research in free radical biology, cell signaling and growth control, transcription factors, apoptosis, and cell cycle checkpoints as applied to the field of lung disease. The Department of Pathology supports basic/clinical research in lung biology, cancer cell biology, cardiovascular research and environmental pathology which features an NIEHS training program for predoctoral and postdoctoral fellows. The appointed individual will be encouraged to interact with University faculty members comprising this program and the Vermont Cancer Center, an NCI-designated Comprehensive Cancer Center. Teaching and clinical responsibilities will be minimal. The UVM College of Medicine includes "state-of-the-art" Cell Imaging and Transgenic Mice Facilities and supports a wide range of basic and clinical research activities with approximately $40M in grant-funded research activities per year. Applications will be accepted until April 1, 2001. Please send your Curriculum Vitae and three (3) references to: **Nicholas Heintz, Professor, Department of Pathology, University of Vermont College of Medicine, Medical Alumni Building, Burlington, VT 05405.** *Applications are encouraged from women and individuals of diverse racial, ethnic, and cultural backgrounds. AN EQUAL OPPORTUNITY AFFIRMATIVE ACTION EMPLOYER.*



What drives you?

Innovate with the scientific vanguard. Join the innovative team at Schering-Plough Research Institute. With such breakthrough pharmaceuticals as CLARITIN® and INTRON® A, we continue to discover revolutionary medication that extend and enhance the lives of millions. We're also experts in developing successful careers. Working with internationally known scientists and researchers, our collaborative, entrepreneurial environment allows your ideas to grow and be realized. You'll also experience more responsibility and autonomy right from the outset. Give your career the right treatment in one of the following exceptional opportunities at our Kenilworth, NJ location:

PhD Scientist - Isolation Chemistry

Responsibilities include HPLC analysis of fermentation/extract evaluation for the natural product fraction library; structure elucidation of pure fractions by MS/NMR methods to evaluate chemical diversity of the library; and isolation and identification of active hits from the antibacterial and antifungal genomic projects including overexpession and biochemical assays. You will also be involved in HPLC purification and structural characterization of potential natural product leads for various therapy targets. PhD in Organic/Analytical Chemistry and 2+ years of postdoctoral experience with a concentration in natural products isolation and structure elucidation are required. Expertise in HPLC and Spectroscopy [NMR, Mass Spec] is needed. Creativity, independent problem solving and strong communications skills are desired.
Job Code: PAD/SCJ/SRI/221HS

Postdoctoral Fellowship - Oncology/Tumor Biology

You will study the role of cell survival signaling pathways in tumorigenesis. Ongoing projects include using adeno viral and tet-inducible systems to express dominant negative mutants of key signaling proteins in tumor cells; validating targets for drug discovery; and exploiting promoter sequences to confer selective replication to adeno viral vectors. Candidates should offer strong background in molecular biology.
Job Code: PAD/SCJ/SRI/387HS

Postdoctoral Fellow - CNS/CV

You will investigate the Mechanisms of Intestinal Cholesterol Absorption; develop cell-based assays to explore the structure and function of novel ABC proteins; and function in a highly collaborative environment that includes molecular and *in vivo* biologists as well as an internal Informatics group. Candidate will offer some experience in the analysis of ATP binding Cassette (ABC) proteins. Proven publication record in the area of ABC transporter and/or cellular cholesterol metabolism is required.
Job Code: PAD/SCJ/SRI/198HS

BS/MS Research Associate - Genomics

You will be involved with genomic cloning; design and preparation of targeting vectors and transgenes; and expression analysis of transgenic mice. BS/MS with 2-5 years of experience in molecular biology/cloning are required. Experience with quantitative PCR is a plus. Good communication abilities and organizational skills as well as extensive experience with general computer software are needed. Job Code: PAD/SCJ/SRI/241HS

BS/MS Research Associate - Immunology

Join a team working towards discovery of novel therapeutics for treating immunologically based diseases; utilize a broad spectrum of analyses in the areas of cellular immunology, molecular biology, Taqman analysis and pathophysiology; and profile new drug candidates *in vitro* and *in vivo*. Your work will involve histological, protein and RNA analysis in determination of experimental therapeutic efficacy and effect on mechanism of disease models. BS/MS degree and 1-4 years of experience in tissue culture; histology; immunohistochemistry and general methodology (e.g. cytokineELISAs) are required. Experience in conducting *in vivo* research is needed. Training in molecular biology and flow cytometry is helpful.
Job Code: PAD/SCJ/SRI/360HS

BS/MS Research Associate - CNS Human Genomics

Define the initial biology of orphan GPCRs, and contribute heavily to the prioritization for ligand screening and knockout generation. BS/MS and 4-6 years of academic or industrial experience in Microbiology are required. Will join cohesive team and also do independent research. Required skills include gene expression analysis by quantitative PCR, northern blots, in situ hybridization, and immunocytochemistry. Experience with G protein-coupled receptors in the CNS area, and/or knockout and transgenic mouse models are desirable. Job Code: PAD/SCJ/SRI/197HS

BS/MS Research Associate - Cancer Genomics

You will assume responsibilities for conducting studies in the area of cancer genomics for the purpose of detecting novel therapeutic drug targets and join a team involved with preparation of RNA for microassay analysis. Responsibilities include quantitative PCR for expression profiling; analysis of expression and genomics data; and biological validation of drug targets. BS/MS in Molecular Biology and 2-5 years experience in Molecular Cloning, Taqman Analysis DNA sequencing, cDNA library construction and analysis of gene expression are required. Experience utilizing sequence analysis/comparison software and data in Excel is desired.
Job Code: PAD/SCJ/SRI/389HS

We offer an excellent compensation package including competitive salary, profit sharing, 401(k) plan, and a cash incentive bonus program. Comprehensive benefits include: group insurance and retirement programs, flexible work arrangements, education assistance, and health and wellness programs.

For more information and to apply online, visit us at www.whatdrivesyou.com or mail your resume, referencing job code, to: Schering-Plough c/o Resume Processing, P.O. Box 549248, Suite 187, Waltham, MA 02454-0248. *By responding to this ad you may be considered for other potential opportunities throughout the Schering-Plough organization. If a potential match exists, you will be notified.* An equal opportunity employer.

Search jobs @
www.whatdrivesyou.com

Schering-Plough
Research Institute

MAMMALIAN GENOMICS POSITIONS AT CORNELL UNIVERSITY

As part of a university-wide genomics initiative, Cornell University is soliciting applications from outstanding candidates for faculty positions at the Assistant Professor level in basic and applied areas of mammalian genomics. The appointees are expected to participate in a campus-wide, interdisciplinary program utilizing genomic approaches including genetics, developmental biology, informatics, biochemistry/metabolism, gene expression, and gene targeting; appointments will be in appropriate departments. Outstanding research facilities and set-up packages are available for these positions.

FACULTY POSITIONS

Developmental Biology: Candidates are sought whose research focuses on the analysis of developmental processes in the mouse. Those studying the molecular and genetic bases of development and who employ genome-based methodologies will be viewed with particular interest. Contribution to teaching in the area of developmental biology is expected.

Human Population Genetics: Candidates are sought with expertise in the molecular and quantitative analysis of population genetics investigating the extent, distribution, causes and effects of genetic variation in the human genome. Individuals who can contribute to campus-wide programs in comparative, evolutionary, mammalian, and/or computational genomics are of particular interest. The successful candidate is expected to contribute to undergraduate and graduate teaching in population genetics, human genetics, and/or comparative genomics.

Mouse Genetics: Candidates should have an interest in the identification of new genes of metabolic interest, investigation of gene/nutrient interactions, or identification of genes that modify metabolic pathways.

Mouse Biology: Candidates should have an interest in using gene targeting and mutagenesis to explore relationships between metabolism and disease, nutrition, and development or gene/nutrient interactions.

Human Genetic Epidemiologist: Candidates should have an interest in applying their expertise in human genetics and epidemiology to investigate gene/nutrient interactions in health and disease, effects of single nucleotide polymorphisms on nutritional requirements, relationships between nutrition and human genetic diversity, or other metabolic questions with nutritional implications.

Functional Genomics of domestic animals: The successful candidate will pursue a deeper understanding of mammalian genomes to advance the genetic improvement of agriculturally important animals. Research efforts will focus on identification and functional studies of alleles/genes underlying quantitative traits loci for economically important traits such as growth, lactation, reproduction, and disease resistance. The use of (or information from) vertebrate model systems is expected. The successful applicant will be expected to contribute to undergraduate and graduate teaching in molecular genetics of domestic animals.

Applicants should identify the position they are interested in and send curriculum vitae, statement of research interests, and names of at least three references to: **Mammalian Genomics Search Committee, T4-018 VRT, Cornell University, Ithaca, NY 14853-1901, Attn: Amy Pellegrino, ap14@cornell.edu, phone 607- 253-3336, fax 607- 253-3317. The positions will remain open until filled; applications will be reviewed as soon as possible.**

CORNELL UNIVERSITY

Cornell University is an Equal Opportunity/Affirmative Action Employer and Educator.

http://www.cornell.edu

EPIGENESIS PHARMACEUTICALS

EpiGenesis is a growing pre-IPO company, focused on applying cutting-edge advances in epigenetic medicine, to the discovery and development of novel respiratory disease therapeutics. We are looking for a **Director, Special Projects** who will be responsible for exploring the potential of novel scientific concepts for use in the treatment of respiratory diseases. The Director, Special Projects will be responsible for shepherding projects from the conceptual phase through the clinical phase of the EpiGenesis Discovery pipeline. He or she should have a PhD in Pharmacology, Physiology, or Molecular Biology and have demonstrated expertise in respiratory biology, and inflammation. In addition the ideal candidate will have experience in managing and/or coordinating research programs involving multidisciplinary teams and external collaborations. The incumbent should be a self-starter and have the ability to embrace the panoply of challenges involved in taking novel research concepts and stewarding them to the clinic. He/she should have the flexibility to work at the bench, search patent databases, publish cutting edge research, and travel to international scientific conferences. EpiGenesis hires the most talented individuals who want to gain both professional and personal fulfillment from being part of this dynamic organization. For more information on this and additional opportunities, please visit our website at **www.EpiGene.com**. To apply for any of these positions, please e-mail your cover letter, including salary history, along with your cv or resume (as a Word attachment) to HREPI@EpiGene.com or send/fax to **EpiGenesis HR Dept., 7 Clarke Dr., Cranbury, NJ 08512,** 609-409-6126. *EEO M/F/D/V.*

Center for Vision Research, Tufts University, Boston
Pre- and Post-Doctoral Training Programs in Eye and Vision Research

Center for Vision Research
Tufts University

The Center supports shared activities and resources for more than 30 vision scientists from the Schools of **Medicine**, **Nutrition**, and **Engineering**. Our multidisciplinary research encompasses the spectrum of eye biology, visual processes, and disease. Pre-doctoral students are accepted into one of the PhD programs in the Sackler School of Graduate Biomedical Sciences, then choose a vision lab for their dissertation work. Post-doctoral fellows apply directly to a specific lab. An MD/PhD program and a clinician-scientist training program are also available. Our programs are distinguished by unusually effective integration between laboratory and clinical activities. The clinical ophthalmology training program at the **New England Eye Center, Tufts University School of Medicine** is ranked among the top ten nationwide.

Postdoctoral Position in **Genetics** to work with Dr. M. Elizabeth Fini and Dr. Joel S. Schuman on identifying genetic risk factors predisposing to early glaucoma onset (Wang et al., *Nature Medicine*, in press). Excellent molecular biology bench skills required. Faculty level appointment is possible.

Postdoctoral Position in **Biomedical Optical Imaging** to work with Dr. Joel S. Schuman on Optical Coherence Tomography (OCT) and ultrahigh resolution OCT development for clinical ophthalmic applications (Drexler et al., *Nature Medicine*, in press). Research will be in collaboration with Dr. James G. Fujimoto's Ultrafast Optics Group at MIT. A doctorate in electrical engineering or physics with a background in lasers and optics required. Computer software experience preferred.

Postdoctoral Positions to work with Dr. Allen Taylor. **Biochemists** or **Molecular Biologists** to explore functions of the ubiquitin proteolytic pathway in response to oxidative stress (upon aging), or in regulation of lens cell division and proliferation. An **Epidemiologist** to interpret a large body of collected data regarding correlations between nutrient intake and risk for age-related cataract or age-related maculopathy. Knowledge of spoken and written English required. Experience a major asset. Level of appointment commensurate with experience. Send resume to ataylor@hnrc.tufts.edu.

Postdoctoral Position in **Retinal Cell Biology** and **Laser Applications** to work with Dr. Mark A. Latina on selective targeting of pigmented ocular cells. Research will focus on developing novel approaches to treatment of macular degeneration. An M.D. or Ph.D.and knowledge of tissue culture techniques essential. Experience with lasers and optics helpful.

See out web site at www.TCVR.org. Contact us at info@TCVR.org.

An equal opportunity/affirmative action employer

Postdoctoral Associate

The **HHMI** is seeking Postdoctoral Associates for two of its **New York City** locations.

DNA Replication and Repair

In the HHMI lab at Rockefeller University, study the molecular mechanisms of DNA replication/repair (including systems of prokaryotic and eukaryotic organisms). A Ph.D. in Molecular Biology, Microbiology, or Biochemistry is required. Experience in working with protein(s) with an eye toward its mechanism is desirable. Submit a CV and 3 references to: **Dr. O'Donnell, Box 228, 1230 York Avenue, NY, NY 10021. Fax: (212) 327-7253. E-mail: odonnel@mail.rockefeller.edu**

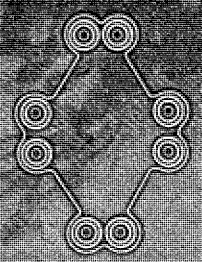
Computational Biology/Biophysics

In the HHMI lab at New York University, study biomolecular dynamics simulations, involving protein and nucleic acid structure and function. A Ph.D. in Chemistry, Biophysics, Computational Math, or a related field is required. Excellent computer/programming skills required. Submit a CV, research statement, and 3 references to: **Dr. Schlick, CIMS, NYU, 251 Mercer Street, NY, NY 10012. Fax: (212) 995-4152. E-mail: schlick@nyu.edu**

For more infomation, visit our website at **www.hhmi.org,** and search by investigator name (i.e., O'Donnell and/or Schlick).

We offer excellent benefits packages, and we are an equal opportunity employer.

HHMI
HOWARD HUGHES MEDICAL INSTITUTE



Vision...Leadership...Discovery

EXELIXIS™

Exelixis, Inc. is the leading biotechnology company using comparative genomics and model system genetics. Our rapid growth has created outstanding opportunities to join our multi-disciplinary R&D team in the following roles:

INFORMATICS

Research Scientists
Multiple Positions

You will design, develop and maintain our core software and database systems, using your strong software engineering background and solid programming skills to put in place systems that are robust, scalable and efficient to support the research programming activities at Exelixis. Requires a BS, MS, PhD or equivalent experience in Computer Science and 2+ years of programming experience with C, C++, Perl, Python, HTML, SQL and/or Java in a production environment; experience with client-server architectures, common UNIX tools, and structured and object-oriented design; and excellent communication skills. Experience maintaining DNA and protein sequence databases and familiarity with Sun workstations, Solaris OS, X Windows and/or RDBMS are desired. Job #: 01-06 through 01-12

GENOMICS

Genotyping Team Leader

You will be responsible for establishing and overseeing a genotyping core which supports multiple programs. Responsibilities include implementation of cutting-edge genotyping technologies as well as managing daily throughput. Requires a BS with 5+ years experience, MS with 1+ years experience, PhD or equivalent and a strong background in genomics and molecular techniques preferred. Experience with large-scale projects and automation is required. Previous exposure to informatics a plus. Job #: 01-26

Laboratory Automation & Robotics Engineer

You will lead the effort in building a genomics automation platform by designing and implementing laboratory automation and associated robotics systems. You will integrate software by development of links to databases and laboratory information management systems (LIMS) and interface with scientific staff to determine needs and opportunities. Requires an MS, PhD or equivalent in Molecular Biology and/or Engineering. Industry experience preferred including comprehensive understanding of molecular biology. Job #: 01-30

MOLECULAR PHARMACOLOGY & STRUCTURAL BIOLOGY

Research Scientist

You will make major contributions to lead compound prioritization and assessment of novel targets, characterize leads from high-throughput screens and determine mechanism of action. Requires a PhD in Enzymology with 3+ years experience characterizing enzyme mechanism of action and enzyme-small molecule interactions. Job #: 01-14

Research Scientist

You will use in-depth knowledge of oncology/signal transduction and modern cell biology tools to develop and implement novel cell-based assays and characterize lead compounds emerging from high-throughput screens. Requires a PhD or equivalent with 3+ years experience in cell biology, molecular biology or related field and a desire to apply this expertise to drug discovery. Experience with immunoprecipitation, Western blotting, fluorescent microscopy, tissue culture and modern molecular biological techniques required. Job #: 01-15

Research Scientist

You will be responsible for providing hands-on scientific leadership while studying protein-drug interactions. Duties will include characterization of protein-drug and protein-protein interactions using BIAcore, and evaluation and development of additional biophysical methods for assessing compound-target binding. Requires a PhD or equivalent with 3+ years experience in mechanistic enzymology and/or receptor binding. Practical skills in BIAcore and capillary electrophoresis/microcalorimetry methods are essential. Job #: 01-13

NEW LEAD DISCOVERY

Research Scientist

You will support assay development, high-throughput screening, and compound evaluation for internal drug discovery projects. You will be responsible for the development of primary and selectivity assays, HTS, lead validation and lead optimization. Requires a PhD or equivalent in Biochemistry or a related field. Experience in enzymology, assay development, and lab automation is desirable. Job #: 01-17

Exelixis offers highly competitive salaries and benefits, generous equity participation, and a stimulating, highly interactive research setting that recognizes and rewards achievement. Please send your resume/CV, indicating the appropriate Job #, to: Exelixis, Inc., HR Department, 170 Harbor Way, P.O. Box 511, South San Francisco, CA 94083-0511; Fax: (650) 837-7226 or email: careers@exelixis.com. EOE.

Please visit our website at

www.exelixis.com

to view additional exciting career opportunities at Exelixis.

CIIT
CENTERS FOR HEALTH RESEARCH

VICE PRESIDENT OF RESEARCH

The CIIT Centers for Health Research, an environmental health research institute located in Research Triangle Park, NC, is seeking an exceptional individual to provide scientific leadership in the position of Vice President of Research. The Vice President will be responsible for the oversight and leadership of four multidisciplinary Institute research programs and two recently established Centers of excellence in Integrated Genomics and Computational Biology and Extrapolation Modeling. The Vice President will serve as a principal advisor to the Institute President on scientific affairs and will lead the research leadership management group. The Vice President will be responsible for developing and implementing research goals and initiatives consistent with established priorities for the Institute's research programs and projects, determining the effectiveness of current programs, and recommending new programs and initiatives to meet the global health research issues of the Institute's sponsors. Maintaining an active research program is expected.

Candidates must have either a M.D., Ph.D., or equivalent degree in a health science discipline; an international research reputation; at least 15 years of progressive experience in scientific research and management; and a demonstrated record of obtaining competitively awarded research funds and managing multiple investigators, as well as multi-year projects. The successful candidate will have well-developed skills for communicating with scientific peers, technical individuals trained in other fields, and industry managers and executives. Salary is commensurate with experience and level of accomplishments.

Interested applicants should submit a letter of interest and a curriculum vitae by March 30, 2001. Applications and curriculum vitae should be directed to the **HR Director, 6 Davis Drive, P.O. Box 12137, RTP, NC 27709-2137. E-mail: bramlage@ciit.org.** CIIT offers excellent medical & dental insurance, a 401(k) savings plan, paid vacation and holidays, and a highly stimulating academic work environment. *CIIT is an Equal Employment Opportunity employer.*

mayo

MAYO CLINIC POSTDOCTORAL POSITION

A postdoctoral position is available to investigate mechanisms of lymphocyte activation during anti-tumor and anti-viral immune responses. A primary focus in the laboratory is the characterization of intracellular signaling events that either positively or negatively regulate the activation of cytotoxic lymphocytes. Experience in molecular biology, biochemical methodologies, and cell biology is desirable. Send a curriculum vitae and the names of three references to:

Paul J. Liebson, M.D., Ph.D.
Department of Immunology
Mayo Graduate and Medical Schools
Mayo Clinic
200 First St. SW
Guggenheim-301
Rochester, MN 55905
See also: http://www.mayo.edu/research/

Mayo Foundation is an affirmative action and equal opportunity employer and educator.

See Where Our Openings Can Take You.

This space, no bigger than a fingertip, symbolizes big opportunities at Boston Scientific. As the world leader in minimally invasive medical devices, our 10,000 products help patients walk away from procedures that once required months of recovery. You'll tackle new technologies to develop leading edge products and face exciting challenges at a $3 billion company that still acts and thinks like a start up.

Microbiologist

In this position, you will perform and coordinate outside testing requirements in the areas of bioburden, material analysis, environmental monitoring, and LAL testing on materials and products, as well as develop and implement corrective actions for any test failures or other assigned issues. You'll participate in product development teams as required; develop biocompatibility studies and support existing internal or contracted biocompatibility programs. You will also be required to develop or support sterilization studies and validations for new and existing sterilization cycles and assist in audits of contracted laboratory and sterilization facilities. BS in Microbiology or related field is required. Two years' related experience in the medical device industry preferred.

To explore our many opportunities, visit us at our website at www.bsci.com/hr

Visit Boston Scientific online, or e-mail your resume (text format, no attachments) to **spencerhr@bsci.com** If you do not have Internet access, forward resume to:
Ad Code: ADS012601MV, Human Resources, 780 Brookside Drive, Spencer, IN 47460

Boston Scientific

www.bsci.com/hr

Boston Scientific is an equal opportunity employer M/F/D/V.

Staff Scientist - Assay Development

The Genomics Institute of the Novartis Research Foundation seeks 2 exceptional staff scientist candidates to develop cellular and cell-free small molecule and gene screening assays. GNF, located in Torrey Pines, is developing and applying novel technologies for genome-wide functional characterization. We apply cutting-edge biotechnology to discover the function of novel genes critical to diverse biological processes, and small molecule modulators of these gene products. Successful candidates will have a Ph.D. and have completed at least 2 years of postdoctoral training - experience in industry preferable. Fundamental knowledge of current assay methods and detection formats including luminescence, fluorescence, FRET, TR-F, FP, ELISA is required, practical experience preferred.

Send CV with 3 references to: **GNF, HR/JC, 3115 Merryfield Row, Ste. 200, San Diego, CA 92121; or Fax: 858/812-1670; or e-mail to: jobs@gnf.org** EOE

www.gnf.org

You will find it all at Bayer. The Bayer Research Center in **West Haven, CT** has worldwide responsibility for discovering new drugs to treat diabetes, obesity and cancer. We currently have exceptional opportunities available within our modern, multi-disciplinary Research Center for the following:

Principal Research Scientists

Receptor Pharmacology

Enzymology / Biochemistry

Synthetic Organic Chemistry

Sr. Research Scientists

Receptor Pharmacology / High Throughput Screening

Enzymology / Biochemistry

Bioinformatics Specialist

Cell Biology / In Vivo Cellular & Organ Culture Assays

Synthetic Organic Chemistry

Computational Chemistry / Molecular Modeler

Sr. Associate Scientists

Molecular Biology / Tissue Culture

Protein Biochemistry / Cell Biology

Pharmacology / Signal Transduction

Behavioral / In Vivo Scientist

High Throughput Screening / Assay Development

Biochemistry / Enzymology

Synthetic Organic Chemistry

Combinatorial Chemistry

Process Chemistry

Mass Spectroscopy

Find it for yourself at **www.founditatbayer.com.** Please forward your resume and research summary, including **Job Code #ASM0101,** to our resume response center at: **Bayer Corporation, Pharmaceutical Division, P.O. Box 3238, Scranton, PA 18505-0238. Fax: 1-888-805-7474; email: bayerpharma@alexus.com.** We are an equal opportunity employer committed to diversity in the workplace.

Bayer

Pharmaceutical Division

Join us in changing the world with great care.

www.founditatbayer.com

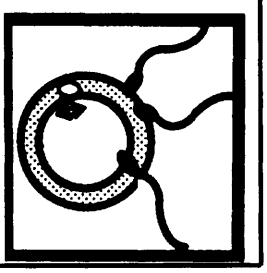
Reproductive Biology
at the
University of Kansas Medical Center

NIH Funded Postdoctoral Training for US Citizens

Areas of Research Emphasis:

- Neuroendocrine Control Mechanisms (J. Voogt)
- Gonadal Differentiation & Function (L. Heckert)
- Control of Ovulation (P. Terranova)
- Signal Transduction at Fertilization (W. Kinsey)
- Metallothionein Gene Expression (G. Andrews)
- Implantation (S.K. Dey)
- Immunology of the Placenta (J. Hunt)
- Mechanisms Controlling Viviparity (M. Soares)
- HoxC Gene Function (A. Godwin)
- Regulation of Gonadotropin Genes (M. Wolfe)

For more information contact:
Dr. William Kinsey
Department of Anatomy & Cell Biology
University of Kansas Medical Center
3901 Rainbow Boulevard
Kansas City, KS 66160
Phone: (913) 588-2721
Fax: (913) 588-7180
email: wkinsey@kumc.edu



Tenure-Track Position
Assistant or Associate Professor

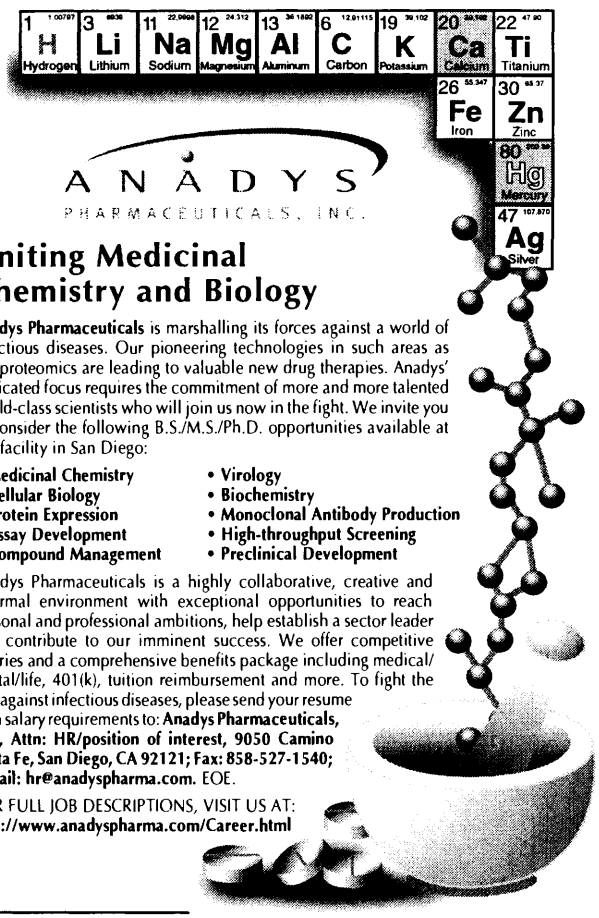
The Department of Molecular, Cellular and Craniofacial Biology at the University of Louisville invites applications for tenure-track faculty appointments at the level of Assistant or Associate Professor. Research programs in the area of developmental biology, utilizing contemporary molecular and/or genetic approaches would complement the Department's existing strengths in signal transduction, cardiovascular and craniofacial development, regulation of gene expression and molecular genetics of developmental anomalies. Candidates must have a Ph.D. degree or the equivalent, at least two years of postdoctoral training and a sound research program reflected by a strong publication record. Successful candidates will be expected to establish and maintain an independent and innovative research program that attracts extramural funding. Opportunities exist to collaborate with faculty in the Birth Defects Center, the Center for Genetics and Molecular Medicine, and the Child Evaluation Center.

Applicants should send a *curriculum vitae*, a description of research plans, and the names of three references to:

Dr. Robert Greene, Chairman
Dept. of Molecular, Cellular and Craniofacial Biology
University of Louisville Health Sciences Center
ULSD
501 South Preston Street
Louisville, KY 40292

The University of Louisville is an EEO/AA employer. Women and minorities are encouraged to apply.

UNIVERSITY of LOUISVILLE



ANADYS
PHARMACEUTICALS, INC.

Uniting Medicinal Chemistry and Biology

Anadys Pharmaceuticals is marshalling its forces against a world of infectious diseases. Our pioneering technologies in such areas as riboproteomics are leading to valuable new drug therapies. Anadys' dedicated focus requires the commitment of more and more talented world-class scientists who will join us now in the fight. We invite you to consider the following B.S./M.S./Ph.D. opportunities available at our facility in San Diego:

- **Medicinal Chemistry**
- **Cellular Biology**
- **Protein Expression**
- **Assay Development**
- **Compound Management**
- **Virology**
- **Biochemistry**
- **Monoclonal Antibody Production**
- **High-throughput Screening**
- **Preclinical Development**

Anadys Pharmaceuticals is a highly collaborative, creative and informal environment with exceptional opportunities to reach personal and professional ambitions, help establish a sector leader and contribute to our imminent success. We offer competitive salaries and a comprehensive benefits package including medical/dental/life, 401(k), tuition reimbursement and more. To fight the war against infectious diseases, please send your resume with salary requirements to: **Anadys Pharmaceuticals, Inc., Attn: HR/position of interest, 9050 Camino Santa Fe, San Diego, CA 92121; Fax: 858-527-1540; E-mail: hr@anadyspharma.com.** EOE.

FOR FULL JOB DESCRIPTIONS, VISIT US AT:
http://www.anadyspharma.com/Career.html

OSI Pharmaceuticals

OSI Pharmaceuticals is a leading biopharmaceutical company with a substantial portfolio of product opportunities for commercialization with the pharmaceutical industry. OSI's research programs are focused in the areas of cancer therapeutics, respiratory diseases, diabetes, and cosmeceuticals. OSI utilizes a comprehensive drug discovery and development capability to facilitate the rapid and cost-effective discovery and development of novel, small molecule compounds against more than 40 gene targets. To enhance our efforts in this direction we have positions open in our **Diabetes group, based out of our Tarrytown, NY facility:**

Research Investigator/ Senior Research Investigator

We are looking for an individual whose primary responsibilities will include leading a group in assay development and therapeutic target validation for the diabetes program. The position requires a Ph.D. in biochemistry/molecular biology/molecular pharmacology or related discipline with at least 4 years of post doctoral experience, relevant to diabetes. The candidate must have working knowledge of mammalian tissue culture, recombinant DNA techniques and/or in vitro pharmacology techniques. Experience with signal transduction a plus.

Research Associates

We are looking for individuals whose primary responsibilities will include assay development and therapeutic target validation for diabetes program using biochemical, molecular, and cell biology approaches. Requires a Master's degree in biochemistry or related discipline with 2 years of lab experience. Must have working knowledge of mammalian tissue culture, recombinant DNA techniques, and/or cell biology, or protein biochemistry. Experience with signal transduction a plus.

OSI Pharmaceuticals offers a superb benefits package, including 3 weeks vacation, stock options, 401(K) and opportunities for career development. Qualified candidates may send resumes (indicate position of interest) to: **Human Resources, OSI Pharmaceuticals, Inc., at Tarrytown, 777 Old Saw Mill River Road, Tarrytown, NY 10591; Fax (914)345-3565; e-mail: employment@osip.com.** EOE M/F/D/V.

www.osip.com

The Potsdam-Institute for Climate Impact Research (PIK)

The Potsdam Institute for Climate Impact Research was founded in 1992 as an independent government-funded research institute. PIK is member of the "Wissenschaftsgemeinschaft Gottfried Wilhelm Leibnitz" (WGL) and currently has a staff of around 130 scientists. Its role is to investigate the causes and impacts of global environmental change (such as climate change). The principal methods are interdisciplinary model development and computer simulation.

Further information: http://www.pik-potsdam.de (What's New / • jobs)

Vacancies at the Potsdam Institute for Climate Impact Research (PIK)

Research Group on Environmental Vulnerability Assessment (EVA)

With financial support from the European Commission, the Brandenburg Ministry of Research and Culture and other sources, PIK is setting up a new research group on the quantitative assessment of society's vulnerability to global change. Work will concentrate on computer-based simulation of potential impacts of global change on ecosystems and coastal zones as well as society's ability to adapt to these impacts. The research will use state-of-the-art models and data from many sources, including various economic sectors and other public interests. The group will represent the co-ordinating team of two European collaborative projects and contribute to several other projects. The group will be operational in early 2001. Applications are invited for the following scientific positions (some of them pending final approval of funding):

1. **Scientific co-ordinator, ecosystem assessment** (BAT-O II a, 36 months, full-time, keyword cr/01/01)
2. **Scientific co-ordinator, environmental scientist** (BAT-O II a, 36 months, full-time, keyword kl/01/01)
3. **Ecologist** (BAT-O II a, initially 24 months, full-time, keyword cr/01/02)
4. **Computer scientist / software engineer** (BAT-O IIa, 36 months, full-time, keyword kl/01/02)
5. **Social scientist** (BAT-O II a, 24 months, full-time, keyword kl/01/03)
6. **Forest scientist** (BAT-O II a, 11 months, full-time, keyword cr/01/03)
7. **Scientific data manager** (BAT-O II a, 24 months, half-time, keyword cr/01/04)
8. **Ph.D. student, ecosystem assessment** (BAT-O II a/2, 36 months, keyword cr/01/05)
9. **Ph.D. student, forest assessment** (BAT-O II a/2, 36 months, keyword cr/01/06)
10. **Ph.D. student, ecohydrological modelling and assessment** (BAT-O II a/2, 36 months, keyword kr/01/01)

Research Group on Integrated Assessment of Changes in the Thermohaline Ocean Circulation (INTEGRATION)

With financial support from the German Federal Government, PIK is setting up a new research group for the assessment of future changes in the thermohaline ocean circulation. The project involves several research institutes in Germany and one in Norway. Applications are invited for the position of the:

11. **Scientific co-ordinator, integrated assessment** (BAT-O II a, 36 months, full-time, keyword ra/01/01)

Research Group on Adaptation of Wine Production to Climate Change (CLAWINE)

A new research project, initiated with several partners in Germany and other European countries aims at the assessment of sensitivities and adaptation potential of European viticultural production systems to climate change. We are seeking an:

12. **Economist with experience from expert systems** (BAT-O II a, 36 months, full-time, keyword ms/01/01)

Research Group on Mapping Sustainability Indicators World-wide – the Geoscope Preparatory Project (GPP)

In a new, exploratory project on identifying ways to observe and understand trends in sustainable development in different world regions, we seek:

13. **Economist or other social scientist** (BAT-O II a, 12 months, half-time, keyword lu/01/01)
14. **Scientific administrative assistant** (BAT-O V b, 12 months, half-time, keyword lu/01/02)

Research Group on Biosphere Interactions in the Earth System (BIS)

An existing research group working on dynamic interactions between the biosphere and the Earth system is to be supplemented with a team of additional scientists supported by the German Federal Ministry of Education and Research under a new project on "Climate, Vegetation and Carbon: Seasonal and Long-Term Coupled Dynamics (CVECA)". With an intended starting date of April 1, 2001, we seek:

15. **Scientific data technician / programmer** (BAT-O IV a, 24 months extendable, full-time, keyword lu/01/03)
16. **Ph.D. student, satellite-based validation of biospheric dynamics** (BAT-O II a/2, 36 months, keyword lu/01/04)
17. **Ph.D. student, anthropogenic impacts (land use change) on the global carbon cycle** (BAT-O II a/2, 36 months, keyword lu/01/05)

Specific questions about the positions can be directed to the scientists indicated by the keywords:

cr - Wolfgang Cramer, tel.: +49-331-288-2521, e -mail: Wolfgang.Cramer@pik-potsdam.de; kl - Richard Klein, tel.: +49-331-288-2651, e-mail: Richard.Klein@pik-potsdam.de; kr - Valentina Krysanova, tel.: +49-331-288-2515, e-mail: Valentina.Krysanova@pik-potsdam.de; ra - Stefan Rahmstorf, tel.: +49-331-288-2688, e-mail: Stefan.Rahmstorf@pik-potsdam.de; ms - Manfred Stock, tel.: +49-331-288-2506, e-mail: Manfred.Stock@pik-potsdam.de; lu - Wolfgang Lucht, tel.: +49-331-288-2500, e-mail: Wolfgang.Lucht@pik-potsdam.de.

Questions about the application of the BAT salary scale should be directed to Wolfgang Cramer or to the Institute director (see below).

The positions will be filled as soon as possible - they however remain open until suitable candidates have been found. English is (beside German) the working language of the institute - applications should therefore be written in English. They should be directed to:

Prof. Dr. H.-J. Schellnhuber - Director -, Potsdam Institute for Climate Impact Research, P.O. Box 601203, D-14412 Potsdam, Germany, or to the street address: Telegrafenberg C4, D-14473 Potsdam, Germany

KARO BIO

Karo Bio AB is an international pharmaceutical company with research operations in Sweden and the U.S. focused on nuclear receptors and proteomic-based drug discovery. Karo Bio works in close association with academic and pharmaceutical partners.

Head — Biology Department (Stockholm, Sweden)

We are expanding our biology operations in the Novum Research Park located on the southern campus of the Karolinska Institute. This includes the establishment of a new center of excellence in **pharmacology** and **pharmacokinetics.**

This position will report to the Vice President for Scientific Operations. We wish to fill this position with a scientist who has **at least ten years of industrial experience** and **a proven track record in pharmacology/physiology,** with significant experience using molecular and cellular biology technologies as well as compound screening. Reporting to this scientist will be the members of a new pharmacology section plus the section leaders for cell biology, molecular biology and compound screening.

Please direct your resume and any inquiries for this position to:

Stefan Nilsson, Ph.D.
Karo Bio AB
Novum
SE-141 57 Huddinge, Sweden
facsimile: +46.8.774.8261
e-mail: Stefan.Nilsson@karobio.se

●●●

Manager — Cell-Based Discovery (Durham, North Carolina)

We are expanding our operations at our research facility in the U.S. with a focus on **cell-based discovery including compound screening and assay technology.**

We are seeking a scientist with **at least seven years of industrial experience and a proven track record in nuclear receptor biology and drug discovery.** Reporting to this position will be research sections for cell biology and compound screening. The successful candidate must possess significant experience with techniques in cell biology, compound screening and compound characterization. Supervisory experience is a prerequisite for this position.

This position will report to the Director of Research, Karo Bio USA, in Durham, NC.

Senior Scientist, Nuclear Receptors (Durham, North Carolina)

In addition, we are expanding our Nuclear Receptors group to include a scientist with a Ph.D. in cell and molecular biology/biochemistry and 3-5 years postdoctoral experience in nuclear receptor biology. Additional experience in protein expression, gene manipulation and cell-based assays is expected.

Please submit your resume for either of the above two positions by U.S. mail or e-mail to:

Rita Mannella, PHR, H.R. Manager
Karo Bio USA, Inc.
4222 Emperor Boulevard, Suite 560
Durham, NC 27703-8466
e-mail: jobs@karobio.com
(File attachments to e-mail WILL NOT be accepted — please paste/type in your resume within the e-mail.)

No phone solicitations or faxes, please.
An Equal Opportunity Employer.

For more information about Karo Bio, please visit our Web site:
www.karobio.com

VaxGen, Inc.

VaxGen, Inc. is dedicated to the development of an AIDS vaccine.

Director/Group Leader in Fermentation Process and Recovery Process Development Departments — Job code:40111600-PB

Group Leader/Director positions in Cell Culture and Fermentation and in the Recovery Process Sciences. The Cell Culture position requires exp. in design, optimization, validation, and scale-up of large scale bioreactor CHO cell fermentation processes. The Recovery Process Sciences position requires pharm. industry exp. in the design, scale-up, and validation of protein recovery processes. Thorough knowledge of pharma industry manufacturing operations, laboratory and commercial scale instrumentation is required. The successful self-motivated candidate will have excellent people skills, demonstrated problem solving ability and strategic planning skills. Required: Ph.D in biochemistry, microbiology or chem. eng. with a minimum of 5 years of exerience in pharm. or biotech. GMP experience is essential.

Recovery Process- Protein Chemist in Protein Chemistry Department — Job Code: 44111600-LR

Design and implement recombinant protein purification and recovery processes from lab to manufacturing scale. Involves hands-on process optimization and validation, product characterization as well as innovations in recovery technology development. Requires extensive knowledge of protein purification unit operations, experimental design and lab instrumentation. Required: B.S. or M.S. + 5 years related experience. Experience with chromatography and protein characterization techniques (HPLC, SDS-PAGE, ELISA) and GMP/GLP.

For detailed job descriptions, please check out **www.vaxgen.com**. Email resumes to **jobs@vaxgen.com** or send to **VaxGen, Inc., Human Resources, 1000 Marina Blvd, Suite 200, Brisbane, CA 94005**.

Our People Make The Difference.

Cato Research Ltd. (CRL) is an established Contract Research Organization which engages in pharmaceutical drug development and FDA registration on behalf of clients in the pharmaceutical and biotechnology industries.

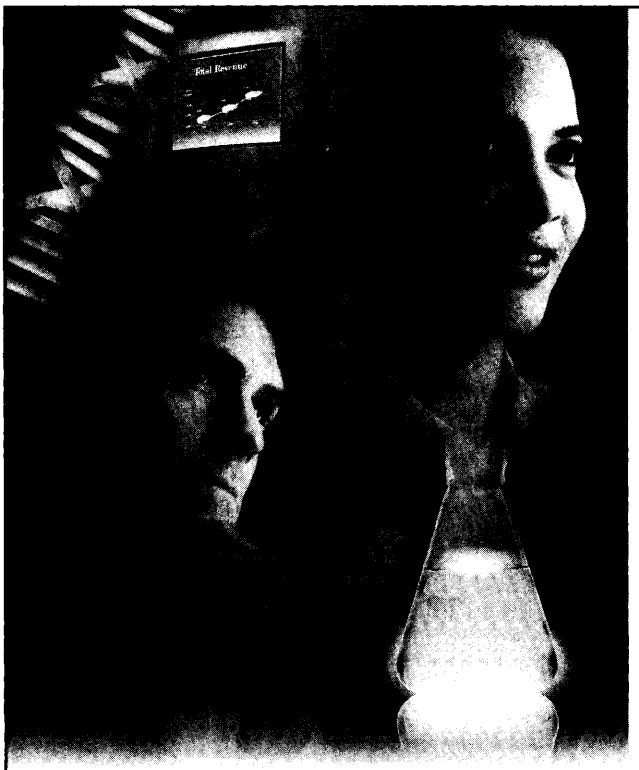
Fellowships in Clinical Research & Drug Development
• *RTP, NC; Rockville, MD; San Francisco & San Diego, CA; Montreal, CANADA*
Exciting *non-laboratory* opportunities for self-starters with scientific backgrounds who want to learn and grow in a creative environment. These individuals will receive training in the clinical scientific, regulatory, medical and financial aspects of pharmaceutical drug development. See Fellows Program on website for more information.

The ideal candidates will possess:
• Ph.D. in biological sciences.
• Excellent written and verbal communication skills.
• Initiative and strong interpersonal skills.
• Ability for critical and analytical thinking.

All applicants must also submit a writing sample, preferably one where you are the sole author (collaborative samples also accepted in lieu of sole authorship).

Cato Research Ltd. offers a complete salary and benefits package, and a creative, family-friendly environment in which to grow. For consideration, please forward your cover letter and resume to: JOB CODE 900, Cato Research Ltd., 200 Westpark Corporate Center, 4364 S. Alston Ave., Durham, NC 27713-2280. or email to bflood@mail.cato.com. **Please visit our website at www.cato.com.** EOE.

CATO™
RESEARCH
www.cato.com



challenge innovation teamwork

The Face *of* Pfizer

careers that matter

The challenge of saving lives and improving health ... the innovation of a world-class research institution ... and the teamwork that makes it all happen ...

At Pfizer, we just made the best even better! Pfizer Global Research and Development draws on the expertise of Pfizer and Warner-Lambert to create a vast R&D enterprise with an annual budget of more than $4.7 billion. Picture yourself in the following opportunities at our research facility in La Jolla, California.

Senior Research Scientists

We have immediate opportunities available for experienced Virologists to join our team. You will be responsible for performing experimentation and direct internal and external collaboration to discover, identify and evaluate preclinical anitviral compounds and to support the clinical development of antiviral drugs. This position requires a PhD in Virology or Molecular Biology and comprehensive knowledge of virology as it applies to molecular biology and/or biochemistry. Experience in HIV antiviral drug development is desired, as is an understanding of drug resistance principles and regulatory submissions preparation. Req # 0180028WB

PHARMACOKINETICS AND DRUG METABOLISM OPPORTUNITIES

Research Scientists, Discovery PKDM
Research Scientists, Development PKDM

Working as part of an interdisciplinary team that provides pharmocokinetic and metabolism expertise for the selection and development of drug candidates, you will design, conduct and interpret *in vitro* and *in vivo* studies in support of discovery projects (Discovery position) and regulatory filings (Development position). Both positions require a PhD in Pharmacokinetics, Metabolism or a related discipline with a minimum of 2 years industrial experience. The ability to work in a team environment is essential, as are excellent written and verbal communication skills. Experience writing reports for regulatory submissions is required for the position in Development. Discovery Req. # PKDM/TK-CL; Development Req. # PKDM/EW

Research Associate, Discovery PKDM

Working within the same interdisciplinary team, your responsibilities will include early assessment of absorption using cell culture models such as the Caco-2 and MDCK cell lines. You must have a BS/MS in Pharmocokinetics, Pharmaceutics, Cell Biology or a related field and 2 years industrial experience. Demonstrated knowledge of *in vitro* transport studies, automated permeability studies, cell culture work and HPLC is preferred. Req. # PKDM/TT

Recently ranked among *Fortune's* 100 Best Companies to Work For, Pfizer offers an exceptional work environment complete with training opportunities designed to develop your professional talents. We encourage all applicants to apply by emailing your resume, indicating the appropriate Req. # in the subject field, to SCI@pfizerresumes.com. If necessary, you may also mail your resume, indicating Req. #, to Pfizer Resume Processing Center, 630 Boston Road M-104, Billerica, MA 01821, ATTN: Softshoe Resumes. An equal opportunity employer, Pfizer offers a workplace rich with diversity and potential.

Pfizer

Life is our life's work.

ILLINOIS
UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

DIRECTOR, Arnold O. and Mabel M. Beckman Institute for Advanced Science and Technology

The University of Illinois at Urbana-Champaign invites applications and nominations for the position of Director of the Arnold M. and Mabel M. Beckman Institute for Advanced Science and Technology. The Beckman Institute is a broadly-based interdisciplinary research institute with parallel programs in the physical sciences and engineering and in the life and behavioral sciences. Its programs are described at the website: http://www.beckman.uiuc.edu/. The Director should be a strong leader with an exceptional record of scholarly accomplishments. A record of understanding and supporting multi-investigator interdisciplinary activities is highly desirable. Candidates must hold a doctoral degree in a discipline represented in the Institute. Those having achieved the rank of Professor in a leading research university and having a record of outstanding scientific achievement and competitive funding will be preferred. Familiarity with the academic environment is essential; experience in academic administration is desirable. Salary is open. This full time (twelve month) position is available September 1, 2001.

To assure full consideration, nominations and applications (including a vita) should be postmarked by March 1, 2001, and sent to:

Search Committee for the Director of the Beckman Institute
c/o Office of the Provost
University of Illinois at Urbana-Champaign
Swanlund Administration Building, Room 204
601 East John Street
Champaign, IL 61820
Attn: John B. Braden, 217/333-8159; 217/244-5639 (fax);
BeckmanSearch@admin.uiuc.edu

The University of Illinois at Urbana-Champaign is an Affirmative Action/Equal Opportunity Employer

HOLLAND LABORATORY

INVESTIGATOR POSITION AVAILABLE HEMATOPOIESIS/STEM CELL BIOLOGY

Applications are invited for a principal Investigator position (Scientist I/II) at the Assistant/Associate Professor level equivalent in the Hematopoiesis Department at the Jerome H. Holland Laboratory for the Biomedical Sciences. Applicants should be highly motivated Ph.D.s with a strong record of peer-reviewed publications on the developmental biology of hematopoietic, mesenchymal, or embryonic stem cells. They should also possess excellent interpersonal/communication skills, the potential to establish an internationally recognized independent research program, and an interest in developing collaborative programs/projects with the other scientists in the department. Candidates with extramurally-funded programs will be eligible for appointment at the Scientist II level. Successful candidates are also eligible for appointment to the faculty of The George Washington University School of Medicine and Health Sciences.

The Holland Laboratory, which is the national research and development division of the **American Red Cross**, is located ten miles north of the NIH in **Rockville, MD** in the Washington, D.C. metropolitan area and offers an excellent start-up package, including a well-equipped, newly-renovated laboratory space plus full salary support and benefits.

Interested individuals should send their curriculum vitae, a statement of accomplishments and future research plans, and three reference letters to: **Attn: Robert G. Hawley, Ph.D., Head, Hematopoiesis Department, Holland Laboratory, American Red Cross, 15601 Crabbs Branch Way, Rockville, MD 20855; or E-mail: HawleyR@usa.redcross.org**
EOE, M/F/D/V.

American Red Cross
www.redcross.org/jobs/

FACULTY POSITIONS
Bioinformatics

The University of Medicine and Dentistry of New Jersey (UMDNJ) invites applications for multiple faculty positions in the field of bioinformatics. Successful applicants will be expected to establish a strong research program in computational analysis of nucleic acid sequences, proteomics, gene expression, drug design, molecular structure, statistical interpretation of bioinformatics analyses, or other biomedical areas that include a substantial bioinformatics component. Primary appointments will be made in a relevant department at the Newark or Piscataway campuses, with teaching responsibilities in a university-wide bioinformatics graduate program. Preference will be given to appointments at the Assistant Professor level, although applications from more senior scientists also will be considered.

The UMDNJ campuses offer modern computer & research facilities to support research in molecular biology, genomics, proteomics, microarray chip technologies, & related areas. Cooperative educational & research programs exist with neighboring academic institutions & affiliated Centers of Excellence. Additional information on UMDNJ is available on the University's web site **http://www.umdnj.edu.** Research activities of the graduate faculty can be found at the Graduate School of Biomedical Sciences web site **http://gsbs.umdnj.edu.**

Please send curriculum vitae, a statement of research interests & 3 reference letters to: **Dr. Henry Brezenoff, UMDNJ-Graduate School of Biomedical Sciences, 30 Bergen St., Suite 110, Newark, NJ 07107-3000.** The UMDNJ is an Affirmative Action/ Equal Opportunity Employer M/F/D/V & a member of the University Health System of New Jersey.

UMDNJ
UNIVERSITY OF MEDICINE & DENTISTRY OF NEW JERSEY

Join America's growth company.

At Weyerhaeuser Company, our forest management relies on scientifically based practices. We are committed to responsible management, deployment of our genetic resources and continuously improving forest management practices in all areas. We ranked number 1 in the industry in "responsibility to the community and environment" in Fortune magazine's corporate reputation survey, and received the American Business Ethics Award in 1997. Join a company that believes in not only responsibility to the environment and the community, but also to the professional growth of its people.

Director, Forest Biotechnology
Federal Way, WA

As a part of Research and Development, you will lead an experienced and established team of 30+ employees, conducting research in somatic embryogenesis, manufactured seed and molecular genetics with a multi-million dollar annual budget. You'll participate as a member of a cross-discipline team to implement cloning technologies on Weyerhaeuser Company private forestland.

Requires a Ph D or 10 years' experience in a field closely related to the above technologies. Must have the desire to work in a commercial research setting and the experience leading a large research team with a record of successful operational implementation. Strong communication skills with diverse audiences is essential. Pre-employment drug screen, physical and background check required.

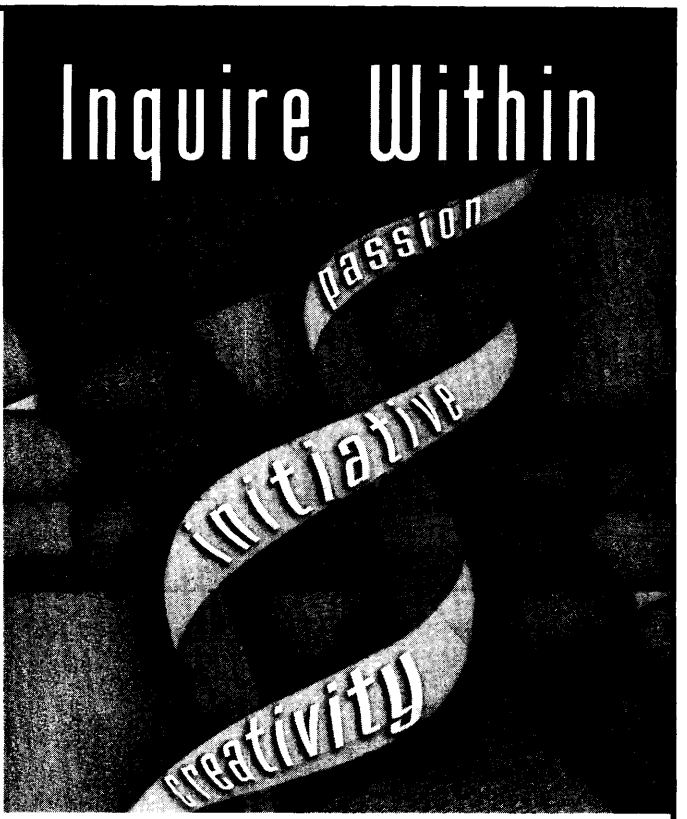
Weyerhaeuser Company offers competitive salaries and excellent benefits. Please send resume to Weyerhaeuser RS&D, Attn: Ad #S-1080, PO Box 9777, Federal Way, WA 98063- 9777. Email to resume@weyerhaeuser.com (resume must be contained in the body of the message, not as an attached file).

Weyerhaeuser is an Equal Opportunity Employer building a capable, committed, diverse workforce.

Weyerhaeuser
The future is growing™

www.weyerhaeuser.com

Genentech's people share some pretty uncommon traits. Initiative, creativity, risk-taking – the stuff from which breakthrough medicines are created. Expect the extraordinary. Share your traits with us.



POSTDOCTORAL OPPORTUNITIES

As one of the nation's most prolific scientific organizations, the Genentech Postdoctoral Program provides a vibrant and intense environment for advanced scientific training. Bringing together more than 50 researchers publishing at a rate of 250 papers a year, the program offers an exceptional range of postdoctoral opportunities. As a program member, you will have the chance to conduct basic research in areas of our scientific interest, publish in scientific journals, and present work at scientific meetings; and with close to 3,000 patents and another 2,000 pending, Genentech provides a proven pathway for your work to reach its true benefactors. The following opportunities are available for candidates with a PhD or MD and a strong background in the appropriate field.

Protein Engineering

You will explore the features of peptide-to-protein and protein-to-protein recognition using phage display, site-directed mutagenesis, and protein-to-protein binding assays. You must have a PhD in Chemistry, Biochemistry, Biology or related field and experience in molecular biology, protein purification, or physical methods of protein characterization such as SPR (Biacore). Job #: SCI2666. Candidates for this position must email their resume/CV to: lowman.hentry@gene.com.

Research Technology

Join a proteomics group in which you will be responsible for the development and application of methods for low-level phosphrylation site determination. Current experiments that include metal ion affinity capture and mass spectrometry must be extended so that you will be able to solve problems in signaling pathway analysis and study post-translational modifications at the proteome scale. This opportunity will provide broad exposure to projects involving proteomics and functional genomics in the oncology area. You should possess a strong background in protein chemistry, as well as experience with HPLC and mass spectrometry. Job #: SCI2123. Candidates for this position must email their resume/CV to: stults.john@gene.com.

Immunology

Studying TNF family members and T cell co-stimulatory molecules for their role in immune system and disease process, you will identify novel molecules and their *in vitro* functional characterization by using molecular biology/immunologic techniques. In addition, you will use gene knockout/transgenic approaches and disease models to investigate the *in vivo* function of these molecules. (See Nature Immunol 1:37, 2000; Nature 407:916, 2000; Nat Med 5:1313, 1999; Immunol Today 19:217, 1998; Annu Rev Immunol 16:111, 1998; J Exp Med 184:1963, 1996; Science 273:1864, 1996; Immunol Today 17:410, 1996; Nature 378:617, 1995.) Strong background in cellular and molecular immunology and a good publication record are required. Job #: SCI2214. Candidates for this position must email their resume/CV to: grewal.iqbal@gene.com.

Research – Molecular Oncology

Two postdoctoral positions are available to study novel cytokines and cytokine receptors of therapeutic interest (see Nature 407:916-20, 2000; Nature 369:533-8, 1994) or signaling pathways implicated in cancer (see Nat Cell Biol 2:310-2, 2000; Nature 391: 90-92, 1998; Nature 384:129-134, 1996). Background in molecular and cellular biology and a strong publication record are required. Job #: SCI2036. Candidates for this position must respond via email with resume/CV to: desauvage.fred@gene.com.

Cell Biology and Technology

This position encompasses immune and non-immune aspects of the mechanisms of action of cancer immunotherapeutics with particular emphasis on the role of receptor aggregation on cell signaling and interaction with immune effectors. You must have a PhD in Cell Biology and a strong background in biochemistry. Experience with cell imaging (flow and/or image cytometry) is desired. Job #: SCI2732. Candidates for this position must email their resume/CV to: sherwood.steven@gene.com.

Genentech is an Equal Opportunity Employer.

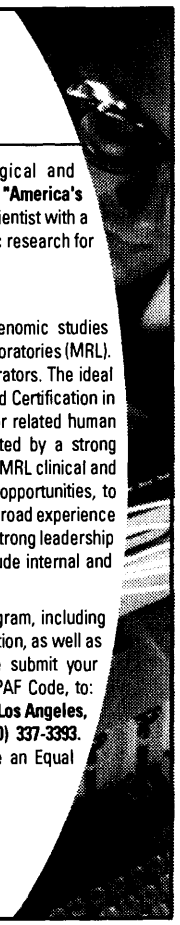
www.gene.com

Genentech, Inc.

incredible people
extraordinary science

Discover Merck.

Employment opportunities in West Point, PA



Merck Research Laboratories, a world leader in biological and pharmaceutical research consistently ranked by Fortune among **"America's Most Admired Companies"**, currently is seeking a Physician-Scientist with a strong record of achievement and publication in human genomic research for our Clinical Genomic Pharmacology program in **West Point, PA.**

Physician Scientist

This is a position which supports integration of pharmacogenomic studies throughout the clinical research division of Merck Research Laboratories (MRL). Projects are generated both within MRL and by Merck collaborators. The ideal candidates should have an M.D. with clinical training and Board Certification in Internal Medicine, as well as a Ph.D. in molecular genomics or related human genetics field, or equivalent research experience demonstrated by a strong publication record. Responsibilities will be to consult with other MRL clinical and basic scientists in assessing clinical genomic pharmacology opportunities, to carry on research projects, and to coordinate project progress. Broad experience in human genomic research techniques is absolutely essential. Strong leadership and communication skills are a must, as this position will include internal and external presentation, as well as publication.

We offer an excellent salary and comprehensive benefits program, including tuition reimbursement and one of the best 401(k) plans in the nation, as well as opportunities for personal growth. To be considered, please submit your resume and cover letter, indicating salary requirements and PAF Code, to: **Merck Positions, PAF Code: XHXMRSMKH11010, PO Box 92164, Los Angeles, CA 90009-2164. E-mail: merck@resume.isearch.com. Fax: (310) 337-3393.** Candidates selected for interviews will be contacted. We are an Equal Opportunity Employer, M/F/D/V.

MERCK

Visit our website at **www.merck.com**

---

mayo

Mayo Clinic
Postdoctoral Fellowship
Cancer Biology

An NIH-funded postdoctoral position is available immediately for an individual interested in studying the functional and biological consequences of Egf receptor mutations that occur in human brain tumors (please refer to *Cancer Research* **60**:1383-1387, 2000). A highly competitive salary and full benefits are available to a Ph.D. (or equivalent) with prior training in molecular biology and/or biochemistry. The Mayo Clinic offers an outstanding environment for conducting cancer research, and its facilities include state-of-the-art laboratories whose activities are supported by excellent institutional core facilities. Mayo Foundation is a non-profit physician led clinical practice integrated with education and research in a unified multi-campus system.

Those interested in applying should send a curriculum vitae as well as the names, addresses, and phone numbers of three references to:

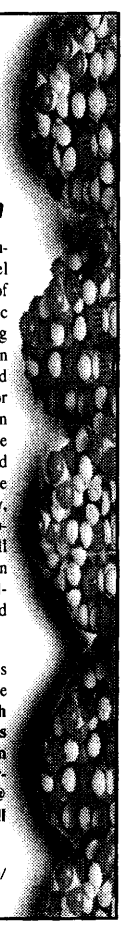
C. David James, Ph.D.
Division of Experimental Pathology
Mayo Clinic
200 First St. SW
Hilton Bldg., Room 820-D
Rochester, MN 55905
e-mail: james.david@mayo.edu
See also: http://www.mayo.edu/research/

Mayo Foundation is an affirmative action and equal opportunity employer and educator.

TWO TENURE-TRACK FACULTY POSITIONS

Roswell Park Cancer Institute, Buffalo, NY

Cell Cycle Targeting and Anticancer Drug Action



The Therapeutics Program and the Department of Pharmacology and Therapeutics at Roswell Park Cancer Institute seek to fill two faculty positions at the level of Assistant Professor in the areas of anticancer target discovery and mode of anticancer drug action. Applicants for the first position should be studying basic mechanisms of cell cycle regulation and/or apoptosis with a goal of discovering and validating novel therapeutic targets. Applicants for the second position should be using modern *in vitro* and/or *in vivo* approaches to identify and therapeutically exploit mechanisms of anticancer drug action, selectivity or resistance. Pharmacological use of modern mouse model systems and interest in clinical validation of leads would be desirable. Laboratory space located in the Grace Cancer Drug Center provides a richly multidisciplinary environment and the opportunity to interact with both research scientists and clinicians. Institute core facilities include micro-array analysis, confocal and electron microscopy, biopolymer synthesis and sequencing, transgenic and knock-out mouse development, laser capture micro-dissection, high throughput genotyping, a small animal MRI and GLP preclinical toxicology. Candidates may participate in an active graduate program in Molecular Pharmacology and Therapeutics. Competitive salaries and start-up packages will be provided.

ROSWELL PARK CANCER INSTITUTE

PATIENT CARE • RESEARCH • EDUCATION

Elm & Carlton Streets
Buffalo, New York 14263
http://www.roswellpark.org
1-800-ROSWELL

Interested candidates should send a CV, the names and addresses of three references and a 2-3 page summary of research interests to: **Faculty Search Committee, c/o Dr. Carl Porter, Therapeutics Program; Roswell Park Cancer Institute; Elm and Carlton Streets; Buffalo, NY 14263. Inquiries will be received at cheryl.melancon@roswellpark.org. Initial candidate evaluations will begin in March, 2001.**

Roswell Park Cancer Institute is an Equal Opportunity/ Affirmative Action Employer

---

GLOBAL OPPORTUNITIES

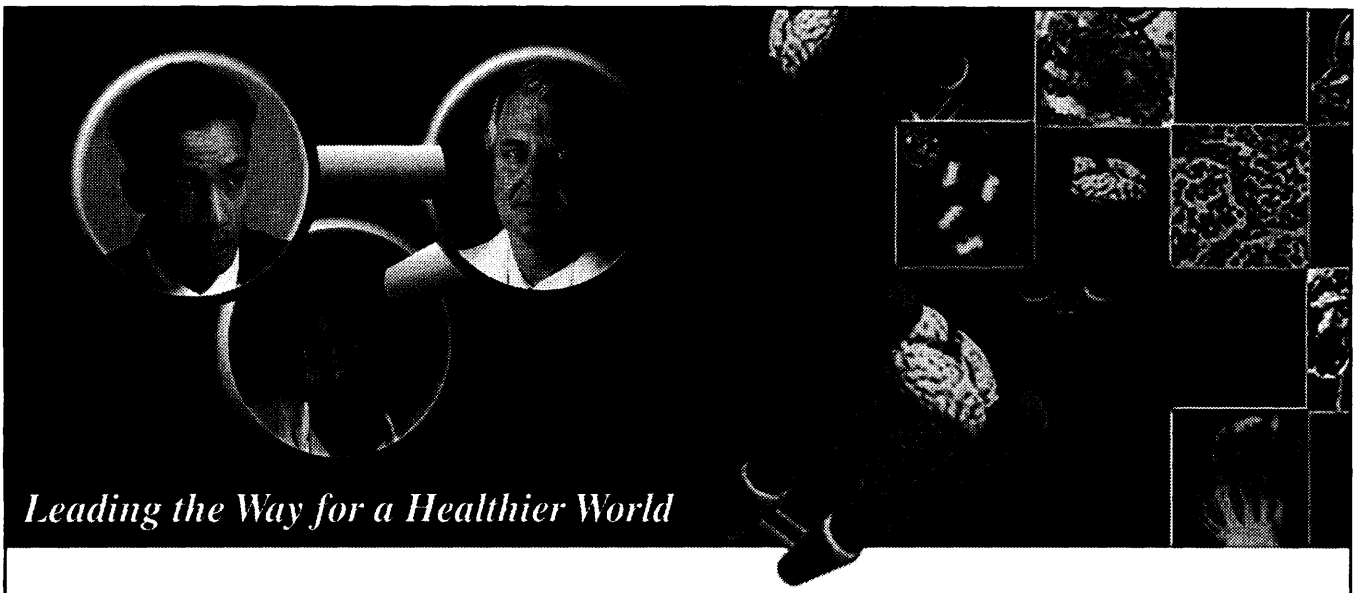
Fellowship Program for Postdoctoral Research in Japan

In
Scientific, Technical, Engineering,
and
Medical fields
at National Research Institutes

Details available on web site:
http://stafellow.jst.go.jp/index.html

or

Department of International Affairs
Japan Science and Technology
Corporation (JST)



Lead the way! Become a leader by starting your career with one of the world's leading research-based companies. At Wyeth, part of American Home Products, join us by beginning the New Year in a career where your knowledge will help lead the way into a healthier world. Start 2001 in a promising position in our **Sanford, NC** and **Cambridge, MA** facilities.

Wyeth-Lederle Vaccines, a leader in the development and production of pediatric vaccines protecting the health of children, is dependent on our performance each and every day. This is why we put such a high value on the talents and contributions of each and every member of our team. If you're an experienced professional who's looking for a challenging and rewarding opportunity, then come to Wyeth-Lederle, where the difference you make is often visibly apparent. Wyeth-Lederle Vaccines, located in Sanford, North Carolina just 30 minutes south of Cary/Raleigh, is a unit of Wyeth Laboratories.

Genetics Institute has impacted the quality of life for millions by developing protein-based therapeutic products to help people overcome the effects of debilitating diseases, such as beneFIX, a Hemophilia B blood coagulant; Neumega, an agent that combats platelet deficiencies in cancer patients; and ReFacto, a recently approved therapy for Hemophilia A.

GENETICS INSTITUTE

Principal Scientist (Job Code 00881841)

- Lead an effort to integrate transcriptional profiling into the drug discovery process
- Ph.D. in Biochemistry, Molecular Biology, or Cell Biology with 3-5 years' experience in the characterization of biological systems through mRNA analysis, or the equivalent
- Extensive experience with oligo or cDNA arrays preferred

Please forward your resume with salary requirements mentioning job code to: Genetics Institute, Reference OPSCI, P.O. Box 7886, Philadelphia, PA 19101-7886. Fax to: (610) 989-4854. Email: jobs@RAMAIL1.wyeth.com

WYETH-LEDERLE VACCINES

Analytical Protein Chemist

- Characterize new protein and peptide vaccines and define their stability under various process and storage conditions
- Ph.D. and a minimum of 5-8 years' experience (commercial GMP pharmaceutical experience is especially preferred)
- Working knowledge of HPLC, MS, amino acid analysis, protein sequencing and other physicochemical methods is essential

Senior Research Scientist II - Fermentation

- Design, oversee and participate in laboratory and pilot-scale experiments to bring bacterial fermentation from research to manufacturing scale
- Ph.D. in Microbiology, Microbial Physiology, Biochemical Engineering or a related discipline with up to 5 years of post-degree experience and demonstrated success in growth of bacterial microorganisms
- Experience with computer-aided design of experiments, supervising personnel, and familiarity with cGMP's are assets

Research Scientist III (Pilot Plant Supervisor) - Fermentation

- Oversee personnel and operations in multiple fermentation pilot plants
- BS or MS in Biology, Microbiology, Biochemical Engineering or a related discipline with 3-5 years of post-degree experience in the pharmaceutical or biological industries and demonstrated success in the growth of bacterial microorganisms
- Experience with computer control and acquisition systems and in designing biological or pharmaceutical production facilities are assets

Principal Research Scientist I - Production

- Develop and scale-up purification processes for bacterial proteins and polysaccharides using your extensive experience in downstream processing
- Supervise 2-4 research scientists and play a key role in the development of processes from pre-clinical stage through clinical phases I, II, and III
- Ph.D. and 5 years of post-doctoral experience or a BS/MS with a minimum of 10 years' experience in Biochemical/Chemical Engineering, Biochemistry or a related discipline

Please forward your resume with salary requirements to: Wyeth-Lederle Vaccines, 4300 Oak Park, Sanford, NC 27330. Fax in fine mode to: (919) 708-6122. Email to: SFWLVHR3@labs.wyeth.com (Attach resume as Word document).

Wyeth offers competitive compensation and benefits programs, including a business casual work environment and professional development programs.

For more information, please visit us at: **www.wyethjobs.com.**

Principals only. Equal Opportunity Employer. M/F/D/V.

GENETICS INSTITUTE

WYETH

Wyeth-Lederle Vaccines

100 BEST COMPANIES FOR WORKING MOTHERS

Pacific Northwest National Laboratory

Operated by Battelle for the
U.S. Department of Energy

Biological Sciences Director

The Pacific Northwest National Laboratory (PNNL) is seeking a proven leader with a passion for first-class science and a desire to make a major impact on how biological sciences will be pursued in the post-genome era.

The Director, Biological Sciences will have responsibility for leadership of the biological sciences programs at the Laboratory, which include both an existing scientific portfolio as well as a rapidly developing new thrust in multidisciplinary biology. The new research program has a primary focus on cellular information processing and will integrate recent advances in high throughput biology, imaging technologies and computational biology. The current organization includes both fundamental and applied research in microbiology, molecular biology and toxicology. The Director will have responsibility for an annual budget of approximately $20M, growing to an expected level of $35-50M/year as the program develops.

Candidates should have a Ph.D. or MD with at least 15 years experience in science, preferably molecular biology, cellular biology or biochemistry and an outstanding record of research accomplishment. Should also have a strong interest in technological solutions to biological problems, such as proteomics, cell imaging and biocomputation. The candidate should have knowledge of the issues and emerging trends in the biological sciences, with a particular focus on the post-genomic era and the challenges of cell signaling and systems biology. We are seeking candidates who have significant experience in directing scientific staff, and managing both laboratories and complex research programs. Must possess enthusiasm and strong leadership qualities, as well as a capacity for developing a shared vision, scientific talent and specific goals. Familiarity with the DOE/OBER and/or NIH scientific programs and leadership is an advantage.

Pacific Northwest National Laboratory, operated by Battelle, is one of nine U.S. DOE national laboratories and is located in Richland, Washington. The pleasant desert climate and Columbia River make this area great for outdoor activities such as hiking, biking, and snow and water skiing. Coupled with a small town atmosphere, this area provides a unique mix of rural living with high tech opportunities. For more information, please visit our website at: http://www.pnl.gov/.

For confidential consideration, interested individuals should submit curriculum vitae to: **Charlotte Peterson K9-21, Pacific Northwest National Laboratory, Ref. Biology Director, PO Box 999, Richland, Washington 99352** or E-mail to charlotte.peterson@pnl.gov.

PNNL is an EEO/AA employer and values diversity in the workplace. F/M/D/V are encouraged to apply.

U.S. GENOMICS

Changing the world. One strand at a time.

We build revolutionary genomics technologies by integrating molecular biology, nanotechnology, single-molecule detection, informatics and polymer physics.

Sr Scientist - Computational Biology

Lead team to develop algorithms for assembly of DNA maps. Have PhD in applied math, comp.-sci., comp.-bio, biophys. or bioinformatics and 2+ yrs of post-doc experience in: search algorithms, restriction mapping, population genetics, protein/nucleic acid structures, C++, PERL and JAVA skills ideal.

Sr Scientist - Molecular Biology

Lead team focused on biochemistry and engineering of DNA modifying enzymes, of rDNA vectors and application models. Have PhD in molecular bio with 3+ yrs of post-doc experience in one of: DNA enzymology, transcription proteins, in vitro mutagenesis and genetic selection strategies.

Principal Engineer

Lead product development to commercialize proprietary technology. Have MS/PhD in EE or ME or applied physics with 3+ yrs experience in instrumentation and in at least one of: sequencing & genomics technologies, fluidics, optical detection or automation. Skills in bioanalytical methods ideal.

Staff Scientist - Biophysics

Run experiments and develop techniques for probing biomolecules and single molecule detection. Have MS-PhD in Biophysical Chem, Biophysics or Biochem and skills in optical spectroscopy and handling of DNA and proteins. Knowledge of polymer physics, fluorescence, molecular bio, programming or MatLab ideal.

Send resumes to: jobs@usgenomics.com
611 Gil Street, Woburn, MA 01801
Visit us at www.usgenomics.com

mayo

MAYO CLINIC
FACULTY POSITION
NANOTECHNOLOGY/NANOBIOSCIENCE

The Mayo Clinic, Department of Physiology and Biophysics and the Mayo Clinic Biomedical Engineering Education Track have an immediate opening for a scientist/engineer in nanotechnology/bionanotechnology. The Department currently does research in a wide range of fields such as high-speed electronic systems, molecular structure and function, biomedical image analysis, ion channel structure and function, cellular signaling, ultrasound imaging and therapy, smooth muscle, cardiac muscle, and neuronal physiology among others. The successful candidate will have a Ph.D. or M.D. degree with a minimum two-five years experience in nationally competitive research in the field. The successful candidate will be expected to conduct nationally competitive and funded research, to collaborate with colleagues in both basic and clinical disciplines, to provide support for the educational mission of the Department. He or she should also be willing to train postdoctoral fellows as well as graduate students. Rank and salary will be commensurate with experience. Startup packages are available. Curriculum vitae, cover letter detailing experience, current interests and future plans and names of three individuals that can provide letters of recommendation should be sent to:

James F. Greenleaf, Ph.D.
Basic Ultrasound Research Laboratory
Department of Physiology and Biophysics
Mayo Clinic
200 1st St. SW
Rochester, MN 55905
Phone: 507 284-8496
Fax: 507 266-0361
E-mail: jfg@mayo.edu
http://www.mayo.edu/ultrasound/ultrasound.html
See also: http://www.mayo.edu/research/

Mayo Foundation is an affirmative action and equal opportunity employer and educator.

FELLOWSHIPS

SANTA FE INSTITUTE
Fellows-at-Large (FAL)
Opportunities
2001-2002 Term

The FAL program supports the research efforts of young scholars in the area of complex systems and promotes the establishment of such research agendas in the individuals' home institutions. Reserved to applicants currently affiliated with a US institution.

Additional information:
http://www.santafe.edu/sfi/education/indexFAL.html

To Apply: Send a current resume, 2 page statement of purpose, a letter of recommendation from an individual familiar with your research, and a letter of support from your department head outlining both your qualifications and the department's commitment to the activities involved in the Fellowship. Send complete package via postal mail only. Applications must be postmarked no later than February 15, 2001.

Fellows-at-Large Program
Santa Fe Institute
1399 Hyde Park Road
Santa Fe, New Mexico 87501 USA
(505) 982-0565 (fax)
cate@santafe.edu

Application deadline: Feb. 15, 2001

Tenure-Track Faculty Positions in Molecular and Cellular Physiology

The Department of Biomedical Sciences in the College of Veterinary Medicine at Cornell University invites applications for two tenure track faculty positions, preferably at the level of Assistant or Associate Professor. Applicants must possess a doctoral degree in a biological field (PhD, DVM, MD, or equivalent). The successful candidates will be expected to develop extramurally funded research programs and to contribute to departmental teaching. Cornell University offers research opportunities in a variety of areas, including functional genomics, cell signaling, bioengineering, nanobiotechnology, biophysics and chemical biology. For more information see: http://www.vet.cornell.edu/Pathol/pathol.htm.

A letter of interest, curriculum vitae, and the names of three references should be sent to: **Dr. Robert F. Gilmour, Jr., c/o Ms. Sue Hawk, Department of Biomedical Sciences, Cornell University, T8-004 VRT, Box 17, Ithaca, NY, 14853-6401.**

Women and minority candidates are especially encouraged to apply. The screening of candidates will begin as applications are received, and will continue until suitable candidates are identified.

CORNELL
UNIVERSITY

Cornell University is an Affirmative Action/ Equal Opportunity Employer and Educator

http://www.cornell.edu

The Genomics Institute of the Novartis Research Foundation (GNF) is located in the Torrey Pines area of San Diego, CA. We are developing and applying novel technologies for genomewide functional characterization. A multi-disciplinary research institute fully funded by the Novartis Foundation, we are dedicated to the development and application of new methods and techniques to define novel gene function, as well as develop innovative Discovery research programs in biomedicine. GNF currently has the following opportunity for a Ph.D. level scientist:

Staff Scientist - Cancer Cell Biology

We are seeking a Staff Scientist position, equivalent to an Assistant Professor, who will lead a group in Cancer Cell Biology for our Discovery program. We are particularly interested in candidates who have taken cutting edge approaches to understanding the signal transduction pathways involved in the control of cell growth and proliferation, responses to DNA damage, cell-cell interactions underlying tumor metastasis, control of angiogenesis or RNA/protein profiling of human cancer tissues. We require a strong publication record in these fields along with a desire to apply functional genomic approaches to the study of cancer cells and proliferative processes. Requires 3+ years of post-doctoral experience.

GNF provides a unique environment for developing a world-class Discovery research program with access to research tools not commonly available. Please submit resume, a brief statement of research interests and contact information for at least three references to: **Genomics Institute of the Novartis Research Foundation (GNF), Attn: Human Resources, Job Code - MPC, 3115 Merryfield Row, San Diego, CA 92121; Fax: 858-812-1584.** EOE.

G N F

www.gnf.org

Growing Amazement

Cereon Genomics' mission is to apply genomics technology to transform agriculture ... making plants hardier, naturally disease and pest-resistant, able to grow in some of the most inhospitable conditions. All to improve the quality and quantity of the world's food supply.

In the past three years, we have taken major steps in achieving our mission by:

- Completing a draft sequence of the *Arabidopsis thaliana* genome
- Building a robust pipeline of gene lead candidates
- Implementing the latest state-of-art technology in bioinformatics, expression profiling, lab automation and plant research
- Bringing together a team of exceptional professionals at all levels

It is with growing amazement that we realize what we have accomplished ... and what is still left to do. That's why we seek more innovators with a focused sense of urgency and a healthy sense of wonder to join us, keep our impressive momentum going, and make the future of genomics technology happen!

COMPUTATIONAL BIOLOGISTS

Responsibilities include working with bench scientists to analyze large sets of research data. Requires a Master's or Ph.D. in Biology or related field, programming skills (PERL, C, Java), database experience (relational, SQL queries), and a proven ability in analyzing large volumes of biological data using computational approaches. Communication skills, creativity, initiative and teamwork are essential to success. **Job Code: 71-01S**

STATISTICIANS - MS/PH.D.

Duties include data management and analysis, report generation, and statistical programming using software packages such as Splus and SAS. Requires a Master's or Ph.D. in Statistics or Biostatistics. A background in genetics or other area of biology is desirable. Must be organized, detail-oriented, have excellent written and oral communication skills, and be able to work well as part of a team. **Job Code: 74-02S**

DATA ANALYST

Responsible for analyzing and processing sequence data for polymorphism discovery, validation, and genotyping assay development. Requires experience in PCR, molecular biology, and computing skills (UNIX, phred, phrap, pangea, and PERL). Background in plant genetics helpful. **Job Code: 8500-11S**

LEAD/SENIOR PROCESS ENGINEERS

Responsible for implementing high-throughput processes for profiling large and small molecules in plants. Closely collaborate with project teams in IT, automation and plant genomics to develop new analytic methods and efficient processes to carry out assays, including microarray-based transcriptional profiles. Requires a BS/MS Engineering degree, 7+ years' industry experience, strong project management skills, and a solid understanding of computer applications in the biotech industry. Experience in process engineering or manufacturing, and a strong interest in biology preferred. **Job Code: 87-03S**

VB/VBA PROGRAMMER

Responsibilities include working with multiple project teams, along with automation engineers and IT support, to develop solutions for in-lab data handling, robotics programming, and robot-LIMS interfaces. Requires demonstrated skill as a Visual Basic programmer, flexibility, and a strong team orientation. Experience in a biology lab setting or with lab robotics is a strong plus. **Job Code: 87-02S**

SCIENTIFIC APPLICATIONS SUPPORT

Provide direct support for scientific applications. Define solutions for customer needs; assist in application development, testing, installation, and documentation; document tools, programs, and processes for users; and provide technical and non-technical training. Requires a basic understanding of genomics applications; 2-5 years' related experience; basic UNIX, NT and SQL experience; and excellent teamwork, problem-solving and communication skills. **Job Code: 77-08S**

Please send your resume, indicating Job Code, to:
Attn: Recruiter, Cereon Genomics, LLC
45 Sidney Street, Cambridge, MA 02139
Phone: (617) 551-8297; Fax: (617) 551-1990

Cereon Genomics is an equal employment opportunity/ affirmative action employer, M/F/D/V, proudly reflecting the natural diversity of the world around us.

TO LEARN MORE ABOUT US, VISIT OUR WEB SITE AT: **WWW.CEREON.COM**

CEREON™ GENOMICS

a collaboration of
MONSANTO • MILLENNIUM

Transforming Agriculture
To Meet The World's Food Needs

The University of Texas at Austin

Faculty Position in Chemical and Structural Biology

The Institute for Cellular and Molecular Biology
Department of Chemistry and Biochemistry

The Institute for Cellular and Molecular Biology and the Department of Chemistry and Biochemistry invite applications for a tenure track faculty position at a rank commensurate with experience. Researchers from all areas of Chemical and Structural Biology are welcome, but those with experience in X-ray crystallography are particularly encouraged to apply. The successful applicant will be expected to develop an aggressive research program, to participate in undergraduate and graduate education, and to contribute to a dynamic and interactive academic atmosphere. Chemical and Structural Biology is one area of emphasis within the new Institute for Cellular and Molecular Biology headed by Dr. Alan Lambowitz. The group is currently strong and will be augmented by vigorous growth, including multiple new faculty hires at both the junior and senior level, over the next few years. Exceptional start-up packages are available. Austin is located in the Texas hill country and is widely recognized as one of America's most beautiful and livable cities.

Candidates should submit a current curriculum vitae and a summary of research experience and future goals, together with at least three letters of recommendation. To assure full consideration applications should be received by February 23, 2001. Material should be sent to:

Dr. Jon Robertus
Chair of the Search Committee
Department of Chemistry and Biochemistry
The University of Texas at Austin
Austin TX 78712

Homepages • http://www.icmb.utexas.edu • http://www.cm.utexas.edu

The University of Texas at Austin is an Equal Opportunity Employer.
Qualified women and minorities are encouraged to apply.

Harvard University

Department of Earth & Planetary Sciences

The Department of Earth & Planetary Sciences at Harvard University seeks to fill two or more faculty positions at the Assistant or Associate Professor level (untenured). Candidates from all fields of earth sciences including atmospheric sciences, oceanography, geobiology, geochemistry, geophysics, geology, and planetary sciences are encouraged to apply.

Applicants should send a statement of research interests, curriculum vitae, and the names of three references to:

Professor Jeremy Bloxham, Chair
Department of Earth & Planetary Sciences
Harvard University
20 Oxford Street
Cambridge, MA 02138 USA

We will begin reviewing applications on December 1st. We particularly encourage applications from women and minorities. Harvard University is an Affirmative Action/Equal Opportunity Employer. For more information about the department, you may visit our web site at www.eps.harvard.edu.

Postdoctoral Position

MOUNT SINAI SCHOOL OF MEDICINE

The Neuroinflammation Research Center of the Department of Psychiatry invites applicants for a postdoctoral position in neuroscience and molecular biology. Successful candidates will have outstanding opportunities to interact with our multidisciplinary Neuropsychiatry Program, including scientists with interests in human genome, Alzheimer's disease and biocomputation. Preference will be given to candidates with expertise in neurodegeneration and neurodevelopment.

Send curriculum vitae, statement of research interests and 3 letters of reference to: **Giulio Maria Pasinetti, M.D., Ph.D., Director, Neuroinflammation Research Center of the Department of Psychiatry, Box 1230, The Mount Sinai School of Medicine, One Gustave L. Levy Place, New York, NY 10029-6574.** We are an equal opportunity employer fostering diversity in the workplace.

Fellowships

Want to change field?
Want to change organism? Want to work with plants?

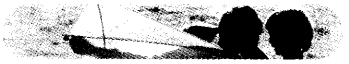
Gatsby Postdoctoral Research Fellowship in Plant Sciences

Applications are invited for a Gatsby Postdoctoral Research Fellowship tenable for 3 years from a mutually agreed date (after October 2001) in a university or research institute in the UK.

The aim is to support an outstanding research scientist who wishes to apply skills learned with other organisms to studies with plants. Applicants should identify an appropriate research laboratory in the UK and develop a research proposal where they exploit their skills in an area of plant research. Applicants must have a PhD and have demonstrated their ability to produce first class innovative research in an area outside of plant sciences. Research proposals will be considered in the areas of fundamental aspects of plant growth and development, or molecular plant pathology.

The Research Fellow will be paid according to the employer's academic salary scale. Annual research expenses of £15,000 will be available to provide running expenses. The Gatsby Postdoctoral Research Fellowship is open only to a scientist without a substantive post of employment.

Applications should consist of a proposal for a 3-year research programme (on two sides of A4) and a curriculum vitae. Applications should be accompanied by a brief letter stating the reasons for the application, and a letter indicating the willingness of the UK laboratory to host the Fellowship. Two letters of recommendation should be sent under separate cover. Applications (5 copies) and references should be sent to Lisa Page, Gatsby Charitable Foundation, 9 Red Lion Court, London EC4A 3EF, to arrive no later than 28 February 2001. For enquiries email l.page@gtep.co.uk



serono
biotech & beyond

Research Scientist in Fibroblast Biology

working for the Biotechnology Department

The Institute is an affiliate of the Serono Group which has its Executive Headquarters in Geneva and is a leading multinational engaged in research, development and marketing of products in the biotechnology field. The Institute is a state-of-the-art centre of scientific excellence. Its research is directed towards the identification of novel molecular mechanisms underlying disease and the discovery of new drugs.

The person will be part of a team identifying new targets for the treatment of scleroderma, an autoimmune disease characterized by fibrosis of the skin and internal organs. Current studies are focused on the characterization of mRNAs differentially expressed in affected and non-affected fibroblasts, that have been identified by cDNA microarray technology.
Applicants should have strong skills in cellular biology. A background in fibrotic diseases or extracellular matrix protein biochemistry would be an advantage.

Informal enquiries concerning the position can be directed by e-mail to: **gary.buell@serono.com**

In addition to a challenging career in a high-technology and creative environment, Serono offers continued training and personal development along with an attractive remuneration and benefits package.
If you are interested in the above position, please send your curriculum vitae with a list of publications and the name of three referees to the Human Resources Department of the Institute (quoting the advertisement source).

Serono Pharmaceutical Research Institute
Serono International S.A.
14, chemin des Aulx, 1228 Plan-les-Ouates, Geneva, SWITZERLAND
Tel: +41 22 706 96 66 Fax: +41 22 794 69 65 e-mail:spri.jobs@serono.com

www.serono.com

National Institutes of Health
National Heart, Lung, & Blood Institute

Tenure or Tenure-Track Position

Molecular and Cellular Biology of the Cardiovascular System

The Vascular Biology Branch of the National Heart Lung and Blood Institute is seeking a scientist to direct an independent research program in basic cardiovascular biology. This represents a new initiative in the VBB and is associated with several supporting core facilities including mouse transgenics, genomics, proteomics, bioinformatics, confocal and electron microscopy, and multi-modality small animal non-invasive imaging. The candidate must have a M.D., Ph.D. degree or both and have research experience as evidenced by publication in major peer reviewed journals. Research experience in cardiovascular molecular and cellular biology is desirable; however, a broad scope of interests is encouraged including genetics. Position (tenure or tenure-track), salary and research support will be commensurate with experience. Tenure-track candidates are supported for up to 6 years before consideration for tenure.

Applications must be received by **February 20, 2001**. Please submit a curriculum vitae and brief statement of research interests along with three letters of reference to:

Ms. Kim Westervelt
Personnel Office
National Heart, Lung and Blood Institute
31 Center Drive MSC 2484
Building 31A Room 5A28
Bethesda MD 20892-2484

NIH is an Equal Opportunity Employer

NATIONAL® CANCER INSTITUTE

Postdoctoral Positions
Molecular Mechanisms of Solid Tumor Cell Survival and Therapeutic Resistance

Applications are invited for two postdoctoral positions, available immediately, to study signal transduction mechanisms that contribute to lung cancer cell survival and therapeutic resistance. Recently established, our laboratory has identified two pathways, the Akt and MAPK pathway, that are constitutively active and inhibit apoptosis in lung cancer cells (manuscripts submitted). Current projects focus on mechanisms of Akt activation, mechanisms of regulation of Akt-related pathways, identification of novel downstream substrates relevant to lung cancer, and preclinical development of newly developed Akt inhibitors. Highly talented and motivated individuals with a Ph.D. and/or M.D. with less than five years of postdoctoral experience who are US citizens or permanent residents are encouraged to apply. Send CV, statement of research interests, and three letters of recommendation to: **Phillip A. Dennis, M.D., Ph.D., Medicine Branch, Division of Clinical Sciences, National Cancer Institute, 8901 Wisconsin Ave., Bldg 8, Room 5101, Bethesda, MD, 20889-5105. Email: pdennis@nih.gov**. *NCI/NIH is an Equal Opportunity Employer.*

Faculty Position
Cancer Pharmacology and Cell Signaling

The Department of Molecular Pharmacology and Biological Chemistry, Northwestern University Medical School invites applications for a tenure-track position in the area of cell signaling with a focus on mechanisms of carcinogenesis or actions of anti-cancer agents. Candidates with expertise in other areas of signal transduction (e.g. G-proteins) will also be considered. The candidate should have a Ph.D., M.D. or M.D./Ph.D. degree and an active program in signal transduction to complement the existing interests in signal transduction at the Medical School. To apply, please send curriculum vitae, the names and contact information for three references, and a statement of research and teaching interests to: **Chair of the Search Committee, Department of Molecular Pharmacology and Biological Chemistry, Northwestern University Medical School, 303 E. Chicago Ave., Chicago, IL 60611.**

Northwestern University is an Affirmative Action/Equal Opportunity Employer

---

Georgia Institute of Technology

School of Biology

invites nominations and applications from individuals with international prominence for the endowed professorship in Bioinformatics and Computational Biology being established by the Georgia Research Alliance.

The research areas of interest include computational analysis of biomolecular sequence and structure, functional genomics and genome-based modeling of cell processes. The successful candidate should have strong expertise in both biology and computational modeling/analysis, demonstrate established record of excellence in research, and have the potential for excellence in teaching and leadership.

Georgia Tech's unique interdisciplinary research and teaching environment stimulates opportunities for collaboration among Georgia Tech and Emory University faculty. Joint affiliations are encouraged with Georgia Tech's Petit Institute for Bioengineering and Bioscience, and with the Center for Nonlinear Sciences. The School of Biology's renovated building is surrounded by buildings housing the Petit Institute for Bioengineering and Bioscience, School of Biomedical Engineering, Environmental Science & Technology, School of Physics, and College of Computing **(www.gatech.edu).** Please respond to the address below with a curriculum vitae and research/teaching summary:

Professor Mark Borodovsky
Chair of the Search Committee, School of Biology
Georgia Institute of Technology
Atlanta, GA 30332-0230
mark.borodovsky@biology.gatech.edu
Review of applications will begin February 21, 2001.

Iconix Pharmaceuticals

an emerging biopharmaceutical company, is developing a chemical genomics platform, ChemExpress®. ChemExpress® integrates genetic, biochemical and chemical information to advance functional genomics and small-molecule drug discovery.

Director/Principal Scientist – We are searching for a forward thinking drug discovery researcher, able to connect molecular events with events underlying drug action and toxicity. Knowledge in the use of microarrays and interpretation of microarry data is essential. The ability to manage a team of researchers is required. Ph.D./M.D. with an extensive knowledge of molecular pharmacology or toxicology, and drug discovery experience.

Associate Scientist/Scientist – We wish to strengthen our team by adding a flexible scientist to develop biochemical and sophisticated mammalian cell-based assays. Our current focus is on the mechanism of action of drug leads in the small GTPase area. Ph.D. with 0-2 years of post-doctoral experience.

Mail to Iconix Pharmaceuticals, Inc., Human Resources Department, Job Code **DPS**, 850 Maude Avenue, Mountain View, CA 94043. For the quickest consideration, please include the job title in the subject line and E-mail your resume to **hr@iconixpharm.com**.

Postdoctoral Positions Available

We are seeking postdoctoral candidates who are interested in using state of the art approaches to study 1) molecular mechanisms of cell activation by ultraviolet irradiation; 2) regulation of signal transduction by reactive oxygen/anti-oxidants; 3) cross talk between nuclear receptors and AP-1/NF-kB; 4) regulation of collagen and elastin synthesis and turnover by matrix metalloproteinases; and 5) application of life-extension genetics in simple organisms to study human aging. The ongoing comprehensive research effort provides a unique opportunity to study medically relevant aspects of signal transduction and gene expression at the molecular level in a human organ *in vivo* (Nature, 379:335-339, 1996; New England Journal Medicine 337(20) 1419-1428, 1997; J Clin Invest 101:1432-1440, 1998; Nature Medicine 5(4) 418-422, 1999; and J Clin Invest 106(5):663-670, 2000). All candidates should possess a PhD with experience in biochemistry and/or molecular biology with demonstrated research excellence and strong written and oral communication skills. Competitive salary and excellent fringe benefits are available. US citizens and permanent residents will be considered for NIH training-grant-funded positions. Additional positions are available for qualified individuals not eligible for the training grant mechanism.

Interested applicants should submit curriculum vitae to: **Gary Fisher PhD, Associate Professor, University of Michigan Department of Dermatology, 1150 W Medical Center Drive, Med Sci I 6447, Ann Arbor MI 48109-0609. Fax 734-647-0076; email dianemch@umich.edu**. Review of candidates will begin on February 15, 2001 and continue until the position is filled.

Department of Dermatology encourages applications from candidates who will enrich and contribute to the cultural diversity of our University.

PENN
UNIVERSITY of PENNSYLVANIA

The School of Engineering and Appplied Science

Faculty Positions

in Science and Engineering of Nanoscale Systems

The School of Engineering and Applied Science at the University of Pennsylvania announces three new faculty positions in the area of Nanoscale Science and Engineering. Appointments may be made in Electrical Engineering, Chemical Engineering, Mechanical Engineering, or Materials Science and Engineering. Applications are encouraged from all relevant areas in engineering, physics, and chemistry. The school is particularly interested in new and emerging areas of nanoscale science and technology. Topics of interest include, but are not limited to: nanofabrication including soft lithography and/or self assembly, molecular electronics, biochemical transduction, nanoscale MEMS, single molecule manipulation and behavior, functional membranes, fibers, thin films, or coatings, spintronics, quantum electronics, and nanoscale device architecture, interfacing and assembly, and modeling of nanoscale phenomena.

Successful candidates are expected to have or to develop internationally recognized research programs, excel in undergraduate and graduate teaching, and take a leadership position in defining this field. These appointments are part of a major initiative that involves significant investment in nanofabrication and nanoproperties. Successful candidates will benefit from interactions with the new Center for Science and Engineering of Nanoscale Systems at Penn and the Pennsylvania Nanotechnology Center, in addition to the Laboratory for Research on the Structure of Matter and the Institute for Medicine and Engineering.

Applications are being accepted at all ranks with compensation to be commensurate with experience. Interested persons should include a resume, list of publications, statement of teaching and research interests, copies of a few representative publications, and names and contact information for several references. These should be sent to the chair of the search committee. The search will remain open until the positions are filled.

Prof. D. Bonnell
Chair Nano Science and Technology
Search Committee
Department of Materials Science and Engineering
University of Pennsylvania
3231 Walnut Street
Philadelphia, PA 19104

The University of Pennsylvania is an equal opportunity/ affirmative action employer. Applications by women and minorities are encouraged.

Regular, Tenure-Track Professors

Department of Biological Sciences

In keeping with its Institutional Policy Regarding the Recruitment of New Professors, the *Université du Québec à Montréal* is seeking highly qualified individuals to continue the University's reputation for excellence, and to renew and refresh its professorial staff.

For all positions, candidates will be responsible for teaching and supervising undergraduate and postgraduate students, conducting academic research and performing community service. Written and oral fluency in French is required for all positions, as is postdoctoral training. The following qualifications are particular to each field of specialization:

Biotechnology or Bioprocesses

- PhD in Molecular Biology, Genetic Engineering, Biochemistry or Biotechnology
- Ability to develop a research program in plant productivity or biomedical research, our Department's strongest areas of research
- Ability to teach at the undergraduate and postgraduate levels in the following areas: microbiology, cellular and molecular biology, plant biology, biochemistry or genetics

Biochemical Physiology

- PhD in Human/Animal Physiology with specialization in at least one of the following areas: cellular biology/physiology, cellular signaling, cellular regulation
- Ability to develop a research program in human/animal physiology with specialization in health-related cellular physiology
- Ability to teach at the undergraduate and postgraduate levels in one or more of the following areas: human or animal physiology, cellular biology/physiology, absorption/metabolism, endocrinology, reproduction

Immunology

- PhD in Immunology with specialization in experimental or compared immunology
- Research experience in immunotoxicology, animal health or environmental health
- Ability to teach at the undergraduate and postgraduate levels in one or more of the following areas: immunology, cellular biology, toxicology, microbiology; ability to teach a unit in defense mechanisms as part of the problem-based learning Bachelor's degree in Biology

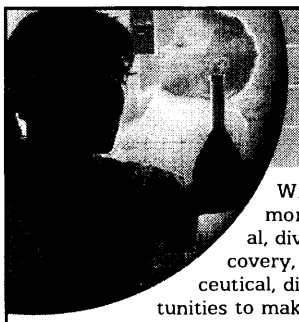
STARTING DATE: June 1, 2001

REMUNERATION: According to the SPUQ-UQAM collective agreement

The University has adopted equal-opportunity and employment equity programs and encourages applications from women, members of visible minorities, aboriginal people and persons with a disability. The selection and hiring of candidates is subject to Canadian immigration laws.

Interested candidates are invited to forward a signed, dated, detailed curriculum vitae, in French, along with three letters of recommendation, before 5:00 p.m. on February 9, 2001, to: Ms. Julie Lafond, Directrice, Département des Sciences Biologiques, Université du Québec à Montréal, P.O. Box 8888, Succursale Centre-Ville, Montreal, Quebec H3C 3P8. Telephone: (514) 987-3000, ext. 7857#. Fax: (514) 987-4647.
Website: www.rhu.uqam.ca/aprofs

UQÀM
Université du Québec à Montréal



Improving lives... around the corner and around the world.

With 58,000 people ensuring our products improve lives in more than 130 countries, Abbott Laboratories truly is a global, diversified health care company. Our devotion to the discovery, development, manufacturing and marketing of pharmaceutical, diagnostic, nutritional and hospital products creates opportunities to make a difference around the corner and around the world.

Research Pharmacologist
in vivo Oncology Group

Responsibilities will include compound dosing (oral, i.p., s.c., minipump and i.v.) of research animals; measuring/recording tumor volumes; and assisting in surgery and autopsies. Additionally, you'll help establish new orthotopic, subcutaneous and metastasis models as well as utilize in vitro laboratory methods to validate in vivo efficacy. BS or MS degree in Biology/Pharmacology; 3-5 years' industrial or academic experience; background in handling/caring and drug dosing of animal species commonly used in research; and familiarity with ELISAs, western blotting, tissue culture, molecular biology are required. PC proficiency and good interpersonal/communication skills as well as a strong team orientation are also essential. Surgical techniques and experience with oncology research is a plus.

Discover a future filled with refreshing challenges, friendly faces and growing opportunities for the long term. Interested candidates should submit a resume indicating job code 2K-CSC5921 to: **Abbott Laboratories, 100 Abbott Park Rd, Dept. 583, Building AP9A, Abbott Park, IL 60046-6115.** For more information, please visit our website at: www.abbott.com. An equal opportunity employer, we are committed to employee diversity.

ABBOTT LABORATORIES
Quality Health Care Worldwide

www.abbott.com

Biotech

RPI, a leader in the development of ribozyme-based pharmaceutical products offers the following challenging opportunity:

Scientist - Tumor Biology Pharmocology & Toxicolgy

We are seeking a Ph.D. level scientist to conduct preclinical efficacy studies using ribozymes in relevant in vivo models of oncologic disease. Responsibilities include the design, conduct and interpretation of pharmacologic studies. Standard in vivo pharmacology testing skills are required. These include: animal handling and restraint, compound dosing (various routes: IV, IP, SC, PO), blood and tissue sampling and necropsy procedures. Duties may include basic tissue and fluid sample preparation for histology and/or mRNA. Cell culture skills and exp. with oligonucleotides desirable. Mac and/or PC, MS Office/ Excel required. Excellent written and verbal communication skills, and the ability to direct projects and participate in a multi-disciplinary team environment essential.

RPI offers a competitive salary and excellent benefits package, including stock options, and stock purchase plan.

For consideration, please send your resume and cover letter to: RPI, Attn: HR - Science - Job Code#062 , 2950 Wilderness Place, Boulder, CO, 80301. Fax# 303-449-6995, Email: jobs@rpi.com. Please visit our website at www.rpi.com EOE

RPI

It's all about IMPROVING LIFE.

WHO WE ARE. As a research-based pharmaceutical company, ALZA is focused on developing and bringing to market products with enhanced therapeutic value based on our innovative drug delivery technologies. In our role as a developer, manufacturer and marketer of breakthrough products, we are committed to creating innovative solutions to advance patient care. Our mission is to improve the lives of people everywhere.

RESEARCH FELLOW/AREA MNGR. – GI BIOLOGY

You will oversee all internal GI Biology programs and external collaborations and interactions. Research activities will focus on understanding and exploiting novel oral drug-enhancing technologies. You must have a PhD in Pharmaceutics with 6-8 years hands-on postdoctoral experience in developing and implementing relevant oral absorption animal models for technology assessment, utilizing PK/PD oral drug absorption modeling, and managing collaboration required. Excellent verbal presentation skills and a good interactive management style are necessary.

Please send resume, indicating Job Code 00-939-SC, to **ALZA Corporation, HR Dept., 1900 Charleston Road, PO Box 7210, Mountain View, CA 94039-7210; fax: (650) 564-5656; email: jobs@alza.com (ASCII files only); Job Hotline: (650) 564-5319.** Our hiring managers will review all qualified resumes. ALZA is proud to be an EOE.

alza

Visit our website at **www.alza.com**

National Institute for Occupational Safety and Health (NIOSH)
Centers for Disease Control and Prevention (CDC)

Post-Doctoral Service Fellow Toxicologist/Pharmacologist/ Biomedical Researcher

A post-doctoral Service Fellow position in the fields of toxicology, pharmacology, or biomedical research is immediately available at NIOSH, CDC, located in Morgantown, WV. The incumbent is expected to conduct laboratory research in a skin research group, where various in vivo and in vitro animal and human skin models are used in dermal exposure assessment and toxicokinetic modeling studies. Individuals with exceptional knowledge, skills, abilities, and a doctorate in toxicology, pharmacology, biomedical research or similar areas are encouraged to apply. Experience with skin-related laboratory research or with animal surgery is highly desirable for this position. The starting annual salary will be: GS-11, $43,326 to $56,322 or GS 12, $51,927 to $67,500, including an excellent benefits package. The initial appointment will be up to three years. Full consideration will be given to applications received by Feb. 15, 2001, although the position will remain open until it is filled. Both U.S. citizens and non-citizens will be considered. Please submit your RESUME along with a COVER LETTER containing reference information, by either of the three means listed below, to:

ssoderholm@cdc.gov or
304-285-6041 (Fax) or
Dermal Exposure Team
NIOSH/HELD/EAB, MS 3030
1095 Willowdale Road
Morgantown, WV 26505-2888

CDC/NIOSH is an equal opportunity employer

Position Announcement

ASSOCIATE PROVOST FOR RESEARCH AND INTERDISCIPLINARY PROGRAMS VIRGINIA TECH

The Associate Provost for Research and Interdisciplinary Programs at Virginia Tech is a full-time, calendar-year position in the Research Division, and reports directly to the Vice Provost for Research. The successful applicant will satisfy the qualifications to be a tenured professor and have a proven record of research and strong appreciation for the importance of graduate education.

The duties and responsibilities of the position include directing a professional staff dedicated to enhancing Virginia Tech's competitive position in sponsored program funding for research, graduate education, instruction, and outreach; and to enhancing interdisciplinary research. This will include:

- assisting faculty to identify and compete for external funding opportunities;
- establishing and nurturing contacts with federal and state funding agencies, private foundations, and associations;
- arranging for faculty contacts with funding sources;
- tracking federal programs which impact higher education;
- enhancing and maintaining the faculty expertise database; and
- overseeing university-wide interdisciplinary research centers.

The person in this position will interact on a regular basis with the staff in the Graduate School, and other Research Divion staff to identify funding opportunities for disciplinary and interdisciplinary activities.

The person in this position will have other duties, committee/commission assignments, and external appointments as deemed appropriate by the Vice Provost for Research.

Review of applications for this position will begin March 1, 2001 and will continue until the position is filled.

Persons interested in this position should submit a letter of application and curriculum vitae to:

Dr. Roger Avery
Senior Associate Dean, Graduate School
209 Sandy Hall
Virginia Tech
Blacksburg, VA 24061-0325

Virginia Tech has a strong commitment to the principle of diversity and, in that spirit, seeks a broad spectrum of candidates including women, minorities and people with disabilities. Individuals with disabilities desiring accommodations should notify Roger Avery, Graduate School, 542-231-5645 or the Virginia Telecommunications Relay Service 1-800-828-1120 by the application deadline.

Purdue BioPharma L.P.

We've made a science out of developing careers.

Purdue Biopharma L.P. is a research-oriented biopharmaceutical company which seeks to benefit patients by providing new treatments for cancer, infectious diseases, pain, and disorders of the central nervous and immune systems. As the Discovery Research arm of a growing and successful international Pharmaceutical organization, we are seeking highly motivated professionals to support our expansion in the Princeton and Cranbury, New Jersey areas. We currently have the following opportunity available in our Biosciences Dept.

■ Senior Research Scientist

You will lead a group of research associates to establish in vivo models of cancer in mice including standard xenograft models and the ability to develop and evaluate new models for the testing of novel immunotherapeutic agents. Additional responsibilities will include performing histological analyses of the tumors and to design and perform studies to validate novel targets. Ideal candidate will possess a Ph.D. or equivalent in pharmacology, physiology, veterinary medicine or related fields; 3-5 years of experience working in industry; as well as significant experience and expertise with in vivo techniques including small animal surgery and human xenograft tumor models in mice. Knowledge of and experience working with immunotherapeutic agents for the treatment of cancer and experience managing research associates essential. Experience with the techniques required to perform histological analyses of tumors and the evaluation of tissue sections

■ Senior Research Scientist

The successful candidate will lead a laboratory whose functions will include the measurement of both humoral and cellular immune responses to Purdue's novel immunotherapeutic agents for the treatment of cancer both in vitro and in vivo and to enhance our capabilities in antigen presentation and dendritic cell biology. Ph.D. or equivalent in immunology or a closely related field; 3-5 years experience working in industry following postdoc along with extensive knowledge of immunology, antigen presentation and the induction and measurement of both humoral and cellular immune responses required. Must have knowledge of cancer biology and the development of immunotherapeutic reagents for the treatment of cancer and experience managing both Ph.D. and non-Ph.D. scientists

■ Senior Bioscientist

The successful candidate will lead a team of research associates to establish in *vivo* models of chronic inflammatory and nerve injury related pain in rodents. Other responsibilities will include the co-ordination of small molecule in *vivo* screening programs and designing and implementing exploratory research programs to discover and validate novel molecular targets with therapeutic potential for the treatment of chronic pain. A Ph.D. is required and at least 3 years post-doctoral experience as an in *vivo* pharmacologist. Applicants may be drawn from disciplines that include, pharmacology, physiology, neurosciences, psychology, and veterinary medicine, but must have significant expertise in in *vivo* techniques, including small animal surgery and behavioral pharmacology. Preference will be given to scientists with a background in pain research.

■ Post-doctoral fellow - Ion channel pharmacology

(1-2 year term)

The successful candidate will be required to create innovative high-throughput assays for ion channel/transporter drug discovery programs targeting nervous system diseases, chronic inflammatory pain and nerve injury. Responsibilities will include designing and carrying out pharmacological studies designed to explore and validate ion channel/transporter targets for chronic inflammatory or nerve injury related pain. The successful candidate will also be involved in the development of cell-based assays using advanced technologies for projects involving challenging drug targets. Requires a Ph.D. and a strong background in ion channel pharmacology. Experience in the fields of analgesia and/or nerve injury would also be considered a strong advantage. In addition, the candidate must have expertise in at least 2 of the following areas: cell culture, molecular biology, ion transport biology, optical detection methods, molecular probes, biophysics, electrophysiology, automation and high-throughput screening.

We offer competitive compensation and an attractive benefits package within a casual start-up work environment. As a growing company, we offer ample opportunities for personal advancement and professional growth. For immediate consideration, qualified applicants should mail resumes indicating position of interest and salary requirements to: **Recruiter, Human Resources, 201 College Road East, Princeton, NJ 08540 or email to recruiternj@pharma.com.** Corporate standards require drug testing and background investigation. We are an equal opportunity employer committed to a diverse workplace.

For more information, visit us on our website at:
www.purduebiopharma.com.

PURDUE™
A leader in pharmaceutical development and marketing.

ICAGEN

ION CHANNEL ADVANCES

ICAGEN is a privately held company and a leader in ion channel drug discovery. Due to the continued growth and success of the Company, several opportunities are available for talented individuals in our Molecular Sciences, Electrophysiology and High-Throughput Screening groups.

Senior Scientist - Molecular Sciences (Job Code: MBSS-323)

A unique position is available in our Molecular Sciences group for an exceptional individual with a strong molecular biological skill set. As part of an aggressive cloning effort, ICAGEN has assembled an extensive collection of human ion channel genes. A key responsibility for this position will be to assist in identifying novel drug discovery targets through molecular validation studies including functional expression, distribution profiling and microarray analysis. Applicants must have completed a recent Ph.D., or equivalent program, and possess at least two years of postdoctoral experience with training in molecular biology and either cell biology or genomics. Additional consideration will be given to candidates with experience in the ion channel field.

Scientist - High-throughput screening and assay development (Job Code: HTS-224)

A position is available to join our expanded high-throughput screening group. Requirements include expertise and familiarity with high-throughput assay methodologies, analysis and automation. This position will also involve performing general assays in support of existing internal and collaborative projects. Requires a B.S./M.S. and 2 or more years of relevant experience.

Scientist - Electrophysiology and assay development (Job Code: EP-154)

This position will provide general support to existing and new projects using electrophysiological techniques and other methodologies as appropriate. Candidates should have experience in one or more of the following: whole cell patch clamp, slice recordings, oocyte recordings. Additional experience with methods such as receptor binding, transmitter release, and/or muscle strips would be beneficial. Requires a B.S./M.S. and 2+ years of relevant experience.

All candidates must have demonstrated excellence in scientific research appropriate for the position, possess extensive technical expertise, have strong communication skills and the ability to facilitate discovery in a dynamic team-oriented setting.

At ICAGEN we are looking to attract and retain talented individuals able to make an impact in an exciting and challenging environment. We provide a comprehensive compensation and benefits package including competitive salaries, stock options, medical and dental plans, and a 401(k) retirement plan. For consideration, please submit your resume or CV and salary history directly to:

Human Resources
ICAGEN, Inc.
PO Box 14487
Research Triangle Park, NC 27709
Email: jobs@icagen.com

Please include the appropriate job code with your cover letter.

ICAGEN, Inc. is an equal opportunity employer.

Intellectual Property Specialist/Manager

The International Maize and Wheat Improvement Center (CIMMYT), a non-profit research organization, has an immediate opening for an Intellectual Property Specialist/Manager.

The Intellectual Property Specialist/Manager will assist CIMMYT in preparing and coordinating strategic responses to IP/TP rights management issues; liaise with other CGIAR centers, public and private agencies and organizations, legal advisers, and the CGIAR's Central Advisory Service (CAS); coordinate and develop IP/TP rights understanding among CIMMYT staff and clients; supervise IP/TP rights management issues among CIMMYT staff and visitors; develop and maintain an IP/TP rights documentation database and review all related agreements; direct and manage the annual update of CIMMYT's IP/TP rights audit; and provide Freedom-to-Operate (FTO) assessments of CIMMYT research and research products.

Qualifications include: an advanced degree in agricultural sciences, biotechnology, agricultural related social sciences, and/or a degree as a legal professional; a working knowledge of applicable international treaties (CBD, TRIPS, etc.) and their impact on the CGIAR Centers; and work experience regarding scientific, agricultural and IP/TP rights policy issues.

The candidate should possess excellent communication skills in written and spoken English, and an ability to form part of an interdisciplinary team and sensitivity to diverse cultures and nationalities. Spanish language skills are desirable.

The Specialist/Manager will work at CIMMYT headquarters near Mexico City, Mexico.

To apply, send an application letter with CV and supply three letters of recommendation **(Reference 2000/07)** by post to **Ms. Marisa De la O, Interim Human Resources Manager, Reference Code 2000/07, CIMMYT, Apartado #370, PO Box 60326, Houston, TX 77205,** or by e-mail: **Jobs-CIMMYT@cgiar.org, by January 31, 2001 or until the position is filled.**

CIMMYT is an equal opportunity employer.

UIC

FACULTY POSITIONS IN VIROLOGY/IMMUNOLOGY

The Department of Microbiology and Immunology, in the College of Medicine at the University of Illinois at Chicago (UIC) is continuing its faculty recruitment effort and is seeking to fill tenured/tenure track faculty positions in immunology and virology at the level of Assistant, Associate or Full Professor. UIC is the largest institution of higher learning in the Chicago area and is a major center for education and research. UIC's College of Medicine is part of the Westside Medical Center, the largest group of medical centers in the United States. The Department of Microbiology and Immunology has active research programs in several major disciplines, including immunology, virology, and bacteriology, and cell biology. The Department of Microbiology and Immunology will occupy space in a new state-of-the-art research building that is currently under construction with anticipated completion in the Spring of 2002.

The successful faculty candidate will be expected to have and maintain a vigorous independent research program and participate in the research and graduate training programs in the Department. Generous laboratory space and start-up funds are available. Applicants are required to have a Ph.D., M.D. or equivalent doctorate level degree and a proven track record in research as evidenced by consistent scholarly publications. Preference will be given to individuals with outside grant support, and whose research interests are focused in the area of **immunology, virology or host-pathogen interaction and communication.**

For fullest consideration, please send applications, including a curriculum vitae and a brief statement of future research plans, by **February 28, 2001** to:

Search Committee
Department of Microbiology and Immunology
University of Illinois at Chicago, College of Medicine
835 S. Wolcott (M/C 790)
Chicago, IL 60612-7344

The University of Illinois at Chicago is an Affirmative Action/Equal Opportunity employer. Women and minorities are strongly encouraged to apply.

http://www.uic.edu/depts/mcmi/home.html

Join the Genomics Revolution!

Rigel, Inc. is an emerging post genomics combinatorial biology company. Our continued progress has created great opportunities in our South San Francisco facility for dedicated scientists and researchers to make key contributions to our expanding drug discovery program.

Scientist, Oncology/ Cell Biology (2 positions)

You will contribute to a dynamic team utilizing functional genetic approaches to discover and validate novel drug targets in cell cycle regulation and tumor cell biology. Requires a Ph.D. with experience in molecular and cellular biology with a preferred focus on cell cycle regulation, signal transduction, genetics, and/or retrovirology. (Job Code: SM-01-01)

Scientist, Cell Biology/Imaging

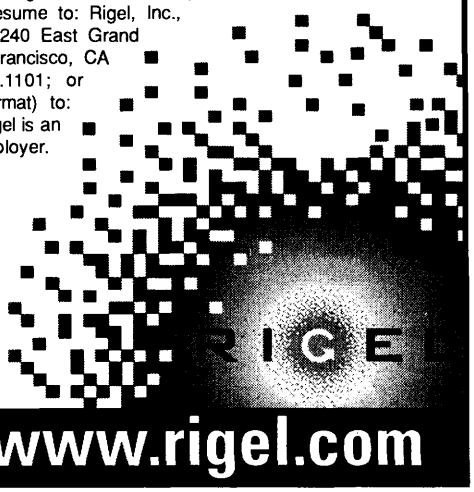
Utilizing your fluorescence microscopy and cell imaging expertise, you will help expand the capabilities of our cell-based imaging and flow cytometry group. You will develop fluorescence cell-based imaging approaches using our state-of-the-art equipment to the functional analysis of novel genes discovered in our oncology and immunology programs, and develop novel fluorescence based cellular assays for drug discovery. Requires a Ph.D. with experience in fluorescence microscopy, cell biology, and the use/ development of software for digital image analysis. (Job Code: SM-01-02)

Scientist, Immunology

You will contribute to a dynamic team utilizing functional genetic approaches to discover and validate novel drug targets in lymphocyte biology. Requires a Ph.D. and experience in molecular and cellular biology with a preferred focus on T and B cell activation, signal transduction, genetics, and/or retrovirology. (Job Code: SM-01-03)

Effective written/verbal communication skills, expertise in the strategic design and implementation of research projects, a proven record of scientific accomplishments, and the ability to work both independently and as part of a team are highly desirable for ALL POSITIONS.

Rigel is a dynamic and exciting place to work. We prize teamwork. Rigel offers an outstanding benefits package (inclusive of attractive salaries, benefits, and generous stock options. Please submit your resume to: Rigel, Inc., Attn: (Job Code___), 240 East Grand Avenue, South San Francisco, CA 94080; fax: 650.624.1101; or email it (in ASCII format) to: careers@rigel.com. Rigel is an Equal Opportunity Employer.



www.rigel.com

Unlock the door to your future.

***Science* has the keys.**

Just go to sciencecareers.org and use the premier scientific web site dedicated to helping scientists find top quality jobs in the life sciences industry.

It's easy, and free.

Whether you're looking for job postings from top pharmaceutical and biotechnology organizations, a Resume/CV database, our Job Alerts service, or career advice, sciencecareers.org. gives you all the keys you need to discover your future.

Science @ CAREERS

www.sciencecareers.org

VICE PRESIDENT
LABORATORY MANAGEMENT

The University of California (UC) manages Los Alamos National Laboratory (LANL), Lawrence Livermore National Laboratory (LLNL) and Ernest O. Lawrence Berkeley National Laboratory (LBNL) under contract with the U.S. Department of Energy (DOE), with a total budget of about $3.3 billion. LLNL and LANL are under the purview of the National Nuclear Security Administration (NNSA), and LBNL is under the DOE Office of Science. The **Vice President -- Laboratory Management** (VP-LM) is a new position, serving as the principal point of responsibility and contact between UC and the DOE/NNSA in the management of the NNSA laboratories and as the point of contact for contractual matters for the DOE Office of Science.

The VP-LM reports to the President. The President, supported by the Provost and Senior Vice President for Academic Affairs and the Senior Vice President for Business and Finance, will set expectations for and maintain close contact with the VP-LM and provide appropriate authority to establish operational standards. The VP-LM will be responsible for administering and overseeing adherence to DOE requirements and for driving management and operational improvement. For the NNSA laboratories, the VP-LM will be responsible for the overall performance of UC as manager and working with the Laboratory Directors and the NNSA to facilitate cross-institutional programmatic and operational planning. The VP-LM will maintain close coordination and interaction with DOE, NNSA, the senior University management, Laboratory Directors and the UC President's Council on the National Laboratories and its panels. The VP-LM is the principal point of contact and accountability to DOE for all contractual matters, including policy development, contract negotiations, fee and indirect payments management, and the annual performance ratings process. The VP-LM administers subcontracts for expertise and advice in appropriate areas, such as safeguards and security and construction-project management for the NNSA laboratories.

Skills and experience required include knowledge of national laboratories and substantial background in management of complex enterprises, including major research and development activities. The VP-LM must be internationally recognized for his/her scientific/technical leadership, and his/her experience must be such as to engender professional respect and effective working relationships with senior laboratory, NNSA and other DOE personnel, and with University faculty and administration. Demonstrated ability to manage large federal government research and development contracts, and experience with the nuclear weapons enterprise are desirable. A DOE "Q" security clearance, or the ability to acquire one, is required for this position.

Nominations, as well as applications, are encouraged. To nominate or apply, send a letter of application and resume to **Chair, Search Committee, University of California, 1111 Franklin St., Oakland, CA 94607-5200, or fax to (510) 987-9209 (attention Barbara)**. Review of applications and nominations will begin February 28. EOE

Training for Physicians in Clinical Gene Therapy

A new training program for physicians in clinical research methods and practices related to Gene Therapy will be available in the Gene Therapy Program at Children's Hospital Los Angeles, University of Southern California (U.S.C.) Keck School of Medicine. Salary stipend and support for academic activities will be sponsored by the Doris Duke Charitable Foundation.

There will be two positions available annually. One position will be for candidates at the Fellowship level who have completed residency training, preferably, but not restricted to, pediatrics, and subspecialty training in a discipline relevant to gene therapy. The Fellowship positions will last for 1 or 2 years.

The second position will be for interested medical students and will last approximately 2 months during the summer. Starting time and duration can be flexible.

The training program will include formal training in clinical trial design and conduct, principles of Good Clinical Practice and Good Manufacturing Practice, statistical methods, and ethics of research involving human subjects. Fellows will have the opportunity to participate in development and implementation of clinical trials of gene therapy for children with genetic diseases and AIDS. Attendance at Institutional Review Board, Institutional Biosafety and Animal Care Committee meetings will enhance knowledge of protocol development and review.

Interested applicants should send a C.V. and a 1-2 page letter of interest, describing career goals and how training in clinical gene therapy would help you reach them. Letters of interest are due by March 1, 2001 for a Fellowship starting in July 2001. Address letters to **Donald B. Kohn, M.D., Professor of Pediatrics and Microbiology, Mailstop #62, Children's Hospital Los Angeles, 4650 Sunset Blvd, Los Angeles CA 90027.** Inquiries may also be sent to **dkohn@chla.usc.edu.**

Children's Hospital Los Angeles is an equal opportunity employer.

APPLICATIONS SCIENTIST

Kendro Laboratory Products, L.P., a world leader in sample preparation products and services, seeks an Applications Scientist for its dynamic Superspeed centrifuge line.

This team player will:

- Serve as the in-house expert on Superspeed technical issues and applications, including continuous flow systems
- Solve customers' applications requirements via phone, e-mail, fax or customer visits
- Generate application protocols and articles
- Support Marketing and Sales for product launches and training
- Develop key competitive comparisons
- Provide information for marketing literature
- Analyze bioscience research trends
- Perform new product validations
- Provide input for Product Development
- Suggest quality improvements

The successful candidate will have experience in designing experiments and performing bioanalytical, purification, and separation techniques. He or she must be able to work independently, multi-task, and demonstrate excellent communication and computer skills. The position is based in Newtown, CT and requires light travel (up to 25%). BS degree in Biology/BioScience required. Master's degree in related field and leadership ability a plus!

Kendro employs over 1200 people worldwide and manufactures SORVALL®, Heraeus and CARR™ brand centrifuges, continuous flow systems, bioprocessing equipment, incubators, safety cabinets and other laboratory equipment.

Your success will be rewarded with a comprehensive salary and benefits package including medical, dental, vision discount plan, 401(k), educational assistance and credit union.

Fax resume with salary requirements to:
Employee Relations Manager,
Human Resources
Fax-(203) 270-2505 or send to: careers@kendro.com.
Please visit our website at: www.kendro.com.
EOE

Research Opportunities

The Albert Einstein Healthcare Network (AEHN) invites applications from established basic and clinical research investigators to join our research faculty. AEHN is committed to expanding its basic and clinical research activities. The Korman Research Pavilion is an 87,000 square foot research facility with an AAALAC approved animal facility. Joint faculty appointments at Thomas Jefferson University may be possible.

Areas of specific research interest should complement our outstanding clinical services in:

- Cancer
- Cardiology
- Geriatrics
- Behavioral Health (including drug and alcohol)
- Orthopaedics
- Rehabilitation
- Transplantation (liver, pancreas, and renal)
- Women's and Children's Health

Interested individuals should submit a curriculum vitae, a statement of their research interests, a history of current research support, and the names of three references to: **Elliott C. Kulakowski, PhD., Director, Research and Technology Development, Albert Einstein Healthcare Network, Korman Research Pavilion, Suite 100, 5501 Old York Road, Philadelphia, PA 19141.**

Albert Einstein Healthcare Network
Einstein

Jefferson Health System

Albert Einstein Healthcare Network is proud to be an equal opportunity employer.

***Cephalon** is a leader in the discovery and development of products used to treat neurological diseases and disorders. The following positions are currently available:*

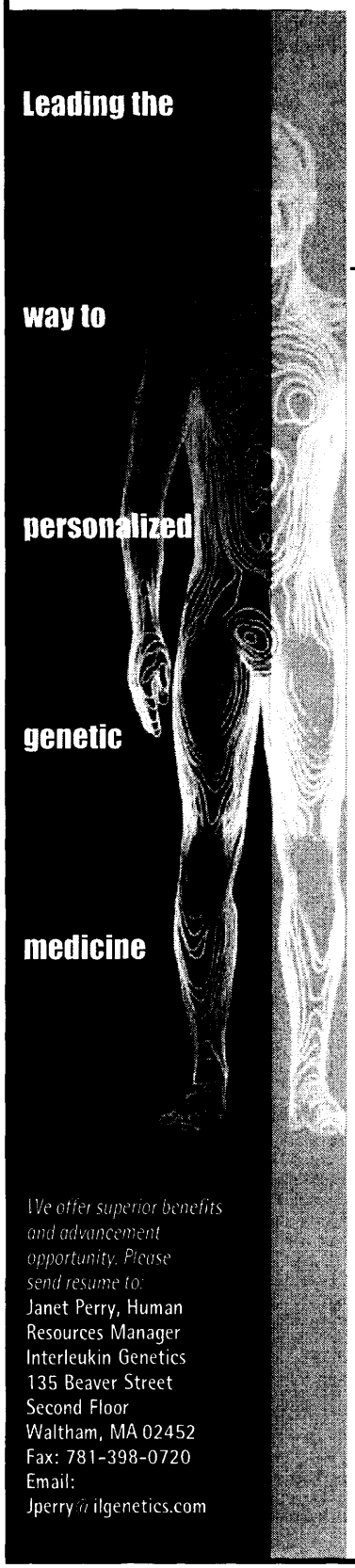
RESEARCH ASSOCIATE/ SR. RESEARCH ASSOCIATE (2 positions) Regulatory Affairs

Candidates must be highly motivated and should possess a general knowledge of preparing quality documents for submission to the FDA in accordance with current regulations and guidelines. These submissions include: NDA/IND Annual and Periodic Reports, CMC, preclinical and clinical documents that support the conduct of clinical trials. Must be willing to gain an understanding of regulations/guidelines and data/documentation requirements in order to expand role in reviewing and providing guidance to departments and project teams. Candidate must have bachelor's degree in scientific field and at least 2 years experience in US Drug Regulatory Affairs. Experience with electronic submissions a plus. Position Code: KW

Cephalon provides competitive salaries and a comprehensive benefits package. Please send your resume indicating appropriate POSITION CODE and salary requirements to: Recruitment Manager, CEPHALON, INC., 145 Brandywine Parkway, West Chester, PA 19380-4245. EEO M/F/D/V.

Cephalon, Inc.

INTERLEUKIN GENETICS



Build your career in the exciting fields of personalized medicine and pharmacogenomics. Interleukin Genetics uses DNA-based information in health and medicine. With a growing portfolio of patents for the genetics of cardiovascular disease, osteoporosis, diabetes, asthma, and more, Interleukin Genetics needs talented staff to help expand our aggressive clinical research program. Join us for reward and opportunity as our company enters a powerful new phase of development.

DIRECTOR OF BUSINESS DEVELOPMENT

We are seeking someone preferably in a biotech or pharmaceutical organization to provide leadership in business growth initiatives through utilization of proactive strategies. Responsibilities include: focusing internal research priorities based on external market attractiveness; marketing the company's scientific capabilities in the area of personalized medicine; developing external business relationships; negotiating business contracts and license agreements; analyzing and making presentations on new marketing strategies and opportunities. Qualified candidates must have 8-10 years of relevant experience in business development, plus an MBA and Master's degree in a related science.

MEDICAL DIRECTOR, CARDIOVASCULAR DISEASES and MEDICAL DIRECTOR, ENDOCRINOLOGY

Two positions available: 1) Medical Director, Cardiovascular Diseases; and 2) Medical Director, Endocrinology. Each director will lead the company's personalized medicine effort in the specified area. Both positions require an MD or clinically relevant PhD degree plus at least 3 years of experience in the epidemiology/ genetics of cardiovascular disease, diabetes or osteoporosis. Alternatively, drug development experience in a biotechnology/pharmaceutical setting that has included exposure to the field of pharmacogenomics or genetic predictive testing would be appropriate. Responsibilities in the specified general area of expertise will include: determining strategic focus for future clinical studies related to genetic predictive testing and pharmacogenomics; planning, designing and directing future clinical studies; participating in strategic corporate partnership discussions; serving as the company's lead clinical representative in joint partnership project work.

BIOSTATISTICIAN

We are seeking an individual with a Ph.D. degree in statistics plus at least 2 years of clinically relevant experience in either epidemiology or statistical genetics. Alternatively, drug development experience in a biotechnology/ pharmaceutical setting that has included exposure to the field of pharmacogenomics or genetic predictive testing would be appropriate. Responsibilities will include: determining appropriate statistical approaches and conducting analyses of the company's existing clinical databases; determining statistical design of future clinical studies; contributing to decision-making on the company's future directions in the areas of pharmacogenomics and genetic predictive testing with regard to both strategic planning and partnership discussions; providing the biostatistical lead role for the company in any joint project teamwork with corporate partners.

We offer superior benefits and advancement opportunity. Please send resume to:

Janet Perry, Human Resources Manager
Interleukin Genetics
135 Beaver Street
Second Floor
Waltham, MA 02452
Fax: 781-398-0720
Email:
Jperry@ilgenetics.com

TEACHING FACULTY
BIOLOGY/
NATURAL SCIENCES

Our Natural Sciences Department seeks an innovative, energetic **ASSISTANT PROFESSOR** for a full-time tenure-track position beginning September 2001. We seek a broadly educated Biologist with experience in molecular biology techniques. The ideal candidate will have interests in the plant sciences and the ability to teach microbiology. Ability and desire to teach at the introductory level and participate in the college's liberal education program is required. A Ph.D. in biology is required, as is evidence of excellence in teaching at the college level and a philosophical consonance with Colby–Sawyer's programs and mission.

Colby–Sawyer, an independent, coeducational liberal arts college located in the scenic Lake Sunapee region of New Hampshire, is noted for its high quality of life. Consistent academic excellence and fine extracurricular and athletic programs have earned us the reputation of being a college where individuals truly make a difference. Our faculty and staff consider it an important and welcome aspect of their jobs to get to know, encourage, inspire, and offer guidance to our students throughout their college careers. Visit our **website: www.colby-sawyer.edu** for more information about our unique teaching and learning community.

Candidate screening begins immediately. Priority will be given to candidates who apply by February 9, 2001. Send current curriculum vitae; letter of application; statement of teaching philosophy; and names, telephone numbers, and e-mail addresses of three references to: **Human Resources Department, Colby–Sawyer College, 100 Main Street, New London, NH 03257. E-mail: welcome@colby-sawyer.edu.**

MOLECULAR BIOLOGISTS
School of Dentistry
The Philips Institute
Virginia Commonwealth University

The Philips Institute of Oral and Craniofacial Molecular Biology at the School of Dentistry, Virginia Commonwealth University, is seeking applicants for positions at the **ASSISTANT** or **ASSOCIATE PROFESSOR** level. Candidates must have training and expertise in molecular biology and interest in developing research programs of dental or craniofacial relevance (e.g., oncology, genetics, infectious disease). Ph.D. or equivalent degree and two or more years of productive postdoctoral experience is required. Appointees will be expected to maintain extramurally supported research programs. Responsibilities also include some teaching and service assignments. Candidates must be qualified to be appointed as affiliate faculty in a VCU basic science department. Competitive salary, space, and start-up resources are being offered. Experience in a culturally diverse environment is highly preferred. Candidates must submit a statement of research interests and curriculum vitae and should arrange to have at least three letters of reference provided. Materials should be sent to: **Dr. Francis L. Macrina, VCU School of Dentistry, Box 980566, Richmond, VA 23298-0566.** Review begins on March 15, 2001, and continues until position is filled. The positions will remain open until filled. *Virginia Commonwealth University is an Equal Opportunity/Affirmative Action Employer. Women, minorities, and persons with disabilities are encouraged to apply.*

University of Florida seeks an **ASSISTANT PROFESSOR/ASSOCIATE PROFESSOR** (tenure track) and a **CLINICAL ASSISTANT/CLINICAL ASSOCIATE PROFESSOR** (nontenure) in the Department of Medicine, Division of Cardiovascular Medicine. M.D. degree; Board-certified/Board eligible in cardiology and internal medicine with interventional cardiology Fellowship completed. Recruiting deadline: February 2, 2001. Anticipated starting date: July 2, 2001. Please submit curriculum vitae and three letters of recommendation to: **Richard Kerensky, M.D., Box 100277, JHMHC, Gainesville, FL 32610.** *An Affirmative Action/Equal Opportunity Employer.*

POSITIONS OPEN

FACULTY POSITION IN
VASCULAR BIOLOGY
ASSISTANT PROFESSOR
The Scripps Research Institute

The Department of Vascular Biology invites applications for a tenure-track Assistant Professor position. The successful candidate is expected to initiate a productive research program in molecular, cellular, biochemical, or developmental aspects of vascular biology. Areas of special interest include but are not limited to mouse genetics, vasculogenesis/ angiogenesis, apoptosis, structure-function analysis, and models of cardiovascular diseases.

The position will remain open until an appointment is made, but complete applications should be received by March 1, 2001. Please send curriculum vitae, statement of research accomplishments and goals, and the names of three references to:

Vascular Biology Faculty Search Committee
c/o Ms. Marcia McRae
Department of Vascular Biology, VB–3
The Scripps Research Institute
10550 North Torrey Pines Road
La Jolla, CA 92037
E-mail: mjmcrae@scripps.edu

RESPIRATORY NEUROSCIENTIST: The University of South Dakota School of Medicine invites applications to fill the tenure-track position of **ASSISTANT** or **ASSOCIATE PROFESSOR**. Preference will be given to candidates who are interested in the neuronal organization of the respiratory central pattern generator and who will be able to integrate into the Neuroscience Group within the Division of Basic Biomedical Sciences. The Neuroscience Group recently obtained a Center of Biomedical Research Excellence (COBRE) award for studies of adaptive behavior, and information about the Group and the Division can be found at **website: www.usd.edu/neurogroup/**. Candidates must have a Ph.D., M.D., or equivalent; postdoctoral experience; and must show a high potential for external funding. The candidate will be expected to participate in the teaching responsibilities of the Division including courses in the graduate and medical programs. Rank and salary will be commensurate with qualifications. Please submit curriculum vitae, brief statement of research and teaching goals, and names of three references to: **Ms. Carleen McNeely, Neuroscience Search Committee, Division of Basic Biomedical Sciences, The University of South Dakota School of Medicine, Vermillion, SD 57069.** Review of applications will begin February 26, 2001, and continue until the position is filled. *USD is an Equal Employment Opportunity/Affirmative Action Employer.*

TENURE-TRACK POSITION
MICROBIOLOGY AND IMMUNOLOGY

Indiana University School of Medicine, Northwest Center for Medical Education, is seeking applicants for a tenure-track position as **ASSISTANT/ASSOCIATE PROFESSOR**. Successful candidate will participate in teaching, research, and service missions of the Center. Strong commitment to medical student teaching in a problem-based curriculum in microbiology and immunology is required. Candidate will be expected to develop and maintain an innovative, externally funded research program. Preference will be given to candidates with ability to attract extramural funding and whose research expertise complements ongoing programs. Applicants must have a Ph.D. and/or M.D. or equivalent degree. Send curriculum vitae, a description of research, statement of teaching philosophy, and three letters of reference to: **William Baldwin, Ph.D., Assistant Dean and Director, Indiana University School of Medicine, 3400 Broadway, Gary, IN 46408.** *Equal Opportunity/Affirmative Action Employer; Minorities/Females/Disabled.*

POSITIONS OPEN

TENURE-TRACK FACULTY POSITION
Pharmaceutics and Pharmaceutical Chemistry

The University of Utah invites applications for a tenure-track position in pharmaceutics and pharmaceutical chemistry. Candidates must have a Ph.D., M.D., or equivalent degree. All appointment levels will be considered. Preference will be given to candidates with a strong background in basic science and with interdisciplinary research interests involving biomedical aspects of pharmaceutics and drug delivery. However, candidates with research experience in other areas such as molecular biophysics, pharmacogenomics, and bioinformatics are also urged to apply.

She/he will be expected to develop a strong, independent research program; to participate in undergraduate teaching; and to develop a graduate course, preferably in chemical and biochemical kinetics/drug stability. Interested individuals are invited to submit complete curriculum vitae; names, mailing, and e-mail addresses of three references; a short description of current research and teaching activities; and a statement of career goals to: **Faculty Search Committee, Department of Pharmaceutics and Pharmaceutical Chemistry, 30 South 2000 East, Room 301, University of Utah, Salt Lake City, UT 84112. Telephone: 801-581-7831; FAX: 801-581-3674; website: http://www.pharmaceutics.utah.edu.** The review process will begin March 1, 2001, and continue until the position is filled. **Questions may be addressed to: J. Kopecek, Department Chairperson; Telephone: 801-581-4532; e-mail: jindrich.kopecek@m.cc.utah.edu.** *The University of Utah is an Equal Opportunity/Affirmative Action Employer. Women and minorities are encouraged to apply.*

The Department of Pediatrics at the University of Wisconsin–Madison Medical School is recruiting two **CLINICAL GENETICISTS** with a commitment to developing an independent research program and an interest in providing clinical genetics care. These are tenure-track positions at the **ASSISTANT PROFESSOR** level in the Departments of Medical Genetics and Pediatrics. There are opportunities for on-site collaboration with nationally recognized researchers in genetics and genomics within the Laboratory of Genetics and in gene therapy and child development through an affiliation with the Waisman Center. Opportunities also exist for teaching pediatrics residents, medical students, and graduate and undergraduate students in genetics. Madison is a thriving progressive university community and state capitol, ranked number one in "livability" by *Money Magazine* in 1996 and 1998. Candidates must be Board-certified or Board-eligible in clinical genetics. If interested, please send a letter and curriculum vitae to: **Jon A. Wolff, M.D., Professor, Departments of Pediatrics and Medical Genetics, University of Wisconsin Clinical Genetics Center, 1500 Highland Avenue, Madison, WI 53705-2280. FAX: 608-263-0530; e-mail: wargowski@waisman.wisc.edu.** *Unless confidentiality is requested in writing, information regarding the applicants must be released upon request. Finalists cannot be guaranteed confidentiality. The University of Wisconsin is an Equal Opportunity/Affirmative Action Employer. Women and members of minority groups are encouraged to apply. Wisconsin caregiver law applies.*

Midsize health care advertising agency has **TWO WRITING POSITIONS** available.

Two years of minimum experience in the communications field, either medical education or agency. Ph.D./M.D. with a therapeutic background that is diverse and with a combination of oncology, anti-infectives, and cardiovascular. Candidate must have had client exposure and management experience. Please send curriculum vitae, salary requirements, and writing sample.

Technical Writer with Ph.D./M.D.; no experience necessary. Oncology or cardiovascular background a plus. Please send curriculum vitae, salary requirements, and writing sample to: **Box 94, 1200 New York Avenue, N.W., Washington, DC 20005.**

NIMH
National Institute of Mental Health

Tenure Track Investigator
Chief, Unit on Neuroplasticity

Mood and Anxiety Disorders Program
National Institute of Mental Health
Bethesda, MD

The Mood and Anxiety Disorders program of the National Institute of Mental Heath Intramural Research Program invites applications for a tenure track investigator position to be Chief, Unit on Neuroplasticity. The candidate is expected to develop an independent research program emphasizing the mechanisms and regulation of structural and functional changes in the mature brain. Applicants must have an MD. and/or Ph.D. with a record of significant scientific achievement as an independent investigator. The position includes en attractive start-up package and operating budget in an exciting multidisciplinary research environment. Applicants should send a curriculum vitae. statement of research interests, and have three letters of recommendation sent by February 19, 2001 to:

Dr. Dennis S. Charney
Chair, Search Committee for Chief
Unit of Neuroplasticity
NLDAR, Building 10, Room 4N-222
9000 Rockville Pike
Bethesda, MD 20892-1381

The National Institutes of Health is an equal opportunity employer.

GLOBAL OPPORTUNITIES

CSIRO, Sustainable Ecosystems, Gungahlin, ACT, AUSTRALIA

CSIRO

Post-Doctoral Fellow in Resilience in Socio-Ecological Systems

$47K - $53K + Superannuation Ref No: PG 01/02

The Resilience Alliance, with support from the James S. MacDonnell Foundation, is undertaking a three year study of the resilience of integrated social-economic-ecological systems. The study involves theory development linked to a number of regional case studies in various parts of the world. Details of the Resilience Alliance Program can be found at www.resalliance.org

Responsibilities of the position are to integrate emerging results from regional case studies in Australia, SE Asia, Africa and the USA and to work with colleagues in the Resilience Alliance in developing a theoretical basis for sustainability of regional socio-ecological systems. Requirements are i) a good understanding of ecosystem and social dynamics in natural resource management systems with a strong background in at least one of these areas, ii) experience in systems analysis and mathematical modelling, iii) ability and willingness to work across disciplines, iv) willing to travel frequently for up to weeks at a time.

The Fellow will be based in the CSIRO Sustainable Ecosystems in Canberra, Australia, under the supervision of Dr Brian Walker, the Resilience Alliance Program Director.

This position is for 3 years.

For further information about this position please contact Brian Walker +61 2 6242 1740 or brian.walker@cse.csiro.au

For the selection documentation please contact Debbie Pragt +61 2 6242 1673, or debbie.pragt@cse.csiro.au or visit www.dwe.csiro.au/employment/

Please send your application framed against the selection criteria, quoting **Reference No. PG01/02** to: **The Human Resources Officer, CSIRO Sustainable Ecosystems, GPO Box 284, Canberra ACT, AUSTRALIA 2601** by 23 February 2001.

S47122

Australian Science, Australia's Future

ASSISTANT PROFESSOR - PLANT BIOINFORMATICS

The Department of Plant Agriculture at the University of Guelph invites applications for a full-time, tenure-track research and teaching position at the rank of Assistant Professor.

The successful candidate is expected to initiate a creative research program on computational and statistical methods to interpret and exploit molecular genetic and physiological data that will enhance our understanding of fundamental plant processes and lead to the genetic improvement of crops. Interactions with other scientists involved with genomics, breeding, quantitative genetics, crop modeling and statistics will be expected. The individual is expected to teach at the undergraduate and graduate level in his/her area of expertise, to seek research funding from federal, provincial and industry sources and to work as part of a team of scientists in the university's Food System Biotechnology Centre. The position is 60% research and 40% teaching.

Candidates should have a Ph.D. degree in an appropriate discipline and postdoctoral experience is preferred. Candidates should provide evidence of a commitment to teaching and of excellence in research. Excellent research facilities and support are available. Please see our web page (**http://www.oac.uoguelph.ca/CRSC/mainpath.html**) for details on the Department, the facilities and the University.

Applicants must quote position 128-NEW. Applications, including curriculum vitae, University transcripts, a statement of research and teaching interests and the names of three referees should be sent to: Dr. Clarence Swanton, Chair, Search Committee, Department of Plant Agriculture, Crop Science Building, University of Guelph, Guelph, Ontario, Canada, N1G 2W1. Fax: (519) 763-8933. Closing date April 15, 2001 or until a suitable candidate is found. This appointment is subject to final budgetary approval. Salary will be commensurate with qualifications and experience.

In accordance with Canadian Immigration requirements, priority will be given to Canadian citizens and permanent residents of Canada.

The University of Guelph is committed to an employment equity program that includes special measures to achieve diversity among its faculty and staff. We therefore particularly encourage applications from qualified aboriginal Canadians, persons with disabilities, members of visible minorities and women.

POSITIONS OPEN

JUNIOR OR SENIOR FACULTY POSITION IN STRUCTURAL BIOLOGY
School of Medicine
Department of Cellular and Molecular Physiology
Yale University

Applicants are solicited for a faculty position at the junior or senior level in the Department of Cellular and Molecular Physiology, Yale University School of Medicine. Candidates must hold a Ph.D., M.D., or equivalent degree. The candidate's research interest should be in the general area of cellular and molecular physiology with particular emphasis in the structural biology of ion channels, ion transporters, or related membrane proteins. Excellent opportunities are available for collaborative research as well as for graduate and medical student teaching.

Qualified women and minority group members are encouraged to apply. Complete curriculum vitae, a statement of research interests and goals, and three letters of reference should be sent by April 1, 2001:

Dr. Steven C. Hebert, Chair
Department of Cellular and Molecular Physiology
Yale University School of Medicine
333 Cedar Street
P.O. Box 3333
New Haven, CT 06510

Yale University is an Affirmative Action/Equal Opportunity Employer.

ASSISTANT PROFESSOR
Neural Coding and Representation
Neuroscience/Neurophysiology

We invite applications for a tenure-track joint appointment Assistant Professor position in the Divisions of Biology and Engineering and Applied Science within the Computation and Neural Systems Program at the California Institute of Technology. The initial appointment term is four years, and appointment is contingent upon completion of all the requirements for a Ph.D.

The applicant should conduct research directed at understanding the neuronal basis of encoding, decoding, and representing information in the brain in any neurobiological model system. It is expected that the applicant's research program will include both theoretical and experimental components.

We are seeking highy qualified candidates who are committed to a career in research and teaching. Applicants should submit curriculum vitae, a description of research and three publications, and arrange for three letters of recommendation to be sent to: **Professor Christof Koch, Division of Biology 139-74, California Institute of Technology, Pasadena, CA 91125.**

The California Institute of Technology is an Affirmative Action/Equal Opportunity Employer. Women, minorities, veterans, and disabled persons are encouraged to apply.

TENURE-TRACK, BIOCHEMISTRY ASSISTANT/ASSOCIATE RANK
Fall 2001

Ph.D. in chemistry, biochemistry, or equivalent is required; postdoctoral experience preferred. Excellence in teaching and research at both the undergraduate and graduate level is expected. Teaching is primarily in the area of biochemistry and may include upper-division lecture and laboratory, graduate, and upper-division general education courses. The research area should complement current faculty interests. The candidate is expected to establish an independent research program involving undergraduate and Master's level students. Review of applications will begin after February 23, 2001. Interviews will continue until the position is filled. Send curriculum vitae, transcripts, statements of teaching interests/philosophy and research plans, and three letters of recommendation to: **Chair, Department of Chemistry, San Jose State University, San Jose, CA 95192-0101.** Please reference PVIN SCI 01-038. *San Jose State University is an Equal Opportunity/Affirmative Action Employer. Minorities and women are strongly encouraged to apply.*

POSITIONS OPEN

FACULTY POSITION IN NEUROVIROLOGY/NEUROSCIENCE
Temple University
Phildelphia, Pennsylvania

As part of a major expansion, the College of Science and Technology at Temple University invites applications for tenure-track faculty positions in the area of neurovirology/neuroscience. The faculty will be expected to conduct high-quality, funded research and to contribute to our educational mission at both the undergraduate and graduate levels. Academic appointment will be given in an appropriate basic science department. The level of academic appointment will be based on research and teaching experience. Applicants for **ASSOCIATE PROFESSOR** or **PROFESSOR** must have externally supported research programs and substantial publication records. Emphasis will be placed on the areas of molecular biology, genetics, and immunobiology of virus-induced CNS disease. Research focus in the area of viral pathogenesis including apoptosis, neuronal degeneration, and molecular tumorigenesis is preferred. Other relevant areas in neurobiology/neuroscience will also be considered. Applications should include curriculum vitae, publication list, and statements of research interests and teaching experience. Please include names, addresses, and telephone numbers of four references. Materials should be addressed to: **Dr. Shohreh Amini, Chair, Neurovirology/Neuroscience Search Committee, College of Science and Technology, Room 409 Barton Hall, Temple University, Philadelphia, PA 19122.** Additional information can be found at **websites: www.temple.edu/CNVCB** or **www.temple.edu.CST**. *Temple University is an Equal Opportunity/Affirmative Action Employer. Applications from women and members of underrepresented minorities are encouraged.*

FACULTY POSITION
Environmental Toxicologist

The Clemson Institute of Environmental Toxicology (CIET) and the Department of Environmental Toxicology (ENTOX) at Clemson University invite applications for a tenure-track **ASSISTANT PROFESSOR** position. We welcome applications from excellent candidates within the areas of reproductive toxicology, biochemical toxicology, or physiological toxicology. We are particularly interested in candidates who work with environmentally relevant species including but not limited to invertebrates. Postdoctoral experience in a relevant field is expected. Successful candidates will establish a vigorous and independent research program, will build collaborative relationships within CIET/ENTOX and among other Departments of the University, and will contribute to the M.S. and Ph.D. degree programs within the Department. Review of applications will begin on February 15, 2001, and will continue until the position is filled. Applicants should send curriculum vitae, description of research interests and goals, statement of teaching interests, up to four selected reprints, and provide names and contact information for three references to: **ENTOX Search Committee, Department of Environmental Toxicology, Clemson University, P.O. Box 709, 509 Westinghouse Road, Pendleton, SC 29670.** For more information, contact: **Dr. Charles D. Rice, Search Committee Chair; e-mail: cdrice@clemson.edu.**

Clemson University is an Equal Opportunity/Affirmative Action Employer committed to diversity in hiring and a Public Records Agency.

DEPUTY DIRECTOR

Construction Engineering Research Laboratory, Champaign, IL. Salary: $82,876 to $107,738. Applications accepted until February 16, 2001. Information available from: **Amy Miller; Telephone: 217-373-6772; website: www.cecer.army.mil.**

POSITIONS OPEN

FACULTY POSITIONS
THE UNIVERSITY OF VIRGINIA

The Department of Pharmacology invites applicants for one to three tenure-track positions at the **ASSISTANT PROFESSOR** level or higher. The Department seeks to expand research in neuro- or cardiovascular science, focusing on molecular, cellular, and integrative aspects of signaling. Successful candidates will be expected to develop or maintain externally funded research programs and to participate in graduate and medical student teaching. The University of Virginia provides a highly interactive scientific community, well supported by core facilities, research centers, and training programs (visit **website: http://www.med.virginia.edu/medicine/basic-sci/pharm/homepage.html**). Send curriculum vitae, statement of research accomplishments and plans, and the names of at least three references (please include their postal and e-mail addresses and telephone numbers) to: **Dr. Patrice Guyenet, Chair, Faculty Search Committee, Department of Pharmacology, P.O. Box 800735, University of Virginia Health System, Charlottesville, VA 22908-0735.** Application deadline: March 31, 2001. Appointment will begin in the fall of 2001.

The University of Virginia is an Equal Opportunity/Affirmative Action Employer.

FACULTY POSITIONS
Department of Biochemistry and Molecular Biology
The Pennsylvania State College of Medicine

Applications are invited for two tenure-track positions at the **ASSISTANT, ASSOCIATE,** or **FULL PROFESSOR** rank in the Department of Biochemistry and Molecular Biology. We seek an individual that has a record of success (1) in research in human or mouse genetics or (2) genomics in the area of diabetes mellitus and/or its complications. Successful candidates must have a Ph.D. and/or M.D.; are expected to establish or to have established (depending on rank) independent, extramurally funded research programs; to collaborate with faculty working in the area of diabetes and genetics; and to participate in the education of medical, graduate, and M.D./Ph.D. students in the College and in the Life Sciences Consortium of Penn State. Applicants should send curriculum vitae, a one-to-two-page synopsis of research plans, and the names and addresses of three references to: **Search Committee, Department of Biochemistry and Molecular Biology, The Pennsylvania State University College of Medicine, H171, Hershey, PA 17033-0850.** Review begins January 16, 2000; applications accepted until positions are filled. *Affirmative Action/Equal Opportunity Employer.*

FACULTY POSITION
University of Wisconsin–Madison
Cellular/Molecular Physiology

The Department of Comparative Biosciences, School of Veterinary Medicine invites applications for a tenure-track faculty position (**ASSISTANT** or **ASSOCIATE PROFESSOR**). Qualifications include a Ph.D., postdoctoral experience, ability to develop extramurally funded research program, and commitment to excellence in teaching. Individuals with research interests in the cellular/molecular basis of oxygen sensing, cellular stress responses, or plasticity are particularly encouraged to apply, but strong candidates with other research interests will be considered. Teaching responsibilities include cardiovascular and/or respiratory portions of veterinary physiology course and participation in graduate education. To apply, send curriculum vitae, brief statements of research interests and teaching philosophies, and three letters of reference to: **Gordon S. Mitchell, Chair, Department of Comparative Biosciences, University of Wisconsin, 2015 Linden Drive West, Madison, WI 53706.** Apply by March 30, 2001. For additional information, see **website: http://www.vetmed.wisc.edu/jobs.html.** *Equal Opportunity/Affirmative Action Employer.*

NATIONAL® CANCER INSTITUTE

Staff Scientist Position in Molecular Immunology
National Cancer Institute

A Staff Scientist position is available in the Surgery Branch, National Cancer Institute for an individual with experience in molecular biology and immunology. Responsibilities of this position involve the conduct of research in areas of molecular immunology as well as an emphasis on providing support and collaborations for investigators in the Surgery Branch, NCI for studies in molecular biology and molecular immunology. The studies ongoing in the Surgery Branch, NCI include identification of genes encoding tumor antigens, studies of immune tolerance, adoptive immunotherapy, cancer vaccines, antiangiogenesis, gene therapy and immunization utilizing recombinant viruses. Postdoctoral experience in molecular biology or molecular immunology is preferred.

Candidates should send a letter of interest, curriculum vitae, bibliography, two letters of reference, description of accomplishments or current research. The completed application should be postmarked by March 1, 2001 to:

Steven A. Rosenberg, M.D., Ph.D.
Chief, Surgery Branch
National Cancer Institute
10 Center Drive, Bldg. 10, Room 2B42
Bethesda, MD 20892
Telephone: (301) 496-4164
FAX: (301) 402-1738

The National Cancer Institute is an Equal Employment Opportunity and Affirmative Action employer that values and fosters diversity throughout the entire organization.

VA Associate Chief of Staff For Research
San Francisco Veterans Affairs Medical Center and University of California, San Francisco

The San Francisco VAMC and UCSF seek applications for the position of Associate Chief of Staff for Research at the VAMC. The incumbent will have a faculty appointment at the professor or associate professor level in a department of the School of Medicine appropriate to the individual's training and expertise, and will be responsible for managing the existing research program at the VAMC and developing new programs to meet the challenges of biomedical research in the 21st century. Candidates should possess MD and/or PhD degrees, with a strong record of accomplishments in biomedical research. Proven leadership and administrative skills are important qualifications.

The San Francisco VAMC is fully affiliated with UCSF. Over 100,000 sq. ft. of space are devoted to research. Direct research expenditures at the VAMC are in excess of $45 million/year, including $20 million in NIH funding, and the research covers a broad range of disciplines in both clinical and basic sciences. Approximately half of the grant funding is administered by the Northern California Institute for Research and Education, an organization that is devoted solely to the support of research at the VAMC. Applicants must be U.S. citizens and are subject to random drug testing procedures.

Applications (including CV and names of 3 references) and nominations should be sent by **March 15, 2001** to:

Ben Yen, MD, PhD
c/o Leslie Homschek (11)
VA Medical Center
4150 Clement Street
San Francisco, CA 94121

The Department of Veterans Affairs and UCSF are affirmative action/equal opportunity employers. The university undertakes affirmative action to assure equal employment opportunity for underutilized minorities and women, for persons with disabilities, and for Vietnam-era veterans and special disabled veterans.

European Opportunities

IIASA
Science for Global Insight

DIRECTOR
International Institute for Applied Systems Analysis

The International Institute for Applied Systems Analysis (IIASA), located near Vienna, Austria, is seeking a scientist of international stature for the position of Director. The successful candidate will oversee and guide a diverse research program combining natural and social science to produce scientifically based policy guidance on issues related to global change. Candidates should combine a vision for IIASA with scientific excellence, management and diplomatic skills, and broad experience in interdisciplinary, international research and policy applications. The Director should be an effective and active advocate to expand participation and membership in IIASA. The Director supervises approximately 200 scientists and support staff from 30 countries.

IIASA is nongovernmental, sponsored by an international consortium of 16 National Member Organizations. Preference will be given to applicants who are nationals of IIASA member countries. Applicants should have excellent written and spoken English, the working language of the Institute. Women & members of minority groups are encouraged to apply.

The post is a 3-year position with the possibility of renewal. Salary commensurate with experience. Review of applications will begin on March 30, 2001. Submit letter of application, CV, bibliography, and contact information for three references, to:

Professor M.J. Mossakowski
Chairman of the Nominating Committee
IIASA — Schlossplatz 1
A-2361 Laxenburg Austria

For more information about IIASA and this position, visit our web site at http://www.iiasa.ac.at.

POSITIONS OPEN

FULL-TIME ASSISTANT PROFESSOR DEPARTMENT OF BIOLOGY

The Department of Biology at Xavier University, a Catholic University in the Jesuit tradition, is expanding its curriculum to meet the future needs of its undergraduate students. As part of this process, we are actively seeking applications for an Assistant Professor, tenure-track position, beginning fall of 2001. The individual must hold a Ph.D. degree in an area of cellular, organismal, or population biology. Responsibilities include teaching introductory biology lecture and laboratory courses for majors and nonmajors, teaching one or more upper-level biology majors courses in an area of speciality, advising undergraduate students, and developing a strong undergraduate research program. The successful and motivated candidate must have demonstrated excellence in teaching undergraduates. Experience in mentoring undergraduates in research is a plus. Interested/qualified applicants must submit a cover letter; résumé; three letters of recommendation; and a statement of teaching and research interests postmarked no later than March 30, 2001, to:

Dr. Charles Grossman
Chair, Department of Biology
Xavier University
3800 Victory Parkway
Cincinnati, OH 45207-4331

Equal Opportunity/Affirmative Action Employer. Women and minorities are encouraged to apply.

ASSISTANT PROFESSOR COMMUNITY AND/OR ECOSYSTEM ECOLOGY

The Department of Fisheries and Wildlife and the Ecology Center at Utah State University request applications for a tenure-track Assistant Professor with a research record in community and/or ecosystem ecology of animals in terrestrial, wetland, or riparian habitats. A Ph.D. is required and postdoctoral experience is preferred. Successful candidates will contribute to both undergraduate and graduate teaching. They will also develop a strong, externally funded field research program that complements the interests of existing faculty and has potential application to natural resource management issues. To apply, send curriculum vitae; statements of research and teaching interests; the names, addresses, e-mail addresses, and telephone numbers of five references; and up to five reprints. Applications, which will be reviewed beginning February 15, 2001, and continue until the position is filled, should be sent by mail or e-mail to: **Mark Ritchie, Search Committee, Department of Fisheries and Wildlife, Utah State University, 5210 Old Main Hill, Logan, UT 84322-5210. E-mail: ritchie@cc.usu.edu; Telephone: 435-797-2437.** More detailed information can be found at **website: http://personnel.usu.edu (2-102).** *Affirmative Action/Equal Opportunity Employer.*

ASSISTANT PROFESSOR/ BIOTECHNOLOGY

Worcester State College invites applications for a full-time tenure-track Assistant Professor position starting in September 2001. Requirements include a Ph.D., a strong commitment to teaching, and undergraduate research. Familiarity with liberal arts college education, teaching experience, and postdoctoral training are desirable. The successful candidate will teach biotechnology, microbiology, fermentation technology, molecular biology, and bioinformatics and help to expand our research program. For specific course descriptions, please refer to the Biology Department **website: wwwfac.worcester.edu/biology**. Applications will begin to be reviewed on March 1, 2001, and continue until position is filled. Applicants should send a letter of interest, curriculum vitae, and three letters of recommendation to: **Director of Human Resources, Worcester State College, 486 Chandler Street, Worcester, MA 01602-2597.** *Worcester State College is an Affirmative Action/Equal Opportunity Employer.*

POSITIONS OPEN

ASU ARIZONA STATE UNIVERSITY

MOLECULAR NEUROSCIENTIST
Arizona State University
Main Campus

The Department of Biology invites applications for a tenure-track **ASSISTANT PROFESSOR** in any area of experimental neuroscience beginning fall 2001. A Ph.D. in an appropriate discipline at the time of appointment and teaching and research experience or potential are required. We prefer individuals who use molecular approaches to investigate questions in neural plasticity, developmental neuroscience, neuroendocrinology, or locomotion/motor control. Postdoctoral experience is preferred. The candidate will have the opportunity to participate in interdisciplinary research groups in stress, motor control, behavioral neuroscience, and molecular and cellular biology. The candidate is expected to establish a vigorous, externally funded research program and to participate in undergraduate and graduate teaching programs. For information on resources, see **website: http://lifesciences.asu.edu/**. Applicants must submit curriculum vitae, a statement of research accomplishments and future directions, a statement of teaching experience and interests, no more than three key reprints, and arrange to have three letters of reference sent directly to: **Molecular Neuroscientist Search Committee, Department of Biology, Arizona State University, Box 871501, Tempe, AZ 85287-1501. FAX: 480-965-2519.** Applications from two individuals wishing to share this appointment will be considered (both must submit complete applications). Revised application deadline is 23 February 2001; applications will be reviewed weekly thereafter until the position is filled. *Arizona State University is an Affirmative Action/Equal Opportunity Employer.*

The University of Nebraska Medical Center announces an **INSTRUCTOR/ASSISTANT PROFESSOR** position available immediately in an expanding multidisciplinary program investigating leukocyte immunology during neural degeneration associated with HIV-1 infection. Electrophysiological and molecular methods are used to analyze cell physiology and migration in the brain as a consequence of ongoing disease. Applicants must have a strong background in neurobiology. Please send curriculum vitae and three references to: **Howard E. Gendelman, M.D., Director, Center for Neurovirology and Neurodegenerative Disorders, University of Nebraska Medical Center, 985215 Nebraska Medical Center, Omaha, NE 68198-5215.**

University of Nebraska Medical Center is an Equal Opportunity/Affirmative Action Employer. Minorities and women are encouraged to apply.

LOUISIANA COLLEGE

BIOLOGY: ASSISTANT/ASSOCIATE PROFESSOR (tenure track). Ph.D. required with specialization in botany or cell biology. Teaching competencies in botany, cell biology, and either in genetics or histology. Will teach introductory biology courses for nonmajors and laboratories. Excellence in classroom required. Will direct undergraduate research and participate in student advising. Church-related (Baptist) liberal arts college. Send letter of application and résumé to: **Dr. Dennis Watson, Chair, Division of Natural Sciences, Louisiana College, P.O. Box 602, Pineville, LA 71359.** *Equal Opportunity Employer.*

BIOLOGY: ASSISTANT or **ASSOCIATE PROFESSOR**, University of La Verne. Tenure-track, academic-year appointment available September 2001. Teach cell biology, molecular biotechnology, interdisciplinary courses. Teach principles of biology, nonmajors biology; coteach developmental biology and teach electives in the field of expertise. Ph.D. is preferred. Evidence of successful teaching experience is required. Details at **website: http://www.ulv.edu/hr/empopps.htm.**

POSITIONS OPEN

The Department of Marine, Earth, and Atmospheric Sciences (MEAS) at North Carolina State University in Raleigh invites applications and nominations for the position of **PROFESSOR** and **HEAD OF THE DEPARTMENT**. MEAS is one of the largest interdisciplinary Earth science departments in the nation and has 32 full-time faculty and numerous visiting, adjunct, and associate faculty. The new Head must have an earned Ph.D., a strong record of scholarly activity, possess the vision and ability to take a leadership role in new directions for the Department, and have a balanced appreciation for all areas in a multidisciplinary department. He or she is expected to establish high standards for the teaching, research, and outreach programs of the Department and to maintain a vigorous program of scholarship and professional activity. The salary and initial package for the successful applicant will be competitive and commensurate with qualifications. Applicants should send a letter of interest, curriculum vitae and names of at least three references to: **Dr. R. H. Martin, Chair, MEAS Head Search Committee, College of Physical and Mathematical Sciences, Box 8201, North Carolina State University, Raleigh, NC 27695-8201.** The Department and its activities are described more fully on its **website: http://www.meas.nscu.edu.** Questions may be directed to **e-mail: rhmartin@math.ncsu.edu.** Review of applications will begin 1 February 2001 and will continue until the position is filled. Proper documentation of identity and employability will be required. *North Carolina is an Equal Opportunity/Affirmative Action Employer and especially solicits applications from women, underrepresented minorities, and persons with disabilities.*

BIOLOGY/MOLECULAR BIOLOGY: The Biology Department of La Salle University seeks applicants for a tenure-track **ASSISTANT PROFESSOR** position to begin fall 2001. LaSalle is a Roman Catholic institution of higher education in the tradition of the De La Salle Christian brothers. The University strives to offer, through effective teaching, quality education founded on the idea that intellectual and spiritual development go hand in hand, mutually complementing and fulfilling one another. Requirements: Ph.D. in molecular biology or related discipline, ability and interest to teach molecular biology and biochemistry as well as introductory biology classes for majors and/or nonmajors, and proven experience in teaching and advising undergraduates. Committee work, student advisement, continued professional development, and active participation in department activities and student research are expected. Apply by February 15, 2001, with letter of application, curriculum vitae, statement of teaching philosophy, transcripts of graduate work, and three letters of recommendation that address teaching potential to: **Search Committee, Biology Department, La Salle University, 1900 West Olney Avenue, Philadelphia, PA 19141-1199. FAX: 215-951-1772; e-mail: mickle@lasalle.edu.** *La Salle is an Equal Opportunity/Affirmative Action Employer and Educator.*

ASSISTANT PROFESSOR OF BIOLOGY

Randolph–Macon Woman's College, a selective liberal arts college with historic strengths in the sciences, invites applications for a tenure-track position at the level of **ASSISTANT PROFESSOR** beginning in August 2001. The position requires a Ph.D. in a biological science and a strong commitment to teaching. Teaching responsibilities include a core course in general botany, introductory biology, and advanced courses in molecular and/or evolutionary plant biology. Additionally, regular participation in Senior Seminar and supervision of undergraduate research are expected. Preference will be given to candidates with a broad general biology background and teaching experience. Application review will continue until position is filled. Send letter of application, including a statement of teaching and research interests; curriculum vitae; and names, mail and e-mail addresses, and telephone numbers of three references to: **Dr. Ronald D. Gettinger, Department of Biology, Randolph–Macon Woman's College, Lynchburg, VA 24503. Telephone: 804-947-8490; FAX: 804-947-8138; e-mail: rgettinger@rmwc.edu.**

Discovery, Dedication, Determination. You'll find them at *Roche.*

For over a century, Hoffmann-La Roche has demonstrated a genuine commitment to the research and development of innovative products. This, along with our exceptionally talented teams of scientific professionals, creates a unique environment which supports the future of human health.

Roche Pharmaceuticals has always been about innovation and new ways of thinking. By combining traditional biomedicine, sophisticated biotechnology, and the very latest in genetic research, Roche is continuing its tradition of innovation with a new synergy that promises treatments to save and enhance lives throughout our global markets.

We are seeking two talented postdoctoral scientists to join a collaborative effort between the Department of Pathology at the University of Pittsburgh School of Medicine and Hoffmann-La Roche Inc. These scientists will work as part of an interdisciplinary team to apply genomic approaches to the study of prostatic cancer with the goal of identifying therapeutic targets and diagnostic and prognostic markers. The first year of each post-doctoral assignment will be spent at the Roche campus in Nutley, New Jersey, with the work continuing thereafter at the University of Pittsburgh.

Genomics Postdoctoral Position

The selected candidate will apply array-based methods and other genomic tools to the study of gene expression patterns in prostatic cancer. We require a highly qualified individual with extensive experience in molecular biology and strong knowledge of genomic approaches to the molecular characterization of disease. Strong communication and organizational skills, and the ability to interact well in a dynamic team environment are also required. You must reference **Job Code ADPOSTDOC1FM**

Bioinformatics Postdoctoral Position

The selected individual will analyze gene expression patterns in prostatic cancer and relate them to clinical outcomes; and develop and/or apply computational tools for the mining of gene expression and clinical data. We seek a creative and highly motivated individual with strong experience in biomedical informatics, genomics or epidemiology. Demonstrated enthusiasm and initiative, effective communication skills, and the proven ability to work well in a team environment are important. You must reference **Job Code ADPOSTDOC2FM**

Hoffmann-La Roche Inc. offers competitive salaries and an outstanding benefits package that includes on-site childcare, a variety of employee services, and fitness center. For consideration, please send your resume with salary requirements to: **Roche Pharmaceuticals, Bldg. 123/5, 340 Kingsland Street, Nutley, NJ 07110; fax (973) 235-2767; or email nutley.research@roche.com.** We appreciate your interest in Hoffmann-La Roche Inc., but can only respond to qualified candidates. We are an equal opportunity employer, fully committed to diversity in the workplace.

Roche

Visit us at www.rocheusa.com

Tenure-Track Position in Molecular Systematics of Fungi

The Royal Ontario Museum invites applications for a tenure-track position in molecular systematics of fungi at the entry-level Associate Curator rank in its Center for Biodiversity & Conservation Biology (CBCB). Applicants should have a Ph.D., post-doctoral experience, a working knowledge of herbarium procedures, and broad expertise in collecting and analyzing molecular as well as morphological and other data. The successful applicant will be expected to (1) develop a program of externally-funded collection-based research with a primarily North American focus and within a phylogenetic framework, (2) curate and develop the ROM fungal collections (TRTC), and (3) participate in the development of new galleries, biodiversity displays and other public programming. Most Curators are cross-appointed to departments in the University of Toronto and teach at both the undergraduate and graduate levels.

In accordance with Canadian immigration requirements, this advertisement is directed to Canadian citizens and Permanent Residents.

Applications, including a curriculum vitae, a statement of research interests, and complete contact information for three individuals who may be approached for references, should be sent to: **Human Resources Department, Royal Ontario Museum, 100 Queen's Park, Toronto, Ontario, Canada M5S 2C6.** Screening of applicants will begin March 1, 2001 and will continue until the position is filled.

We thank all candidates in advance but will contact only those selected for an interview.

ROM

www.rom.on.ca

Global Opportunities

SCHOOL OF BIOLOGICAL SCIENCES

CHAIR IN MARINE BIOLOGY

(CONTINUING POSITION)

$92, 138 PA

FACULTY OF SCIENCE AND ENGINEERING

REF 00272 The University is seeking an outstanding scholar with a distinguished research record to take up the Chair in Marine Biology in the School of Biological Sciences, Faculty of Science and Engineering. Given the proximity of the Southern Ocean and the high levels of marine biodiversity and endemism in the region, South Australia offers exciting opportunities in Marine Biology.

The appointee must be able to provide a strong research focus for new and established academic staff in the School as well as teaching leadership which will maximise the performance of the School in general and the marine biology and aquaculture group in particular. It is preferable that the appointee have expertise compatible with the general areas of ecological, behavioural, evolutionary, or aquacultural aspects of marine biology.

Further information is available from the Head of Faculty, Prof. J.F. Wheldrake, phone +61 8 8201 3693, fax +61 8 8201 3399 or Head of the School of Biological Sciences, Associate Professor Sue Thomas, phone +61 8 8201 2229, fax +61 8 8201 3015. Selection criteria, conditions of appointment, and a detailed statement on the structure and scope of the School of Biological Sciences are available from the School Administration Manager, Louise Renfrey, phone +61 8 8201 3137, fax +61 8 8201 3015 email Louise. Renfrey@flinders.edu.au

Applications close 5pm, 27 April 2001.

Applications, addressing the selection criteria, quoting the reference number, and giving full details of qualifications and experience and the names, addresses and facsimile numbers of three referees of whom confidential enquiries may be made, should be lodged with the Manager, Human Resources, Flinders University, GPO Box 2100, Adelaide SA 5001, or fax +61 8 8201 3131.

The University reserves the right not to make an appointment or to invite applications.

FLINDERS UNIVERSITY

ADELAIDE AUSTRALIA

Website: http://www.flinders.edu.au

EQUAL OPPORTUNITY IS UNIVERSITY POLICY

FUR527 Science

ASSISTANT OR ASSOCIATE PROFESSOR OF DERMATOLOGY

The Department of Dermatology at The University of Iowa Hospitals and Clinics is seeking nominations and applications for an **ASSISTANT**or **ASSOCIATE PROFESSOR** appointment in the tenure track. This is a full-time laboratory research position requiring a Ph.D. or M.D./Ph.D. degree and successful Postdoctoral Fellowship research training. This position will be focused on the molecular and genetic aspects of cutaneous cell biology and/or cutaneous disease. Special consideration will be given to those applicants having a background in cellular and molecular immunology. Candidate must establish an independently funded laboratory. The candidate must be willing to provide guidance and training in relevant techniques of modern molecular biology/molecular genetics to other dermatology faculty involved in laboratory research at The University of Iowa. A joint appointment in another University of Iowa department involved in basic biomedical research will be possible. Independent research funding at the time of appointment is preferred.

Interested candidates should submit curriculum vitae and bibliography, including names of references, to: **Richard D. Sontheimer, M.D., Department of Dermatology, University of Iowa Hospitals and Clinics, 200 Hawkins Drive, BT2045–1, Iowa City, IA 52242-1090. E-mail: richard-sontheimer@uiowa.edu.**

The University of Iowa is an Equal Opportunity/Affirmative Action Employer. Women and minorities are strongly encouraged to apply.

DIRECTOR OFFICE OF BIOSTATISTICS AND BIOINFORMATICS
Medical College of Georgia

The Medical College of Georgia, Georgia's health sciences university, is interested in recruiting a visionary leader to meet the current teaching and research support needs and to eventually create a degree-granting Department of Biostatistics and Bioinformatics to meet the needs of its faculty, students, staff, and citizens of Georgia. The Director of the Office of Biostatistics and Bioinformatics reports to the Vice President of Research. The Office currently has three Doctoral-level faculty, and it is expected that it will more than double in size over the next 18 months. We seek a scholar trained in mathematical statistics, biomathematics, computer science, or biostatistics to lead faculty and support staff in the unit and to work with colleagues at our neighboring universities to create and **CHAIR** the Department of Biostatistics and Bioinformatics. For more information, see **website: http://www.mcg.edu/research/biostat/index.htm**. Applicants should send curriculum vitae and three letters of recommendation to: **Matthew J. Kluger, Ph.D., MBA, Vice President for Research, Medical College of Georgia, 1120 15th Street, CJ–3317, Augusta, GA 30912-7620. E-mail: mkluger@mail.mcg.edu.** *Affirmative Action/Equal Employment Opportunity/Equal Access.* PO# E–01155170.

ENDOWED PROFESSORSHIP PROSTATE CANCER RESEARCH

The Prostate Cancer Center of Excellence within the Comprehensive Cancer Center of Wake Forest University is currently recruiting for an Endowed Professorship in prostate cancer research. The overall goal of this position is to develop and coordinate basic science efforts in prostate cancer. The position is associated with substantial endowment. The position, which is available at the **FULL** or **ASSOCIATE PROFESSOR** level, includes substantial research space and the opportunity to collaborate with Clinicians and Scientists who are actively involved in basic and translational prostate research. Appointment will be in the Department of Cancer Biology. Send curriculum vitae to: **Dr. Gary Schwartz, Comprehensive Cancer Center, WFUSM, Medical Center Boulevard, Winston–Salem, NC 27157.** *Affirmative Action/Equal Opportunity Employer.*

POSITIONS OPEN

ASSISTANT PROFESSOR OF PLANT PATHOLOGY
University of Texas–Pan American

The Department of Biology at the University of Texas–Pan American invites applications from outstanding candidates for a tenure-track faculty position in plant pathology. Candidates with an additional expertise in aspects of plant molecular biology are encouraged to apply. The University offers new facilities and a supportive collegial environment to foster development of academic careers. Salary will be negotiable based on background and experience.

The successful candidate will be expected to develop an externally funded research program in plant pathology and to display a commitment to teaching excellence. The candidate is expected to assist in teaching the Department's general biology courses and develop a course or courses in candidate's specialty in plant pathology and mycology. Visit our department **website: www.panam.edu/dept/biology** and the University of Texas–Pan American Personnel Department **website: http://w3.panam.edu/www/personnel** for more information.

Evaluation of applications will begin on March 19, 2001, and all material must be received by this date. Applicants must hold a Ph.D. or equivalent degree. A letter of application, curriculum vitae, copies of representative publications, a one-page description of future research, a statement of your teaching philosophy, and three letters of recommendation (send under separate cover) should be addresssed to:

Dr. Luis Materon
Chair, Search Committee
Department of Biology
University of Texas–Pan American
1201 West University Drive
Edinburg, TX 78539-2999
E-mail: lmateron@panam.edu
FAX: 956-381-3657
F00/01-57

The University of Texas–Pan American is an Equal Opportunity Employer.

DEPARTMENTAL CHAIR AND ENDOWED CHAIRHOLDER
Department of Chemistry
Indiana University

The College of Arts and Sciences is seeking a dynamic individual to serve as Chair for the Department of Chemistry during a period of growth that will include an aggressive faculty-hiring program and major construction and enhancement of facilities. The candidate should be a distinguished Scientist with an outstanding record of research productivity. He or she must have a strong commitment to maintaining an active research program and a commitment to undergraduate and graduate education. The successful candidate will bring vision and energy to the challenges of shaping the future direction of the Department while sustaining its breadth and enhancing its leading national reputation for research and graduate training. The Department's hiring initiatives will be fortified by several available endowed positions. It is expected that the successful candidate's record will be commensurate with holding one of these endowed positions. We welcome applicants from all areas of chemistry, including those that cross traditional boundaries. Information about the Department can be found at **website: http://www.chem.indiana.edu/**. Send letter of interest, curriculum vitae, and the names and addresses of at least three references to: **Chemistry Chair Search Advisory Committee, Department of Chemistry, Indiana University, 800 East Kirkwood Avenue, Bloomington, IN 47405.** Review of candidates will begin March 1, 2001, and continue until the position is filled. The successful candidate is expected to start as Department Chair on July 1, 2002, although he or she may join the Department before then. *Indiana University is an Affirmative Action/Equal Opportunity Employer. Women and minority candidates are encouraged to apply.*

POSITIONS OPEN

DIRECTOR, INSTITUTE OF NEUROBIOLOGY
University of Puerto Rico
Medical Sciences Campus

The UPR–MSC is seeking a Director for the Institute of Neurobiology. The Institute of Neurobiology is an interdepartmental, interdisciplinary research facility established in 1967 by Professor Jose del Castillo. Its members carry out basic research into the fundamental mechanisms underlying nervous system function and development. The Director is responsible for the administration and leadership of the Institute's research efforts, the professional development of its faculty, and two NIH-funded grants: a Program Project (NINCDS) and an SNRP (NINCDS/NCRR). The SNRP grant involves extensive interactions with Neuroscientists at the Rio Piedras campus of the University of Puerto Rico as well as other institutions on the island and the mainland.

The Director should qualify for a faculty appointment at the **FULL PROFESSOR** level in an appropriate academic department. The appointment carries an administrative stipend. Strong administrative and leadership capabilities, superior records in research and grant support, and communication skills are essential. The research expertise of applicants is open in the neurosciences field.

Letter of application; curriculum vitae; and the names, postal addresses, telephone numbers, and e-mail addresses of three references should be sent to: **Search Committee Director of the Institute of Neurobiology, UPR Medical Sciences Campus, Office of the Chancellor A–767, P.O. Box 365067, San Juan, PR 00936-5067.** In order to receive full consideration, applications should be received by March 31, 2001.

For general information on the Institute of Neurobiology, see **website: www.neurobio.upr.clu.edu** or contact: **Dr. Guillermo Vazquez, Chair, Search Committee for the Director of the Institute of Neurobiology; e-mail: neurosearch@rcm.upr.edu.**

UPR–MSC is an Equal Opportunity/Affirmative Action Employer. Authorized by the State Electoral Commission.

WAYNE STATE UNIVERSITY SCHOOL OF MEDICINE

The Department of Urology seeks an outstanding **SCIENTIST** for a tenure-track position in prostate cancer research. The position is for basic/translational research and may include a joint appointment with our NCI-designated comprehensive cancer center. Faculty rank will be dependent on experience and qualifications. The applicant must have active research funding and a commitment to excellence in both teaching and research. The applicant will join a team of prostate cancer researchers whose interests include chemoprevention, tumorigenesis, signal tranduction, cell cycle control, apoptosis, angiogenesis, invasion, and bone metastasis. As the Urology Department/Cancer Center enjoys a high volume of prostate cancer clinical activity, preference will be given to those whose research includes a translational component. A high, competitive salary and generous start-up package will be offered. Send curriculum vitae, a brief statement of current and future research interests, and the names of three references to: **Michael L. Cher, M.D., 4160 John R, Suite 1017, Detroit, MI 48201.** *Wayne State University is an Equal Opportunity/Affirmative Action Employer.*

POSTDOCTORAL POSITIONS OPEN IMMEDIATELY

Two positions in the area of vaccine development and toxin biology will be available early in 2001. Applicants should have a Ph.D. or M.D. degree and a strong background in biochemistry and/or mammalian cell biology. Successful candidates will be working with *Pseudomonas* exotoxin, studying its interactions with various cell types. Please send letters of inquiry and three letters of reference to: **David FitzGerald (e-mail: djpf@helix.nih.gov)** or **Marian McKee (e-mail: mmckee@helix.nih.gov), National Cancer Institute, NIH, Building 37/4B03, Laboratory of Molecular Biology, Bethesda, MD 20892.**

University of Massachusetts Amherst
UMASS

ASSOCIATE/FULL PROFESSOR

The Department of Veterinary & Animal Sciences at the University of Massachusetts, Amherst invites applications from individuals, with established programs in cloning and production of transgenic animals, for a Tenure-Track Faculty position, at the level of Associate Professor of Professor. Established scientists with an interest in mammalian cloning, preferably using a large-animal model, are encouraged to apply. Preference will be given to individuals with established programs, evidence of productivity and an interest in applying cellular and molecular biology techniques to address fundamental questions in the areas of reprogramming of somatic cell nuclei, chromatin remodeling, generation of cloned and transgenic animals, and early events of mammalian development. The successful candidate will be expected to establish a vigorous independent research program, teach in our undergraduate curriculum and graduate program, and participate in interdisciplinary programs across campus. Applicants should send a letter of intent, resume and three letters of reference to: **Dr. Robert T. Duby, Department of Veterinary and Animal Sciences, 314 Paige Lab, University of Massachusetts, Amherst, MA 01003.**

Review of applications will begin on March 15, 2001, and continue until the position is filled.

The University of Massachusetts is an Affirmative Action/Equal Opportunity Employer. Women and members of minority groups are encouraged to apply.

POSITIONS AVAILABLE: SCIENTIFIC REVIEW ADMINISTRATORS

The Division of Extramural Activities of the National Cancer Institute (NCI), National Institutes of Health, is seeking several individuals to join a multi-disciplinary group of Scientific Review Administrators to manage all aspects of planning, coordinating, directing, and implementing peer reviews of grant applications submitted to the NCI. These activities are based in Rockville, Maryland, a suburb of Washington DC, but some travel (site visits) will be involved.

The NCI will consider the recruitment of qualified individuals through Special Expert Appointments. The Special Expert Appointment mechanism allows the NCI and the successful candidates additional flexibility, including:

- rapid appointment process;
- compensation at levels beyond the Civil Service salary range;
- initial appointments for periods of up to 5 years, with unlimited extensions in increments of up to 5 years based on the documented needs of the organization; and
- more flexible levels and frequency of pay increases.

To apply, candidates should have independent research experience and expertise in current methods of cancer research in one or more of the areas listed below. Candidates should also be familiar with the NIH grant application, review and support process.

DEA NCI IS CURRENTLY SEEKING APPLICANTS POSSESSING EXPERIENCE AND EXPERTISE IN THE FOLLOWING AREAS:

1. Molecular biology of cancer pathogenesis and/or molecular pharmacology of therapeutics with applications to cancer.
2. Translational and/or clinical oncology research in cancer biology, detection, diagnosis and/or treatment.
3. Biomedical technology development, imaging and/or bioinformatics as applied to cancer research.
4. Cancer epidemiology and/or cancer communications related to cancer prevention, cancer control, or tobacco use and its effects.

Applications will be accepted for consideration until the positions are filled. To obtain information about the application process or documents required for consideration for any of these positions, candidates may contact:

Olivia Preble Bartlett, Ph.D.
Chief, Grants Review Branch
Division of Extramural Activities, National Cancer Institute
6116 Executive Blvd, Room 8121
Bethesda, MD 20892-8328
Phone: 301-496-7929; Fax: 301-496-6497
E-mail: op2t@nih.gov

Selection for these positions will be based on merit, with no discrimination for non-merit reasons such as race, color, gender, national origin, age, religion, sexual orientation, or physical or mental disability. The NCI/NIH is an equal opportunity employer.

GRADUATE PROGRAMS

IMPRS-International Max Planck Research School on Biomimetic Systems

PhD positions are available for well-qualified physics, chemistry or biology students.

The graduate school is run by the Max Planck Institute of Colloids and Interfaces in partnership with the University of Potsdam. It aims to give young motivated students research skills and a strong theoretical and experimental background in the interdisciplinary field of biomimetics at the supramolecular level.

The school is part of a newly established University Campus located in the unique scientific and cultural surroundings of Potsdam and Berlin.

Interested students should consult the web page of the school **http://www.IMPRS.org** for more information. Deadline for application is March 16, 2001.

THE UNIVERSITY *of* LIVERPOOL

Department of Medicine, Diabetes and Endocrinology Research Group

Professor of Neuroendocrinology

Salary negotiable

This newly-established tenured non-clinical post, funded by a grant-in-aid from AstraZeneca, will be based in the Neuroendocrine Research Unit at the Department of Medicine, University Clinical Departments in the Royal Liverpool University Hospital. The Unit is busy and productive, and has an international reputation for its work on the hypothalamic control of energy balance.

The successful candidate will have leadership skills as well as a proven track-record in attracting external research funding and high-quality publications. Compatible research themes encompass any of the CNS, peripheral and metabolic factors that regulate energy homeostasis. Resources offered to the Professor will include the opportunity to appoint a non-clinical Senior Lecturer to work in the same area, newly-refurbished laboratory space and a generous start-up grant for equipment and consumables.

Enquiries in the first instance to Professor Gareth Williams, Department of Medicine, Clinical Sciences Centre, University Hospital Aintree, Longmoor Lane, Liverpool L9 7AL on 0151 529 5885, fax: 0151 529 5888, email: garethw@liv.ac.uk

Quote Ref: A/808/S **Closing Date: 2 March 2001**

Further particulars and details of the application procedure may be requested from the Director of Personnel, The University of Liverpool, Liverpool L69 3BX on 0151 794 2210 (24 hr answerphone) or via email: jobs@liv.ac.uk Web site at http://www.liv.ac.uk

COMMITTED TO EQUAL OPPORTUNITIES

TEACHING EXCELLENCE IN BIOLOGICAL SCIENCES

The Department of Marine Biology at Texas A&M University at Galveston (TAMUG) is seeking a Biologist (Ph.D.) to fill a tenure-track, teaching-only nine-month appointment at the **ASSISTANT PROFESSOR** level. The primary teaching responsibility will be freshman students. The Department seeks an individual with a record of teaching excellence as evidenced by a teaching portfolio, educational grantsmanship, or other pertinent documentation. The successful candidate will lecture and coordinate the Introductory Biology teaching program, participate in curriculum development, obtain education grants, and establish a record of teaching publications. Summer employment is possible depending on student need. Starting date is August 1, 2001. Ph.D. from an accredited institution and evidence of excellence in research and teaching are required.

Forward curriculum vitae, a statement on teaching philosophy (including a description of courses you have taught), and the names and addresses of four references to: **Dr. J. R. Alvarado, Chair, Search Committee, Department of Marine Biology, Texas A&M University at Galveston, 5007 Avenue U, Galveston, TX 77551**. Complete applications should be received by March 30, 2001.

TAMUG is a branch campus of Texas A&M University with approximately 1,300 undergraduate students in residence. For more information, visit our **website: http://www.marinebiology.edu/**. *Texas A&M University at Galveston is an Affirmative Action/Equal Opportunity Employer committed to excellence through diversity. Texas A&M University particularly invites applications from minorities, women, veterans, and persons with disabilities.*

ASSISTANT OR ASSOCIATE PROFESSOR MOLECULAR BIOLOGY
Florida Atlantic University

The Department of Biological Sciences is seeking a Molecular Biologist with a research interest in functional genomics. Areas of special interest include developmental biology, plant molecular biology, physiology (including microbial), and ecology. The successful candidate will be expected to participate in teaching undergraduate/graduate students. The new faculty member will also have an appointment within the Center for Molecular Biology and Biotechnology at the Charles E. Schmidt College of Science. The CMBB is multidisciplinary with faculty from several departments including Biology, Chemistry/Biochemistry, Biomedical Sciences, and Complex Systems (Neuroscience). Candidates must have a Ph.D. and, at a minimum, two to three years of postdoctoral training with a strong research program that is currently funded or has a high probability of being funded. The deadline for this position is February 28, 2001. Applicants should submit curriculum vitae, an outline of future research interests, and names of references to: **Dr. Herbert Weissbach, Faculty Search Committee, Department of Biological Sciences, 777 Glades Road, P.O. Box 3091, Florida Atlantic University, Boca Raton, FL 33431**. *Florida Atlantic University is an Equal Opportunity/Access/Affirmative Action Institution.*

Center for Pharmacogenetics, University of Pittsburgh, has established a multidisciplinary research program in pharmacogenetics. We are searching for a tenure-track faculty position. Qualified applicants must have a Ph.D., Pharm. D., and/or M.D. and have an outstanding experimental research program in the area of pharmacogenetics and/or pharmacogenomics. The academic rank of the position is open, but some preference will be given to a junior-level person. We offer competitive compensation and start-up packages. For more details about the Center, please visit our **website: www.pharmacy.pitt.edu/pharmgen**. Send application, curriculum vitae, research synopsis, and three letters of recommendation to: **Dr. Leaf Huang, Center for Pharmacogenetics, School of Pharmacy, 633 Salk Hall, University of Pittsburgh, Pittsburgh, PA 15213**.

POSITIONS OPEN

Academic/research positions in growth factors/stem cell biology/tissue engineering. The Growth Factor/Stem Cell/Tissue Engineering (GST) Program of Academia Sinica, Taiwan, is seeking outstanding individuals to fill several tenure-track positions at the ranks of **ASSISTANT RESEARCH FELLOW/ASSOCIATE RESEARCH FELLOW/RESEARCH FELLOW** (equivalent to Assistant Professor/Associate Professor/Professor). The GST Program is a newly developed biotechnology program that is cosponsored by four of the six life science institutes in Academia Sinica (Institute of Biomedical Sciences, Institute of Molecular Biology, Institute of Zoology, and Institute of Biological Chemistry). Applicants should have a Ph.D. or M.D. degree with interest and expertise in the fields of growth factor/cytokine biology, stem cell biology, or tissue engineering as well as a solid record of publications or patents. The appointments will be made in one of the above research institutes of the Academy, and the academic rank will be determined by the candidate's credentials and his/her ability to establish a vigorous and innovative research program in each case. Excellent start-up funds will be provided. While the laboratories of the GST program are housed mainly in the new building of the Institute of Biomedical Sciences, researchers will also have access to many state-of-the-art facilities shared by the life science institutes including modern core facilities in structural biology, proteomics, bioinformatics, etc. In addition, Academia Sinica has established collaborative arrangements in cellular and developmental biology, human biology, and molecular medicine with a number of research institutes, medical centers, and universities in Taiwan and abroad. Academia Sinica is situated on an attractive campus located in a beautiful mountainous area on the northwest of Taipei, and the Academy is presently enjoying robust growth under the leadership of **President Yuan-Tseh Lee**, a Nobel laureate in chemistry. Interested applicants should write to: **Dr. Jung San Huang, Institute of Biomedical Sciences, Academia Sinica, Number 128 Yen-Chiu-Yan Road, Section 2, Nankang, Taipei 11529 Taiwan**, and include curriculum vitae and a list of four references (names and addresses). Applications could also be **FAXED** to the following number: **886-2-2785-8594**.

ASSISTANT/ASSOCIATE PROFESSOR MOLECULAR BIOLOGY AND GENE THERAPY

Assistant/Associate Professor position open for an experienced Molecular Biologist to join a multidisciplinary team to work on basic molecular mechanisms of gene therapy in our center, which focuses on musculoskeletal diseases such as osteoporosis, arthritis, and hematopoietic diseases. Opportunity to closely interact with experienced Investigators in gene therapy vectors, molecular genetics, and bone and blood biology. A strong performance in terms of scientific publications and successful external grant competition is essential. Salary and benefits competitive; possible long-term position. Send résumé, cover letter, and names of three references to: **David J. Baylink, M.D., Musculoskeletal Disease Center, P.O. Box 7210, Loma Linda, CA 92354**.

ASSISTANT SCIENTIST III

Ph.D. in plant genetics or related field. Must have experience with molecular markers such as SSR, RAPD, RFLP, AFLP, and in QTL analysis supported by a strong publication record. Details available at **website: www.iastate.edu/hrs/jobs/jobs.html**. Cover letter, résumé, and names and contact information of two persons willing to provide recommendations. Send to: **Dr. Thomas Loynachan, Interim Head, Department of Agronomy, Iowa State University, Ames, IA 50011-1010. FAX: 515-294-3163; e-mail: teloynac@iastate.edu**. *ISU is an Equal Opportunity/Affirmative Action Employer.*

POSITIONS OPEN

DIRECTOR OF ENVIRONMENTAL SCIENCE PROGRAM
Florida Atlantic University

The position of Director of Environmental Sciences, with appointment as **ASSOCIATE** or **FULL PROFESSOR** in the Department of Biological sciences, is available at Florida Atlantic University. The specific area of expertise is open, but preference will be given to candidates in ecology, conservation biology, and/or resource management. The candidate should have an exemplary publication record, evidence of sustained research funding, and a strong commitment to graduate research and education. Environmental sciences degree programs include a B.A. with an environmental emphasis, a Bachelor's degree with an environmental certificate, and a graduate program offering Master of Science tracks in coastal/wetland/marine and tropical terrestrial ecology. As Director, the individual will be expected to promote the continued development of the intellectual and financial base of the program. Further detail on the program can be obtained at **website: http://www.fau.edu/divdept/science/envsci/environm.htm**. The closing date for applications is February 28, 2001. The position can start as soon as September 1, 2001. Applicants should submit curriculum vitae, an outline of future research interests, and names of three references to: **Dr. Peter Lutz, Environmental Science Search Committee, Department of Biological Sciences, 777 Glades Road, P.O. Box 3091, Florida Atlantic University, Boca Raton, FL 33431**. *Florida Atlantic University is an Equal Opportunity/Access/Affirmative Action Institution.*

The Visual Sciences Research Center at Case Western Reserve University and University Hospitals of Cleveland invite applications for a tenure-track faculty position at the **ASSISTANT/ASSOCIATE PROFESSOR** rank. Individuals with research interests in retinal pathophysiology or genetics or cell and molecular biology are encouraged to apply. The successful candidate will be granted a primary academic appointment in the Department of Ophthalmology and a secondary appointment in a basic science department and will interact directly with an outstanding group of basic researchers and clinical retinal specialists. Competitive salary and generous start-up funds will be provided. Applicants should have a strong commitment to excellence in research and are expected to develop a vigorous research program. Research facilities are supported in part by a core grant and a training grant from NEI/NIH and an unrestricted grant from Research to Prevent Blindness. Application review will start February 1, 2001, and continue until the position is filled. Applicants should submit curriculum vitae, statement of their accomplishments and future research directions, and names of three references to: **R. H. Nagaraj, Ph.D., Department of Ophthalmology, Weam Building, Room 643, Case Western Reserve University, Cleveland, OH 44106. E-mail: nhr@po.cwru.edu**. *CWRU and UH are Affirmative Action/Equal Opportunity Employers.*

ASSISTANT PROFESSOR of entomology, integrated pest management: a full-time, tenure-track position available July 1, 2001, to develop a nationally competitive research program focused on the biorational management of arthropods affecting field crops important to the state and region. Candidate will teach a graduate-level course in arthropod pest management and one additional course. Send curriculum vitae, copies of major publications, statement of research and teaching interests, goals, transcripts, and three references to: **IPM Search Chair, c/o Margie Anglen, 1-41 Agriculture Building, University of Missouri–Columbia, Columbia, MO 65211**. Applicant screening starts February 23, 2001. See **website: CAFNR.missouri.edu/plantscience/entomology** for details. *Equal Employment Opportunity/Americans With Disabilities Act/Affirmative Action Employer.*

Materials Research Scientist

Series/Grade: ZP806IV
($63,143 - $96,997)

The NIST Center for Neutron Research (NCNR) of the National Institute of Standards and Technology, Department of Commerce has a staff research position opening for a materials research scientist, who will be the principal investigator in the engineering applications program at the NCNR. The position requires skills in neutron and x-ray diffraction — with particular expertise in texture and residual stress measurement for weldments, coatings, elastic property determination and theory; metallurgy and materials science; and related software development. In addition, the ability to design, construct, and install state-of-the-art instrumental improvements for neutron and x-ray diffraction measurements, and the ability to develop relevant theory utilizing solid-state mechanics, micromechanics of continua, and elasticity theory are needed.

Announcement Number: NIST-01-1061/SP.
Closing Date: February 22, 2001

Interested applicants should visit **www.nist.gov/jobs** for more detailed position requirements and vacancy announcement. To apply, please submit a complete application to:

NIST-HRMD
Vacancy Number NIST-01-1061/SP
100 Bureau Drive, MS 3550
Gaithersburg, MD 20899

Technical Contact: Dr. Prask, 301-975-6226

NIST is an Equal Employment/Affirmative Action Employer. U.S. citizenship is required.

National Institutes of Health
National Center on Minority Health and Health Disparities
Director, Division of Scientific Planning and Policy Analysis

National Institutes of Health (NIH), located in Bethesda, Maryland, is the world's largest biomedical research facility. The National Center on Minority Health and Health Disparities (NCMHD) is seeking an experienced individual to serve as the Director, Division of Scientific Planning and Policy Analysis (DSPPA). The DSPPA Director will provide the overall leadership, direction, and coordination for NCMHD strategic program planning and evaluation, and will direct the planning, reporting and analytical functions carried out in support of NCMHD program development, science policy formulation, and research priority evaluation. The DSPPA Director will be responsible for implementing a comprehensive Centerwide planning process, and will lead and manage the Center's efforts as they relate to planning, evaluation, and legislation. In addition, the DSPPA Director will be responsible for identifying and examining major issues related to minority health disparities, and for designing strategies to evaluate progress in the area. This includes initiating, directing, and interpreting studies related to policy questions being considered by NCMHD and higher level authorities within the NIH and Department of Health and Human Services, and developing and offering alternatives, and making recommendations that bear on the Center's decision-making process.

We are seeking candidates who possess a Ph.D. or equivalent degree in the life or physical sciences, public administration, public health, or social sciences, and who can demonstrate knowledge, gained through professional experience, of science policy issues and processes (including knowledge of strategic and operational planning processes).

This position is classified (in the Federal Classification System) as a Program Analysis Officer, GS-343-15. The salary range for a GS-15 is $87,864 to $114,224 (includes locality pay). Application materials are available on the Internet at http://careerhere.nih.gov/CHPublic/hrvacmenu.taf under vacancy number OD-01-7006 or via facsimile by calling 301-402-4111 and asking for number 9-7006. Completed applications can be mailed to the **National Institutes of Health, Office of the Director, Human Resources Office, 2 Center Drive, Room 1 West, MSC 0210, Bethesda, Maryland, 20892-0210,** or e-mailed to: ODApplications@OD.NIH.GOV. Applications must be received or postmarked no later than February 5, 2001.

NIH is an Equal Opportunity Employer.

Global Opportunities

Founded 1905

NATIONAL UNIVERSITY OF SINGAPORE
DEPARTMENT OF BIOCHEMISTRY
Faculty Appointments

National University of Singapore invites applications for full-time tenure-track faculty positions in the Department of Biochemistry.

The Department of Biochemistry has teaching commitments to medical, dental and science students and has an active postgraduate research programme. Staff are vigorously developing an already strong reputation in research on venoms and toxins, gene cloning and expression, therapeutic gene transfer, ion channels, cell signaling, liposomes, ubiquitination, protein structure, antioxidant and free radical biochemistry, nitric oxide, and neurodegenerative disease research. The Department has collaborative links with research institutes within NUS, with government departments and private industries, as well as with research groups overseas. Staff members also hold adjunct/joint appointments in Bioscience Centre, Bioprocessing Technology Centre, Institute of Molecular Agrobiology, National University Medical Institutes, Institute of Molecular and Cell Biology, and the Universities of California, London and Melbourne, among others. The Department has excellent facilities for research in biochemistry and molecular and cell biology.

We are looking for outstanding faculty members who possess a PhD degree or an approved basic medical degree with a recognized higher academic/professional qualification, with track record of high calibre, self-directed research in any area of biochemistry.

All faculty members are expected to teach undergraduate and graduate courses (although new staff appointments have a very light teaching load), supervise graduate students, and conduct vigorous research programmes that generate external funding and scholarship and intellectual output typical of that of a world-class university. Besides appointments on normal 3-year contracts, visiting appointments for one or two years may also be considered.

Interested parties should submit their applications, supported by a resume, detailed research plan and three letters of references immediately to:

Professor Barry Halliwell
Head, Department of Biochemistry
National University of Singapore
Lower Kent Ridge Road
Singapore 119074
Fax: +65 779 1453
E-mail: bchhead@nus.edu.sg

Only shortlisted candidates will be notified.

FACULTY POSITION NEUROIMMUNOMODULATION

The Department of Molecular Virology, Immunology, and Medical Genetics has a tenure-track position for an **ASSISTANT/ASSOCIATE PROFESSOR** investigating the impact of behavior on neuroimmune modulation. This position is part of a large multidisciplinary faculty research program on stress and immunity. The Ohio State Medical Center is one of five NIH mind-body research centers with projects on molecular aspects of wound healing using animal and human models to clinical trials on stress and immunity. The applicant must have a Ph.D. or equivalent with postdoctoral training; experience using animal and/or human models; and is expected to maintain a strong, independent research program. The successful applicant must be willing to collaborate with other faculty in the program, participate in departmental teaching, and train graduate students and fellows. Salary and start-up package will be commensurate with experience. Interested candidates should send curriculum vitae; a statement of research goals; representative publications; and three letters of reference before April 1, 2001, to: **Chair, Search Committee, Department of Molecular Virology, Immunology, and Medical Genetics, The Ohio State University, 2078 Graves Hall, 333 West 10th Avenue, Columbus, OH 43210**. *The Ohio State University is an Equal Opportunity/Affirmative Action Employer.*

EAST TENNESSEE STATE UNIVERSITY
Biochemistry and Molecular Biology Department
Johnson City, Tennessee 37614-1708

INSTRUCTOR and two **POSTDOCTORAL POSITIONS**. NIH-funded study of the molecular mechanism of DNA repair in both mammalian and bacterial systems as well as the biological effects of DNA damage. Individuals with a strong background in biochemistry and molecular biology or cell biology are encouraged to apply. Experience in cloning, protein overproduction and purification, characterization of protein-DNA/protein-protein interactions, or transcription regulation will be a plus. Candidates should have a Ph.D. degree in one of the biological sciences. Please send curriculum vitae with names of three references to: **Raymonde Cox, Department of Biochemistry and Molecular Biology, James H. Quillen College of Medicine, East Tennessee State University, Johnson City, TN 37614-1708. E-mail: yzou@utmb.edu**. Positions contingent upon grant funding. Salary is based on experience. *East Tennessee State University is an Affirmative Action/Equal Opportunity Employer.*

Three tenure-track **ASSISTANT PROFESSOR** positions: microbiology, plant toxonomy, and molecular biology/forensic science or toxicology for 21 August 2001. Ph.D. required; postdoctoral experience preferred. Teaching includes graduate and undergraduate courses. Scholarly research involving students expected. Detailed departmental information at **website: http://www.shsu.edu/~bio_www/**. Send résumé, statement of teaching philosophy, research interests, three letters of reference, and official transcripts to: **Dr. J. C. Turner, Chair, Search Committee, Department of Biological Sciences, P.O. Box 2116, Sam Houston State University, Huntsville, TX 77341**. Applicant review will begin 15 February 2001 and continue until the positions are filled. For additional information on these and other positions, access our **website: http://www.shsu.edu/~hrd_www/facultyemp.html**. *Sam Houston State University is an Equal Employment Opportunity/Affirmative Action Employer.*

SEARCH EXTENDED

Search for **ASSISTANT PROFESSOR** in plant physiology/phycology will remain open until position is filled. For details on the position, see **website: http://www.wiu.edu/users/mibiol. Dr. L. M. O'Flaherty, Chair of Biological Sciences, Western Illinois University, 1 University Circle, Macomb, IL 61455-1390.**

POSITIONS OPEN

SCIENTIST, POSTDOCTORAL, AND RESEARCH ASSOCIATE OPPORTUNITIES

In the areas of automated enzyme assay development, enzyme biochemistry, diversity generation, fungal gene expression, microarray analysis of gene expression, proteomic analysis, fermentation, and mammalian molecular biology.

Novozymes Biotech, Inc., located in Davis, California, is a wholly owned research and development subsidiary of Novozymes A/S based in Bagsvaerd, Denmark. Novozymes A/S is the world's largest discoverer, manufacturer, and marketer of industrial enzymes. If you are looking for a challenging career opportunity, please visit our **website: http://www.novozymesbiotech.com** for more details.

Novozymes Biotech, Inc., is an *Affirmative Action/Equal Opportunity Employer.*

FACULTY POSITIONS ANATOMICAL SCIENCES AND NEUROBIOLOGY

The Department is seeking to fill two positions at the level of **ASSISTANT PROFESSOR**. The successful candidates will have a Ph.D. or M.D./Ph.D. and independently funded research programs. The positions require participation in one of the team-taught medical/dental courses: histology, neuroscience, or gross anatomy. Participation in the graduate training program is expected. Priority will be given to applicants with research interests that complement existing programs (for more information, see **website: http://www.louisville.edu/medschool/anatomy**). Substantial start-up packages and competitive salaries available. Opportunity for joint appointments with clinical departments. To apply, send curriculum vitae, statement of research and career goals, list of current or proposed funding, and at least four letters of reference to:

Chair of the Search Committee
Department of Anatomical Sciences and Neurobiology
University of Louisville School of Medicine
Louisville, KY 40292
E-mail: sghodg01@gwise.louisville.edu

Applications accepted until the positions are filled; interviews will begin March 1, 2001. *The University of Louisville is an Equal Opportunity Employer. Women and minorities are encouraged to apply.*

TENURE-TRACK ASSOCIATE/ASSISTANT FACULTY POSITION MARINE BIOLOGY

The Department of Biological Sciences at Florida Atlantic University seeks applicants for a tenure-track Associate or Assistant Professor in marine biology. The specific area of research is open, but priority will be given to candidates with a background in developmental biology, physiology, immunology, evolutionary biology, population genetics, or ecology. The candidate will be expected to incorporate modern research techniques that could build bridges between the Department's current strengths in ecology, physiology, animal behavior, and molecular biology and be able to take advantage of local coral reef environments. The applicant should expect to advise graduate students and to support a research program through external funding. The selection committee will emphasize publications, postdoctoral training, teaching experience, and the ability to acquire grant funding. Please submit curriculum vitae, statement of research and teaching interests, reprints, and a list of three references to: **Dr. Marguerite Koch, Search Committee Co-Chair, Department of Biological Sciences, Florida Atlantic University, 777 Glades Road, Boca Raton, FL 33431-0991**. Application deadline: February 28, 2001.

Florida Atlantic University is an Equal Opportunity/Affirmative Action Employer.

POSITIONS OPEN

ANIMAL MOLECULAR GENETICS POSITION

Tenure-track **ASSISTANT** or **ASSOCIATE PROFESSOR**, Department of Animal Science, University of Tennessee. This 12-month position is 75% research and 25% teaching. Development of an active and extramurally funded research program is expected in the area of animal molecular genetics including gene mapping and/or functional genomics related to quantitative trait loci. The research program should have direct application to current animal industries. Teaching responsibilities will include participation in an undergraduate animal genetics course and development of a graduate molecular genetics course. Training of graduate students and collaboration with other faculty in departmental research focus areas of nutrition, reproductive physiology, or animal health and food safety is expected. A Ph.D. in a field related to mammalian molecular genetics is required. Candidates should have an appreciation for the animal industries. Preference will be given to candidates with the following: postdoctoral experience in animal genetics; achievement in research and grantsmanship; evidence of effective teaching, communication, and collaboration; some training in quantitative genetics; and ability to translate genetic research into applications that enhance animal production. The Department of Animal Science has access to enviable animal resources including 500 dairy cows across three locations; over 1,000 beef animals at five locations; and swine, sheep, and poultry. A new state-of-the-art animal research building has just been completed. A campus biotechnology laboratory building is under construction. Department personnel have been successful in cloning a Jersey cow, offering unique collaboration possibilities. The molecular biology resource facility offers high-throughput DNA sequencing and synthesis, microarray analysis, and related capabilities. Oak Ridge National Laboratory has extensive resources devoted to genomics and collaborates with the University of Tennessee in teaching and research efforts. Creation of a Genomics Research Center focused on animal reproduction has been initiated. Salary will be commensurate with training and experience. The University is committed to providing all essential start-up funds. Applications will be reviewed beginning March 1, 2001, and the position is available June 1, 2001. Candidates should submit a letter of application, college transcripts, curriculum vitae, and arrange to have three letters of recommendation sent to: **Dr. Arnold M. Saxton, Search Chair, Department of Animal Science, The University of Tennessee, 2505 River Drive, Knoxville, TN 37996-4500. Telephone: 865-974-2887; e-mail: asaxton@utk.edu**. *The University of Tennessee does not discriminate on the basis of race, sex, color, religion, national origin, age, or disability in provision of educational programs and services or employment opportunities and benefits.*

POSTDOCTORAL RESEARCH ASSOCIATE
Lunar and Planetary Laboratory
The University of Arizona

Applications are invited for a Postdoctoral position with the IMAGE Extreme Ultraviolet Imager (EUV) team at The University of Arizona. The primary research focus will be analyzing and interpreting measurements of the distribution and transport of helium ions in Earth's plasmasphere. The EUV will map the helium ion distribution on a global scale and at 10-minute time resolution by recording the resonantly scattered emission at 30.4 nm. For more information, see **website: www.hr.arizona.edu**.

To apply, send a cover letter stating research interests, a résumé, and the names and addresses of three references to: **Bill R. Sandel, Lunar and Planetary Laboratory West, 1040 East Fourth Street, Room 901, Tucson, AZ 85721**. Review of materials begins April 14, 2001, and continues until position is filled. *The University of Arizona is an Equal Employment Opportunity/Affirmative Action Employer; Minorities/Women/Disabled/Veterans.*

Executive Director

The Search Committee for Sigma Xi, The Scientific Research Society, invites nominations and applications for the position of Executive Director. The Executive Director will be located at the Society's Headquarters in the Research Triangle Park in North Carolina.

With a membership of approximately 75,000 individuals and more than 520 chapters worldwide, Sigma Xi occupies a unique position in the scientific community. The purpose of the Society is to honor scientific achievement, improve the quality of science and access to science, enhance scientific literacy, encourage interdisciplinary research, inform policy makers about science and foster worldwide interaction among researchers.

The Executive Director is the Society's chief executive officer and, in association with the Board of Directors of the Society, manages the Society's administrative operations, programs and activities. The successful candidate will be a leader with commitment to the goals and growth of Sigma Xi.

The Executive Director must be an effective communicator and a consensus builder with the ability to motivate and lead volunteers, peers and staff, and will have demonstrated skills in management. She or he must possess proven fundraising ability and experience with management of program activities. Standing and recognition in the scientific and technical community are essential; familiarity with Sigma Xi and its programs and research experience are desirable.

Applications and nominations should include a current *curriculum vitae*, the names and addresses of three references, and a statement of reasons why the position is of interest. This material will be kept in confidence and should be directed to: **Dr. John H. Moore, Chair, Executive Director Search Committee, Sigma Xi, The Scientific Research Society, P. O. Box 13975, Research Triangle Park, NC 27709.**

Screening of applications will begin on February 1, 2001, and will continue until the position is filled. It is hoped that a selection will have been made by May 2001, with the effective date of the appointment June 1, 2001.

Sigma Xi is an equal opportunity employer.

Westvaco Forest Science & Technology

Research Positions in Forest Tree Tissue Culture and Molecular Biology M.S./B.S.

Westvaco is a major producer of paper, envelopes, packaging and specialty chemicals with an active Forest Science and Technology department located near Charleston, South Carolina. Ongoing research efforts into the application of Biotechnology to tree improvement in forest tree species include tissue culture, molecular biology and transformation. We are seeking three highly motivated candidates to join our programs in hardwood tissue culture and molecular biology of flowering and stress resistance. For each position a Master's degree in Biology (or related area) with experience in molecular biology, plant tissue culture or plant physiology is preferred. Candidates with a Bachelor's degree in Biology (or related field) and at least three years experience in these fields will also be considered.

One position (#FR-04-00) is available in hardwood tissue culture. Applicants are expected to have experience in tissue culture of plants, preferably woody plants. Experience with organogenesis systems and/or embryogenesis systems is desirable, as is familiarity with plant transformation.

Two positions (#FR-01-01 and #FR-02-01) are available in molecular biology. Experience in manipulation of nucleic acids, molecular cloning, and PCR and ligation aspects of gene construction is essential. Experience with gene expression analysis in transgenic plants and plant physiology are also desired.

Each candidate should be able to function within a team environment with a moderate degree of independence. Additional duties may include general lab maintenance, ordering of supplies, field collection of samples and caring for transgenic plants.

Authorization to work in the U.S. is required. Interested candidates should send resume, college transcripts, and three letters of recommendation to: FST Jobs (please reference job # from above), Westvaco Forest Science Laboratory, PO Box 1950, Summerville, SC 29484. Inquiries: (843) 851-4733 or e-mail FSTjobs@westvaco.com. Applications will be accepted until March 30, 2001, or until qualified candidates are found.

Westvaco is an equal opportunity employer, m/f.

Discovery DIFFERENT FEEL WHEN Innovation IS THE TRUE MEASURE

The R.W. Johnson Pharmaceutical Research Institute, a worldwide R&D organization conducting cutting-edge research aimed at improving health care on a global scale, is actively recruiting for the following position:

BIOLOGY TEAM LEADER — ENTEROLOGY
(Spring House, PA, Research Facility)

The successful candidate will be responsible for leading a group of scientists in the development of strategy and vision to position projects from inception through completion.

The position requires a PhD in life sciences with ten or more years experience. Experience with gastrointestinal disorders with an emphasis on intestinal inflammatory disorders is a must. A strong background in physiology/cellular and molecular biology is desirable.

Explore a career in Drug Discovery with the R.W. Johnson Pharmaceutical Research Institute. Discover a place where innovation is the true measure.

Please apply directly on-line at our web site:
www.jnj.com/careers

(refer to requisition #00-0003215)

Johnson & Johnson Recruiting
P.O. Box 16597
New Brunswick, New Jersey
08906-6597

THE R.W. JOHNSON PHARMACEUTICAL RESEARCH INSTITUTE

www.jnj.com/careers

©Johnson & Johnson 2001. An equal opportunity employer.

Johnson & Johnson

Campbell University School of Pharmacy Department of Pharmaceutical Sciences

Campbell University's School of Pharmacy is a highly progressive institution in pharmacy education. In addition to the PharmD Degree, Campbell offers unique programs (B.S. and M.S. Degrees) in both Pharmaceutical Sciences and in Clinical Research. Applications are being accepted for the following positions:

- ***Full/Associate Professor Pharmaceutics***
- ***Assistant/Associate Professor Analytical Chemistry***
- ***Assistant/Associate Professor Immunology/Microbiology***

A PhD in a related discipline is required. Candidates will serve as part of a multidisciplinary team with responsibilities for teaching in undergraduate and graduate level courses. Teaching and postdoctoral research experience is desirable. An undergraduate degree in pharmacy and/or industry experience would be considered beneficial.

Successful candidates will establish active independent research programs in our recently completed Pharmaceutical Sciences Research Institute. Campbell University is a private university with a student-oriented focus that facilitates excellent academic and professional interactions. Campbell University is located 35 miles south of Research Triangle Park (RTP) in Central North Carolina.

Applicants should include a statement of teaching and research interests, curriculum vitae, and the names and addresses of three references to: **Dr Emanuel J Diliberto, Jr, Chair, Department of Pharmaceutical Sciences, Campbell University School of Pharmacy, PO Box 1090, Buies Creek, NC 27506. Telephone: 910-893-1696; Fax: 910-893-1697.**

Email: diliberto@mailcenter.campbell.edu Please visit our web site for more information about our school (www.campbell.edu/pharmacy).

Campbell University is an Equal Opportunity Employer.

NEUROSCIENCE FACULTY POSITION

The Biology Department at Morehouse College invites applications for a **TENURE-TRACK POSITION** in neuroscience. Applicants should have a Ph.D and postdoctoral experience and be willing to teach introductory biology in a liberal arts environment. The successful candidate will be expected to establish an independent research program involving undergraduate students. Neuroscience faculty at Morehouse College participate in the NSF Center for Behavioral Neuroscience. Center programs include interinstitutional graduate and undergraduate neuroscience programs and research support for faculty, graduate students, and postdoctoral Fellows. For more information on the college, Department, and Center for Behavioral Neuroscience, please visit our **websites: http://www.morehouse.edu/Biology/bio.htm** and **http://www.cbn-atl.org**. Interested applicants should send their curriculum vitae; a statement of research and teaching experiences and goals; complete graduate and undergraduate transcripts; and three letters of recommendation by March 15, 2001, to: **Dr. Melissa Harrington, Department of Biology, Morehouse College, 830 Westview Drive, Atlanta, GA 30314.** *Equal Opportunity Employer.*

DEPARTMENT OF MEDICINE
Division of Endocrinology, Diabetes, and Metabolism

One **POSTGRADUATE RESEARCHER POSITION** is available in the Division of Endocrinology, Diabetes, and Metabolism, Department of Medicine, University of California, Irvine. The starting date is March 1, 2001, or sooner. Requirements include a Ph.D. or M.D./Ph.D. degree and experience in transcriptional regulation at the molecular level. Studies will employ transfection/infection of cell lines, identification of target genes that control transformation, and creation of mutant and knockout mice. The successful candidate will focus on the role of growth factor receptors in pancreatic cancer. Salary is commensurate with training and experience. Interested applicants please send curriculum vitae and names and addresses of three references to: **Dr. Murray Korc, Chief, Division of Endocrinology, Diabetes, and Metabolism, Department of Medicine, Medical Science I, C240, Irvine, CA 92697.** *The University of California is an Equal Opportunity Employer committed to excellence through diversity.*

AVIAN TRANSGENICS
GENEWORKS, INC.
ANN ARBOR, MICHIGAN

Expanding its transgenic research and development. Minimum two years of industrial experience for **SENIOR SCIENTIST**: cellular and molecular biology. Viral vector design, construction, and assay. **SENIOR SCIENTIST**: protein chemistry. Run ELISA, Western, and chromatographic separation. **TECHNICIAN**: cellular and molecular biology. Tissue culture, DNA, RNA, some protein work. **REGULATORY AFFAIRS**: M.S. or Ph.D. to manage all regulatory issues. Direct FDA experience required. **ANIMAL SCIENTIST**: poultry reproduction management. Maintain research and reproduction flocks. Send résumé to: **GeneWorks Jobs, 3950 Varsity Drive, Ann Arbor, MI 48108.**

Highly intelligent, exceptionally competent individual with strong scientific (though not necessarily medical) background sought by prominent Manhattan family to research and coordinate family medical and health care issues on a full-time basis. Act as liaison with leading medical researchers and consultants in academia and industry, assuming top-level responsibility for all technical, financial, and administrative affairs but without direct responsibility for patient care. Ph.D. or M.D. a plus but not essential. Highly attractive compensation. Résumé and compensation history to: **Box 98, 1200 New York Avenue, Room 911, Washington, DC 20005.**

POSITIONS OPEN

Xencor, Inc. is a well-financed, private company that develops new computational and proteomic technologies to accelerate drug discovery. We are seeking highly motivated and enthusiastic **SCIENTISTS** to help us continue to develop cutting-edge technologies on the proteomics frontier. We now have several job openings for **DIRECTOR, COMPUTATIONAL CHEMISTRY** and **COMPUTATIONAL CHEMIST** (two). Qualifications for Director, Computational Chemistry, include a life sciences Ph.D. with extensive years of experience in molecular modeling of proteins and/or bioinformatics. More than six years of industry experience as a leader of computational groups required.

Qualifications for Computational Chemist include a life sciences Ph.D. and more than one year of postdoctoral experience in molecular modeling of proteins and homology modeling tools. UNIX knowledge essential and experience with C, FORTRAN-based programming preferred. Xencor offers a competitive salary, benefits package, stock options, and the opportunity for advancement in a challenging and stimulating work environment. Please submit your résumé and salary history to: **Xencor, 111 West Lemon Street, Monrovia, CA 91016. E-mail: recruiting@xencor.com; FAX: 626-256-3770.** *Affirmative Action/Equal Opportunity Employer.*

RESEARCH SCIENTIST

The Laboratory for Structural Biology at the University of Alabama in Huntsville invites applications for a Research Scientist with skills in protein expression and purification. The position will include appointment as a **RESEARCH ASSISTANT PROFESSOR** in the Chemistry Department. This NASA-funded position will support crystallography studies of bone and cartilage-related proteins. The successful candidate will have expertise in expression vector construction, recombinant gene expression, and protein purification. Experience in protein crystallization would be a plus. Applicants should have a Ph.D. and postdoctoral experience.

Applicants should submit curriculum vitae and the names of three references to: **Dr. Edward Meehan, Director, Laboratory for Structural Biology, MS Building 235, The University of Alabama in Huntsville, Huntsville, AL 35899.** The position is available immediately. *An Equal Opportunity/Affirmative Action Employer. Applications from women and minority candidates are encouraged.*

RESEARCH ASSOCIATE AND POSTDOCTORAL FELLOW POSITIONS

Several Research Associate and Postdoctoral Fellow positions are available to investigate the functional genomic process determining aging and age-dependent diseases. Opportunities are available to work in microarray gene screening, DNA chip technology, stem cell research, and genetics of animal models as well as well-characterized human centenarian cohorts. Opportunities are also available to investigate translational control of age-dependent cardiac disorders mechanisms involved in replicative senescence as well as molecular mechanisms involved in space flight. These positions are supported by funding from NIH, DARPA, and NASA. Expertise in molecular and cell biology is required. Please send your curriculum vitae and names of three references to: **Dr. Eugenia Wang, 570 South Preston Street, Department of Biochemistry and Molecular Biology, School of Medicine, University of Louisville, Louisville, KY 40202. E-mail: eugenia.wang@louisville.edu.**

Ph.D. RESEARCH POSITION

RESEARCH SCIENTIST to study structure/function/mechanism of antiviral and antitumor agents. Experience in molecular biology, virology, structural biology, molecular modeling, and bioinformatics. Apply by mail to: **Dr. Sylvia Lee-Huang, Department of Biochemistry, New York University School of Medicine, 550 First Avenue, New York, NY 10016.**

POSITIONS OPEN

DIRECTOR OF EPILEPSY RESEARCH

The Cleveland Clinic Epilepsy Center is seeking a director of its basic research program. Candidates should have a track record of funded basic research related to epilepsy and will be expected to coordinate and lead epilepsy research in the Departments of Neurology, Neurosurgery, and Neurosciences. Generous start-up funds, highly competitive salary and fringes, as well as appropriate space and laboratory facilities will be provided for an **ASSOCIATE-** to **FULL PROFESSOR**-level appointment. The program will be located in the new Lerner Research Institute (LRI). The LRI, composed of approximately 100 principal investigators and 800 technicals, Fellows, and students, has a long-standing commitment to excellence in basic and applied biomedical research.

Interested candidates should send current curriculum vitae and names of three references to:

Hans O. Lüders, M.D., Ph.D.
Department of Neurology, S90
Cleveland Clinic Foundation
9500 Euclid Avenue
Cleveland, OH 44195-5226
Telephone: 216-444-8039
FAX: 216-444-0230
E-mail: scholarc@ccf.org

The Cleveland Clinic Foundation is an Equal Opportunity/Affirmative Action Employer.

U.S. Geological Survey **HYDROLOGIST POSITION**: The National Research Program of the U.S. Geological Survey's Water Resources Discipline invites applications for a full-time **RESEARCH** position in Reston, Virginia, or Denver Colorado. Research emphasis will be in computational fluid mechanics, especially as related to surface water flow and constituent transport modeling in rivers. In addition to developing and applying state-of-the-art computational models for flow and transport in rivers, the researcher will provide models and expertise to assist other researchers working on applied problems in river mechanics. Position requires Ph.D. degree or equivalent experience with evidence of independent research capability. Salary will range from $48,000 to $75,000 commensurate with experience. For detailed vacancy announcement, qualifications, and requirements, go to **website: www.usajobs.opm.gov** and refer to Vacancy Number USGS-C-01-403-D. Direct other inquiries to: **Michael Reddy, U.S. Geological Survey, P.O. Box 25046, MS-418, Denver, CO 80225. Telephone: 303-236-5021; e-mail: mmreddy@usgs.gov.** Submit résumé, bibliography, and brief description of research interests to: **Personnel Office, U.S. Geological Survey, P.O. Box 25046, MS-612, Denver Federal Center, Denver, CO 80225.** Applications must be received by March 15, 2001. *The U.S. Geological Survey is an Equal Opportunity Employer. U.S. citizenship is required.*

RESEARCH SCIENTIST POSITION
RETINAL STEM CELL BIOLOGIST
The Cleveland Clinic Foundation

Full-time research position at **ASSISTANT, ASSOCIATE**, or **FULL PROFESSOR** level is available in The Cole Eye Institute for a Stem Cell Biologist working on retina progenitor cells. New laboratory space, generous start-up funds, outstanding salary support, and benefits package are available. Applicants at Associate and Full Professor level must have a record of independent funding. Interested applicants should submit a statement of their research plans related to the focus of the above-described program, a copy of their curriculum vitae, and contact information for three references to:

Joe G. Hollyfield, Ph.D.
Director of Ophthalmic Research
Cole Eye Institute (i31)
The Cleveland Clinic Foundation
9500 Euclid Avenue
Cleveland, OH 44195-5245
FAX: 216-445-3670
E-mail: hollyfj@ccf.org

CCF is an Equal Opportunity/Affirmative Action Employer.

PRIZES

KUWAIT PRIZE 2001

Invitation for Nominations

The **Kuwait Foundation for the Advancement of Sciences (KFAS)** institutionalized the **KUWAIT Prize** to recognize distinguished accomplishments in the arts, humanities and sciences. The Prizes are awarded annually in the following categories:

A. Basic Sciences
B. Applied Sciences
C. Economics and Social Sciences
D. Arts and Letters
E. Arabic and Islamic Scientific Heritage

The Prizes for **2001** will be awarded in the following fields:

1. **Basic Sciences:Astronomy**
2. **Applied Sciences:Refrigeration and Air Conditioning**
3. **Economic and Social Sciences:Management Sciences**
4. **Arts and Literature:Comparative Literature**
5. **Arabic and Islamic Scientific Heritage:Geography**

Foreground and **Conditions** of the Prize:

1. Two prizes are awarded in each category:
   - A Prize to recognize the distinguished scientific research of a Kuwaiti citizen,

   And,
   - A Prize to recognize the distinguished scientific research of an Arab citizen.
2. The candidate should not have been awarded a Prize for the submitted work by any other institution.
3. Nominations for these Prizes are accepted from individuals, academic and scientific centers, learned societies, past recipients of the Prize, and peers of the nominees. No nominations are accepted from political entities.
4. The scientific research submitted must have been published during the last ten years.
5. Each Prize consists of a cash sum of K.D. 30,000/- (approx. U.S.$100,000/-), a Gold medal, a KFAS Shield and a Certificate of Recognition.
6. Nominators must clearly indicate the distinguished work that qualifies their candidate for consideration.
7. The results of KFAS decision regarding selection of winners are final.
8. The documents submitted for nominations will not be returned regardless of the outcome of the decision.
9. Each winner is expected to deliver a lecture concerning the contribution for which he was awarded the prize.

Inquiries concerning the KUWAIT PRIZE and nominations including complete curriculum vitae and updated lists of publications by the candidate with **four copies** of each of the published papers should be received before **31/10/2001** and addressed to:

The Director General
The Kuwait Foundation for the Advancement of Sciences
P.O. Box 25263, Safat - 13113, Kuwait
Tel: (+965) 2429780 / Fax: (+965) 2403891 / E Mail: prize@kfas.org.kw

MEETINGS

POSITIONS OPEN

TENURE-TRACK POSITION IN BIOLOGY
University of Minnesota, Crookston

Position: Full-time, nine-month, tenure-track position starting on August 20, 2001. A competitive fringe benefits package is offered. Rank/salary commensurate with experience and qualifications. Responsibilities involve teaching human anatomy/physiology and genetics. Additional responsibilities: coordinating and teaching in a partnership with Northwest Technical College; scholarly activity appropriate for a tenure-track position; course development; integrating appropriate computer technology into teaching; student advising; outreach/service activities; some committee work.

Minimum qualifications: Master's degree or all course work completed for Doctorate required in physiology, genetics, or related biological science; computer skills; and teaching experience. Teaching experience at the university level preferred. A letter of application; current résumé; college transcripts; and the names, addresses, and telephone numbers of at least three references must be received by March 12, 2001. Send to: **Dr. Cleon Melsa, Center for Learning Foundations, UMC, 2900 University Avenue, Crookston, MN 56716. Visit our website: www.crk.umn.edu.** *UMC is an Equal Opportunity Educator and Employer.*

ASSISTANT RESEARCH PROFESSOR AND POSTDOCTORAL ASSOCIATES
Carcinogenesis and Prevention

Positions are available for Scientists with strong background in molecular/cell biology or molecular pathology to study the mechanisms of inflammation-associated carcinogenesis and its prevention in cell lines, animal models, and humans. Position and salary commensurate with experience. Supported by NIH grants, Scientists are encouraged to pursue novel ideas with new approaches and will have excellent opportunities for career development. Qualified Scientists may also develop their own research grants. Send curriculum vitae, statement of research interests, and names of three references to: **Dr. Chung S. Yang, Laboratory for Cancer Research, College of Pharmacy, Rutgers, The State University, Piscataway, NJ 08855-8020. E-mail: csyang@rci.rutgers.edu.** *Equal Opportunity Employer.*

POSTDOCTORAL POSITION at Yale University available immediately on an NIH training grant to study homeobox genes in development of the endoderm, liver, and lung. Experience in developmental biology and molecular biology desired. Excellent facilities and resources available. *Applicants must be U.S. citizens or have permanent resident status.* Applicants with M.D. and/or Ph.D. should submit their curriculum vitae and names of three references to: **Clifford Bogue, M.D., Yale Child Health Research Center, Yale University School of Medicine, 464 Congress Avenue, New Haven, CT 06510. FAX: 203-737-5972; e-mail: clifford.bogue@yale.edu.** *Yale University is an Affirmative Action/Equal Opportunity Employer.*

POSTDOCTORAL POSITIONS
McGILL UNIVERSITY

Two positions are available immediately to study the long-term consequences of perinatal and early postnatal distress on neuroendocrine and central monoamine systems mediating behavioral responses to stress and stimulant drugs. Candidates should have a Ph.D. with a strong background either in cellular/developmental neurobiology or behavioral neuroscience, preferably with experience with *in vivo* neurochemical monitoring techniques (e.g., microdialysis, voltammetry). Send curriculum vitae and letters of reference to **e-mail: gratal@douglas.mcgill.ca** or **Alain Gratton, Douglas Hospital Research Center, 6875 LaSalle Boulevard, Montréal (Verdun), QC H4H 1R3 Canada.**

POSITIONS OPEN

U.S. Geological Survey **HYDROLOGIST POSITION**: The National Research Program of the U.S. Geological Survey's Water Resources Discipline invites applications for a full-time **RESEARCH** position in Reston, Virginia. Research emphasis will center on stream flow analysis and may include analysis of flood frequency and drought patterns, regional-to-national trend analysis, analysis of uncertainty in estimates of stream flow, and stream flow estimation at ungaged locations. Needs individual with background in surface-water hydrologic processes, quantitative modeling, and statistical techniques with an interest in the analysis of stream flow. Position requires Ph.D. degree or equivalent experience with evidence of independent research capability. Salary is between circa $53,000 to circa $82,000 commensurate with experience. For more information on job requirements and how to apply, go to **website: www.usajobs.opm.gov**. Refer to Vacancy Number E–01–723. **Richard Marzolf (Telephone: 703-648-5828; e-mail: rmarzolf@usgs.gov)** will answer other questions. Submit a résumé, bibliography, and brief description of research interests to: **Personnel Office, U.S. Geological Survey, 601 National Center, Reston, VA 20192.** Applications must be received by March 15, 2001. *The U.S. Geological Survey is an Equal Opportunity Employer. U.S. citizenship is required.*

PLANT TISSUE CULTURE SCIENTIST to develop and optimize regeneration protocols. Experience with recalcitrant and/or woody species desired. NovaFlora Inc. is focusing on the development of ornamental plants through biotechnology. With a powerful toolbox of trait and enabling gene technology, we are well positioned to develop and commercialize a unique range of ornamental products. Through a licensing arrangement with Plant Bioscience Ltd. (John Innes Center, United Kingdom), NovaFlora owns commercial rights for ornamental plants to GAI, Constans, and TFL genes from *Arabidopsis*. NovaFlora is using these genes to create novel dwarf ornamentals (GAI) and plants with early flowering chracteristics (Constans), as well as plants with altered plant architecture (TFL). Established in 1993, NovaFlora is a privately held company with a strong entrepreneurial spirit. As a part of our team, you are expected to contribute to the scientific development and commercial success of NovaFlora. In addition to expertise in plant tissue culture and plant transformation, you should be a multifaceted, highly motivated individual with excellent communication skills. **E-mail** applications to: **info@novaflora.com** or mail to: **NovaFlora, Inc., Suite 350, Philadelphia, PA 19104. Telephone: 215-387-5060, extension 204; website: www.novaflora.com.**

RESEARCH ASSOCIATE/POSTDOCTORAL POSITION available to study the molecular mechanism of phytoestrogen actions. Candidate must have a Ph.D. in biochemistry, molecular biology, or allied field. Experiences in standard molecular biology and biochemistry techniques are essential. Please send curriculum vitae and three letters of recommendation to: **Dr. Wesley G. Gray, Department of Chemistry and Environmental Toxicological Program, Southern University, P.O. Box 9716, Baton Rogue, LA 70813-2566. E-mail: DR1WG GRAY@AOL.COM.** *Southern University is an Equal Opportunity/Affirmative Action Employer.*

POSTDOCTORAL RESEARCH ASSOCIATE position is available immediately to study the role of the tumor suppressor protein p53 in mediating cellular responses to combined butadiene and cytomegalovirus exposure. The cellular responses studied include apoptosis, DNA repair, and oncogenesis. Ph.D. in a biological science with a background in molecular biology, cell biology, and biochemistry is required. Send or e-mail curriculum vitae and a list of three references to: **Dr. Peppy Muganda, ARCH Program, P.O. Box 9245, Southern University, Baton Rouge, LA 70813. E-mail: Muganda@subr.edu.** *Southern University is an Equal Opportunity Employer.*

POSITIONS OPEN

The University of Michigan, **CHAIR OF BIOLOGICAL CHEMISTRY**. The University of Michigan Medical School is seeking an academic leader to direct the research, teaching, and service programs of its Department of Biological Chemistry. Qualifications include a Ph.D. (or M.D.) degree in biological chemistry or a related field, international stature as a leading researcher in an area of biological chemistry, commitment to the highest standards of academic scholarship and teaching, and administrative ability. Please respond by March 15, 2001. Please send letters of interest, curriculum vitae, and names of at least three references to: **Paul F. Hollenberg, Ph.D., Chair, Biological Chemistry Search Committee, c/o Ms. Deborah Grifka, Administrative Associate, University of Michigan Medical School, M4130 Medical Science Building I, 1301 Catherine Street, Ann Arbor, MI 48109-0624.** *The University of Michigan is a nondiscriminatory Affirmative Action Employer.*

POSTDOCTORAL POSITION

Available immediately for Ph.D. or M.D. in immunology. Research will include studies on cellular and molecular mechanisms of human B cell differentiation and lymphomagenesis (reference *J. Immunol.* **157:** 1006, 1996; *J. Exp. Med.* **191:**1077, 2000). Send curriculum vitae to:

Dr. Y. S. Choi
Laboratory of Cellular Immunology
Alton Ochsner Medical Foundation
1516 Jefferson Highway
New Orleans, LA 70121

An Equal Opportunity Employer.

POSTDOCTORAL POSITION in aging available immediately to generate and study effects of targeted mutagenesis of growth hormone gene on aging processes in mice. *Only U.S. citizens and permanent residents are eligible.* Ph.D. with experience in molecular biology/physiology desirable. Send letter of interest, curriculum vitae, and names of three references to: **James F. Nelson, Ph.D., Department of Physiology, University of Texas Health Science Center at San Antonio, 7703 Floyd Curl Drive, San Antonio, TX 78229-3900. E-mail: nelsonj@uthscsa.edu.** *The University of Texas Health Science Center is an Equal Employment Opportunity/Affirmative Action Employer.*

POSTDOCTORAL POSITION available at the University of Pennsylvania for studies in vascular pathobiology. Current projects include the role of platelets in atherosclerosis, *in vitro* and *in vivo* analysis of heparin-induced thrombocytopenia, and thrombosis/fibrinolysis. Experience in molecular biology and/or working with mice preferred. Send curriculum vitae and names of three references to: **Bruce Sachais, M.D., Ph.D., University of Pennsylvania, 512 Stellar-Chance Laboratories, 422 Curie Boulevard, Philadelphia, PA 19104. E-mail: Sachais@bigfoot.com; FAX: 215-573-2012.**

ASSOCIATE RESEARCH SCIENTIST
Columbia University

Positions available immediately for recent Ph.D.s with training in molecular genetics and cell biology to work on projects involving mechanisms of immortalization and neoplastic transformation of human cells exposed to radiation and environmental carcinogens. Send curriculum vitae, reprints, and names of three references to: **Dr. Tom K. Hei, Center for Radiological Research, Columbia University, 630 West 168th Street, New York, NY 10032.** *An Affirmative Action/Equal Opportunity Employer.*

ONE POSTDOCTORAL/ONE RESEARCH TECHNICIAN will be responsible for the analysis of calcium binding proteins and their roles (NIH). Basic techniques in cell/molecular biology and biochemistry required. Send résumé, research interest, and names of three references to: **Dr. Chi H. Lee, Pharmaceutical Sciences, University of Missouri, Kansas City, MO 64110. Telephone: 816-235-2408; e-mail: leech@umkc.edu.** Application will be accepted until the position is filled. *An Equal Opportunity Employer.*

NIMH
National Institute of Mental Health

Genetic Basis of Behavior
Tenure Track Investigators
National Institute of Mental Health
Bethesda, MD

The National Institute of Mental Health Intramural Research Program invitesapplications for up to three tenure track investigator positions emphasizing the genetic basis of behavior. The successful candidates should have a strong research interest in the study of animal models of neuropsychiatric disorders. Experience in making and evaluating transgenic and knockout animals is desirable, Applicants must have an M.D. and/or PhD. with significant scientific achievement as an independent investigator. These positions include an attractive start-up package and operating budget in an exciting multidisciplinary research environment. Applicants should send a curriculum vitae, statement of research interests, and have three letters of recommendation sent before March 19, 2001 to:

Dr. Dennis S. Charney
Chair, Search Committee for Genes and Behavior Investigator
NIMH Building I0, Room 4N-222
9000 Rockville Pike
Bethesda, MD 20892-1381

The National Institutes of Health is an equal opportunity employer.

SYMPOSIA

Reparative Medicine:
Growing Tissues and Organs

June 25-26, 2001

Natcher Conference Center
National Institutes of Health
Bethesda, Maryland

The National Institutes of Health Bioengineering Consortium (BECON) is soliciting poster abstracts for its 2001 symposium. **The abstract deadline is April 25, 2001.**

Abstracts should be submitted online at **www.masimax.com/becon/index.html.** The topics of interest are molecular signaling, genetic approaches to tissue repair, storage and translational issues, angiogenesis, cells for repair, *in vivo* remodeling, functional assessment and clinical outcome, *in vitro* systems, tissue design, bioreactors and bioprocessing, biomaterials/scaffolds, and immune responses to engineered tissue.

For information, contact:
Mark Brown, CMP
MasiMax Resources, Inc.
BECON Phone: 240-632-5618
Fax: 240-632-0519
E-mail: mbrown@masimax.com

MASS SPECTROMETRY CENTER DIRECTOR

SAIC Frederick works at the forefront of biomedical research at the National Cancer Institute (NCI) in Frederick, MD. Projects are selected from a wide range of NIH-supported cutting-edge research, both intramural and nationwide. At NCI, we are expanding our technological capabilities in the area of proteomics by establishing a number of Research Technology Core Laboratories. A new Mass Spectrometry (MS) Center is being created to meet the diverse needs of NCI for both low and high molecular weight MS analyses. We are currently in search of a MS Center Director who will serve the needs of the NCI research community and the development of cutting-edge bioanalytical approaches.

The ideal candidate will be a recognized authority in mass spectrometry as it applies to high-throughput protein identification and an active contributor to the scientific literature in this field. The Director will be responsible for developing and managing the facility, future planning, ensuring full exploitation of the instrumental and personnel resources, and will assume the oversight of the state-of-the-art instruments in the Center. The Director will also establish communication with users and provide instruction and professional counsel to active and prospective users, as well as seek and establish collaborative research opportunities within the NCI community. Candidates must have demonstrated experience in managing a substantial group of scientists and technical staff in either an academic or industrial setting. Experience and proficiency in macromolecular mass spectrometry, a PhD in molecular biology or a related field, and 8+ years' related experience are required.

At SAIC, we believe that people are our most valuable resource. If you desire to be part of an organization that is rapidly driving the future of science, send your resume to: e-mail: jbrumer@mail.ncifcrf.gov

"We value cultural diversity in the workplace."

Visit our Web site at: **http://saic.ncifcrf.gov**

SAIC® An Employee-Owned Company
SAIC Frederick
A Division of Science Applications International Corporation

AA/EOE M/F/D/V

POSITIONS OPEN

POSTDOCTORAL FELLOW IN OPHTHALMOLOGY
University of Washington
School of Medicine

The University of Washington Department of Ophthalmology invites applications for a Postdoctoral Fellow to conduct projects related to cornea-specific promoters, engineering of corneal cells *in vitro*, gene transfer with viral vectors, corneal wound healing, and growth factor regulation of corneal development. The Department has a very active vision research program that creates an outstanding environment for training. Candidate is expected to have a Ph.D. or M.D. degree and experience in molecular or cell biology.

Applicants should send curriculum vitae and three letters of recommendation to: **Steven E. Wilson, M.D., Professor and Chair, Department of Ophthalmology, University of Washington, Box 356485, Seattle, WA 98195-6485.**

The University of Washington is an Equal Opportunity/Affirmative Action Employer. The University of Washington is building a culturally diverse faculty and strongly encourages applications from female and minority candidates.

POSTDOCTORAL RESEARCH FELLOWSHIP
Brain Imaging/Tracer Development

A Postdoctoral position in a new UCLA research team that is developing new probes for research and using PET in human and animal studies of brain function related to drug abuse. Primary training can be in any of several areas including nuclear medicine, psychiatry, psychology, physics, or biochemistry. Strong computer skills, knowledge of neuroanatomy, and prior publications would be helpful, as would eligibility for a California medical license. *Must be a U.S. citizen*; must commit to the position by April 1, 2001. Contact:

Edythe D. London, Ph.D.
Neuropsychiatric Institute, UCLA
UCLA–NPI Box 60 C8-532
760 Westwood Plaza
Los Angeles, CA 90024
Mail Code: 176919
Telephone: 310-825-0606 (voice)
FAX: 310-825-0812
E-mail: elondon@mednet.ucla.edu

The Department of Pharmacology, Physiology, and Therapeutics is seeking three **POSTDOCTORAL FELLOWS** to study oxidative stress in Parkinson's disease. Send (no e-mail) complete curriculum vitae, a statement of research goals, and three letters of recommendation to:

Manuchair Ebadi, Ph.D.
Director, Center of
Excellence in Neurosciences
University of North Dakota
School of Medicine and Health Sciences
501 North Columbia Road
Grand Forks, ND 58203

University of North Dakota is an Equal Opportunity/Affirmative Action Employer.

POSTDOCTORAL POSITIONS immediately available in the laboratories of **Dr. Paul Dent** and **Dr. Steven Grant**. The positions are funded through an NIH training grant and are *restricted to U.S. citizens and permanent residents*. Projects available for study include signal transduction, cell cycle, and survival control in primary hepatocytes; roles of radiation and chemotherapeutic drug-induced MAP kinase signaling in cell cycle; and survival regulation in hematopoietic and carcinoma cells. Applicants must have a strong foundation in molecular and cellular biology techniques. Send applications to: **Dr. P. Dent** or **Dr. S. Grant, Massey Cancer Center, Box 980058, Virginia Commonwealth University, Richmond, VA 23298. E-mail: pdent@hsc.vcu.edu** or **stgrant@hsc.vcu.edu**.

POSITIONS OPEN

POSTDOCTORAL POSITIONS
STANFORD UNIVERSITY
SCHOOL OF MEDICINE

The Division of Hematology invites applications for Postdoctoral positions available immediately. The **Artandi** laboratory's interests include the role of telomeres in carcinogenesis, breast cancer genetics, breast development, and creating more faithful models of human breast cancer (*Nature* **406**:641, 2000; *Nat. Med.* **6**:852, 2000). Projects in the **Kuo** laboratory will encompass studies on angiogenesis including antiangiogenic gene therapy using soluble VEGF receptors and other factors (*PNAS*, in press); a novel motogenic factor encoded by the collagen XVIII endostatin domain (*JCB*, in press); and developmental mechanisms of angiogenesis. Qualified candidates should have a strong background in molecular biology, a recent Ph.D. or M.D., and be proficient in English. Send curriculum vitae and names of three references to either: **Steven Artandi, M.D., Ph.D.** or **Calvin Kuo, M.D., Ph.D., CCSR 1155, 269 Campus Drive, Stanford,CA 94305-5156. FAX: 650-736-0974; e-mail: sartandi@stanford.edu** or **cjkuo@stanford.edu**. *Stanford University is an Equal Opportunity Employer.*

POSTDOCTORAL POSITION
LIGHT-INITIATED SIGNAL TRANSDUCTION

Position available to study the structure and function of blue-light photoreceptors in humans. Experience in eukaryotic molecular biology is necessary. Recent Ph.D.s with training in neurobiology, signal transduction, promoter analysis, and *in vivo* and *in vitro* assays for gene expression are encouraged to apply. Please send curriculum vitae and names of three references to: **Dr. Aziz Sancar, Department of Biochemistry and Biophysics, University of North Carolina at Chapel Hill, School of Medicine, Chapel Hill, NC 27599-7260**. *Equal Opportunity Employer.*

POSTDOCTORAL POSITIONS
CELL CYCLE/CHECKPOINTS
The Scripps Research Institute
La Jolla, California

Postdoctoral positions are available to study cell cycle and checkpoint regulation in yeast and mammalian systems in the laboratories of **Drs. C. McGowan, S. Reed, P. Russell, and C. Wittenberg**. Experience in cell or molecular biology, biochemistry, or genetics desirable. Send curriculum vitae, names of references, and a statement of research interests to: **Allison Nooners, The Scripps Research Institute MB–3, 10550 North Torrey Pines Road, La Jolla, CA 92037. E-mail: cdc@scripps.edu; website: http://www.scripps.edu/mb/cdc.**

POSTDOCTORAL POSITIONS are immediately available to study prostate-specific antigens and their role in antitumor immune responses. We will use a microarray technology as well as tumor-specific T cells established in the laboratory. Animal tumor models will also be used to assess antitumor immunity. A strong background in molecular biology and immunology is required. Animal experience will be helpful. Please send your curriculum vitae and three names of references to: **Dr. Rongfu Wang, The Center for Cell and Gene Therapy, Baylor College of Medicine, One Baylor Plaza, Houston, TX 77030. Telephone: 713-798-1244; e-mail: rongfuw@bcm.tmc.edu.**

University of Pennsylvania **POSTDOCTORAL POSITIONS**. Exciting research using transgenic mouse models to study the role of gap junctions in cardiovascular development. Special focus on the cell signaling mechanisms involved in the regulation of cardiac neural crest and epicardial cell migration. Strong background in cell biology, biochemistry, and/or molecular biology helpful. Apply to: **Dr. Cecilia Lo, Biology Department, Goddard Laboratory, University of Pennsylvania, Philadelphia, PA 19104-6017. E-mail: clo@sas.upenn.edu.**

POSITIONS OPEN

POSTDOCTORAL FELLOWSHIP
IMMUNOLOGY AND INFECTIOUS DISEASES

A position is available in the Department of Immunology and Infectious Diseases at the Research Institute, Palo Alto Medical Foundation, with a co-appointment at Stanford University for a Ph.D. or M.D. to investigate mechanisms of host resistance against opportunistic pathogens. Project includes studies of the role of cellular immunity, cytokines, adhesion molecules, and genetic regulation of the immune response. Appropriate prior experience in immunology/molecular biology/cell biology preferred. Send curriculum vitae and names and addresses of three references to: **Dr. Yasuhiro Suzuki, Research Institute, Palo Alto Medical Foundation, 795 El Camino Real, Ames Building, Palo Alto, CA 94301. FAX: 650-329-9853**. *Equal Opportunity Employer.*

POSTDOCTORAL POSITION
DIABETES RESEARCH

Immediately available to study glucose regulation of gene expression and glucose toxicity in mammalian cells. Experience in molecular biology, cell culture, and islet isolation is desirable but not required. Send curriculum vitae and three reference letters to: **Sabire Ozcan, Ph.D., Department of Biochemistry, University of Kentucky, 800 Rose Street, Room MN608, Lexington, KY 40536-0298 U.S.A. Telephone: 859-257-4821; FAX: 859-323-1037; e-mail: sozcan@pop.uky.edu**.

POSTDOCTORAL POSITIONS are available immediately to study the genes involved in signal transduction pathways in cancer cells and/or to develop preclinical/clinical liposomal formulations of anticancer drugs. Recent Ph.D. with experience in molecular biology/biochemistry and/or pharmacology is desirable. Please send curriculum vitae and the names of three references to: **Prafulla Gokhale, Ph.D., Department of Radiation Medicine, Georgetown University Medical Center, Room E207, The Research Building, 3970 Reservoir Road, N.W., Washington, DC 20007. E-mail: gokhalep@georgetown.edu**.

POSTDOCTORAL/RESEARCH ASSOCIATE to identify and characterize modifier genes for the phenotypic expression of pathogenic human and murine mitochondrial DNA mutations (*AJHG* **66**: 1905, 2001; *Nat. Genetics*, January 2001). Experience in the genetics of complex diseases and in gene characterization a plus. The position is NIH funded and is in the laboratory of **Dr. Fischel-Ghodsian** in the Department of Pediatrics and Medical Genetics at Cedars-Sinai Medical Center. Please send curriculum vitae to: **Dr. Nathan Fischel, 8700 Beverly Boulevard, Suite 1165WT, Los Angeles, CA 90048**.

POSTDOCTORAL POSITION available at The Molecular Cardiology and Neuromuscular Institute to study cellular and molecular mechanisms of experimental heart failure and neuromuscular diseases. Experience in protein analysis, HPLC, signal transduction, cell culture, fluorescent microscopy, and immunocytochemistry. Experience in mitochondrial research desirable. See *Cardiovasc. Res.* **49**:17, 2001; *Mol. Cell Biochem.* **210**:47, 2000. *Must be U.S. citizen or permanent resident.* Write or e-mail to: **José Marín, M.D., Director, 75 Raritan Avenue, Highland Park, NJ 08904. E-mail: tmci@att.net**.

POSTDOCTORAL POSITIONS

To carry out site-directed mutagenesis and structural studies of serine proteases (with emphasis on thrombin, tPA, trypsin, and easter). Relevant experience in structural/computational biology or enzymology is required. Contact: **Enrico Di Cera, Department of Biochemistry and Molecular Biophysics, Washington University School of Medicine, Box 8231, St Louis, MO 63110. E-mail: enrico@biochem.wustl.edu**.

Department of Defense

Prostate Cancer Research Program

Fiscal Year 2001
Program Announcement

**** *Research Funding Available!* ****

The Fiscal Year (FY) 2001 Defense Appropriations Act provides $100M to the Department of Defense Prostate Cancer Research Program (PCRP). This program has been administered since FY97 by the U.S. Army Medical Research and Materiel Command through the Office of the Congressionally Directed Medical Research Programs (CDMRP).

FY01 PCRP Program Announcement I invites proposals through three award mechanisms: ✦ ***Idea Development Awards,*** ✦ ***New Investigator Awards,*** and ✦ ***Postdoctoral Traineeship Awards.*** The proposal receipt deadline for these mechanisms is March 21, 2001. Detailed descriptions of each award mechanism, evaluation criteria, and proposal submission requirements can be found in the FY01 PCRP Program Announcement I, which may be downloaded from the CDMRP web site.

Join us in the fight against prostate cancer

FY01 PCRP Program Announcement II invites proposals through five new award mechanisms: ✦ ***Clinical Trial Awards,*** ✦ ***Consortium Development Awards,*** ✦ ***Historically Black Colleges and Universities Collaborative Partnership Awards,*** and ✦ ***Two Health Disparity—Prostate Scholar Awards.*** The FY01 PCRP Program Announcement II is anticipated to be released in February 2001. Receipt of proposals is expected in June 2001.

Please consult the CDMRP web site for further information on the PCRP and other CDMRP programs.

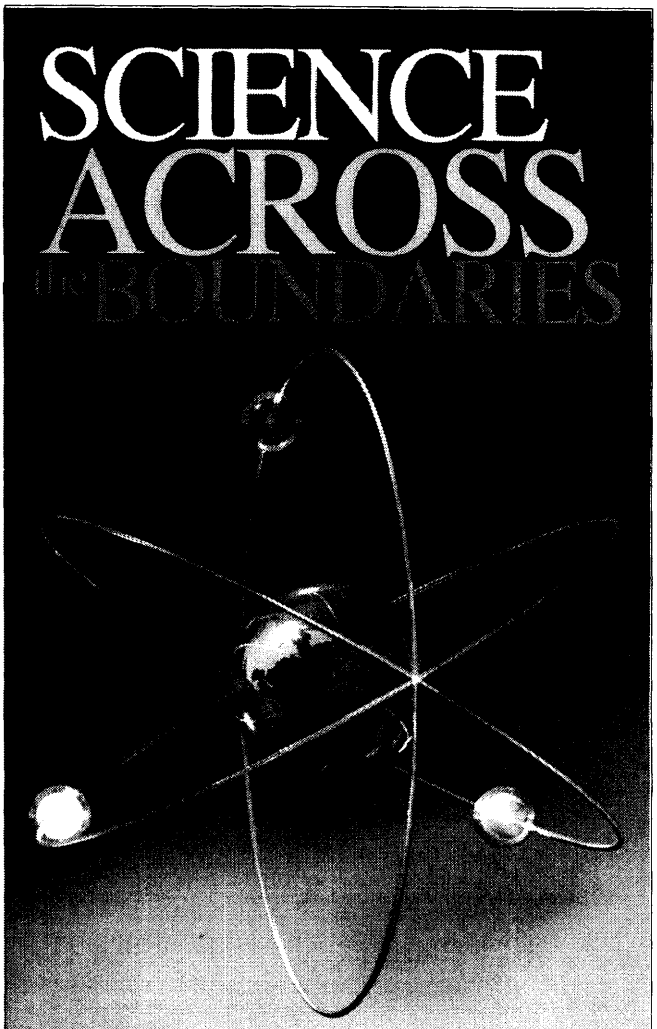
http://cdmrp.army.mil

NEDO

Pre-Announcement Regarding Entrustment of An Industrial Science and Technology Research and Development Project

The New Energy and Industrial Technology Development Organization (NEDO) will launch a new R&D project in FY2000 entitled "Development of Technological Infrastructure in Industrial Bioprocesses" based on funds provided by the Ministry of Economy, Trade and Industry (METI) of Japan. We would like to invite applications from research organizations interested in participating in the project. A public announcement calling for applications is provisionally scheduled for early February 2001, and the closing date for applications is forty (40) days thereafter. For more details (project outline, instructions for applicants, etc.), visit our web site at **http://www.nedo.go.jp** or see METI's International Bulletin which will be issued early February 2001.

Biotechnology Development Department
Fax: +81-3-3987-9396
New Energy and Industrial Technology Development Organization (NEDO)
Sunshine Building 60, 29F, 3-1-1, Higashi-Ikebukuro, Toshima-ku, Tokyo, Japan 170-6028



2001 FDA SCIENCE FORUM
February 15-16, 2001
Washington Convention Center

FDA's key scientific meeting with over 200 posters!

Open to government, industry, academia, consumers, and more!

Explore:

- Privacy and confidentiality issues
- Modeling and simulation techniques
- Leveraging and partnerships
- Laboratory accreditation

FDA Office of Science Coordination & Communication

AOAC INTERNATIONAL

For the latest meeting information visit us at:
www.fda.gov or www.aoac.org

POSITIONS OPEN

POSTDOCTORAL POSITIONS on an NIH-funded interdisciplinary training grant are available to individuals interested in intracellular signaling, gene transcription, mitogenesis, lipid metabolism, and several other biological processes involved in a variety of cardiovascular diseases. Candidates will have the opportunity to work in the laboratory of one of the 14 preceptors in the Departments of Molecular Sciences, Medicine, Pharmacology, and Physiology. Visit our **website: www.utmem.edu/pharmacology/training.html** for each preceptor's research interests. *Applicants must be U.S. citizens or permanent residents.* Candidates must have an M.D. and/or Ph.D. degree in one of the biological sciences. Send résumé and names of three references to: **Dr. Tarun B. Patel, Department of Pharmacology, University of Tennessee, The Health Science Center, 874 Union Avenue, Memphis, TN 38163. E-mail: tpatel@utmem.edu; FAX: 901-448-4828**. *UT is an Equal Employment Opportunity/Affirmative Action/Title IX/Section 504/Americans With Disabilities Act Employer. Minorities and women are strongly encouraged to apply.*

POSTDOCTORAL RESEARCH POSITIONS

Positions are available for experienced Postdoctoral Researchers in the laboratories of **Drs. D. Broccoli** and **A. Godwin** at the Fox Chase Cancer Center in Philadelphia, Pennsylvania. The research program involves the study of cell transformation and telomere dynamics. The candidates should have expertise in molecular biology. Previous experience with cDNA microarray analysis and tissue culture of mammalian cells is beneficial but not required. Candidates should be highly motivated and interested in developing an independent research project in the exciting field of cancer genetics. A highly competitive salary with full benefits is available. Applicants should send full curriculum vitae with names and addresses of three references to: **Andrew K. Godwin, Ph.D., Department of Medical Oncology, c/o Human Resources, Fox Chase Cancer Center, 7701 Burholme Avenue, Philadelphia, PA 19111. E-mail: A_Godwin@fccc.edu**. *Equal Opportunity Employer.*

POSTDOCTORAL POSITION
Breast Cancer and Mammary Development

A Postdoctoral position is available immediately to study the novel tumor-suppressing gene maspin. Research areas include studying the role of maspin in breast cancer progression and mammary development utilizing maspin knockout mice and identifying maspin functional domains for cell adhesion and motility. For more information, please visit **website: www.bcm.tmc.edu/mcb/faculty/zhang.html**. Applicants must have a Ph.D. in biology. Expertise in developmental biology or biochemistry is highly desirable. Send curriculum vitae and three references to: **Dr. Ming Zhang, Baylor College of Medicine, Department of Molecular and Cellular Biology, Houston, TX 77030. E-mail: mzhang@bcm.tmc.edu.**

POSTDOCTORAL POSITION to study the CFTR chloride channel that is implicated in cystic fibrosis and secretory diarrhea. Current projects address intermolecular and intramolecular interactions that regulate CFTR channel activity (e.g., *Science* **286:**544, 1999; *Nature* **390:**302, 1997). Ph.D. and/or M.D. required. Expertise in patch clamping or oocyte recording preferred. Contact: **Kevin L. Kirk, Ph.D., Department of Physiology and Biophysics, University of Alabama at Birmingham, 982B MCLM, Birmingham, AL 35294-0005. E-mail: kirk@physiology.uab.edu**. *The University of Alabama at Birmingham is an Affirmative Action/Equal Opportunity Employer.*

An NIH-funded **POSTDOCTORAL POSITION** to study mammalian urothelium is available immediately. Experience in membrane protein biochemistry/immuno-EM is preferred. Send curriculum vitae and references to: **Xiang-Peng Kong, Skirball Institute, NYU School of Medicine, 540 First Avenue, New York, NY 10016. E-mail: kong@saturn.med.nyu.edu; FAX: 212-263-8951.**

POSITIONS OPEN

POSTDOCTORAL POSITIONS

NIH-funded positions available from June 2001 at the University of Pittsburgh School of Medicine to study molecular and immunological mechanisms of asthma, antigen tolerance, and oxidant-induced lung injury. Studies will utilize established animal models of disease involving inducible transgenic systems and gene knockout mice and molecular approaches including microarray and proteomics (*Immunity* **11:**473, 1999; *Am. J. Phys.* **279:**L658, 2000; *Nature Immunol.* **2:**45, 2001; *J. Exp. Med.*, in press). Strong background in molecular biology and/or immunology required. Experience in animal and cell culture studies is highly desirable. Please send a brief cover letter and the names and telephone numbers of two to three references to: **Dr. Prabir Ray** or **Dr. Anuradha Ray, Department of Medicine/Pulmonary Section, Yale University School of Medicine, 333 Cedar Street, LCI 105, New Haven, CT 06520. E-mail: prabir.ray@yale.edu** and **anuradha.ray@yale.edu**.

POSTDOCTORAL POSITIONS
PHYSIOLOGY/NEUROSCIENCE AND OPHTHALMOLOGY

Postdoctoral positions are available immediately at the Medical University of South Carolina in Charleston with focus on the following projects: (1) Synaptic physiology of thalamocortical circuits (*J. Neurosci.* **18:** 10566–10578, 1998). **Dr. A. Lavin; e-mail: lavina@musc.edu**. (2) Structure and function of proteins involved in synaptic transmission (*J. Biol. Chem.* **274:**26113– 26119, 1999). **Dr. J. McLaughlin; e-mail: mclaugjt@musc.edu**. (3) Regulation and expression of neurotransmitter transporters and their relevance to drug abuse and mental disorders (*Science* **285:**763–766, 1999). **Dr. S. Ramamoorthy; e-mail: rama@musc.edu**. (4) Neurotrophins in mouse and frog retinal development, function, and pathology (*J. Neurosci.* **19:**8919–8930, 1999). **Dr. B. Rohrer; e-mail: rohrer@musc.edu**. Interested individuals should refer to appropriate Principal Investigator's name and send letter of interests, curriculum vitae, and references to: **Carol Heissenbuttle, Department of Physiology and Neuroscience, 173 Ashley Avenue, Suite 403, Charleston, SC 29425**. *MUSC is an Affirmative Action/Equal Opportunity Employer.*

ASSISTANT PROFESSOR OF NEUROSCIENCE. Oberlin College Neuroscience Program seeks applications for a one-year, noncontinuing faculty position beginning fall 2001 to teach introductory and upper-level neuroscience courses and sponsor student research. Applicants with expertise in any area of neuroscience welcome. Molecular, Developmental, and Behavioral Neuroscientists are particularly encouraged to apply. Excellent opportunity to improve one's teaching credentials at premier liberal arts college. Send letters of application; curriculum vitae; graduate academic transcripts; and three letters of reference to: **Michael Loose, Director, Neuroscience Program Search, Oberlin College, Oberlin, OH 44074** by January 31, 2001. Late applications may be accepted until position filled. *Affirmative Action/Equal Opportunity Employer.*

POSTDOCTORAL/RESEARCH ASSOCIATE POSITION to study metastasis combining molecular biological tools with computer-based imaging (*Nature Med.* **6:**100, 2000). The position is NIH funded with the expectation of a three-year commitment. Ph.D., V.M.D., or M.D. required. Please contact: **Ruth J. Muschel, M.D., Ph.D., Professor, Room 269 JMB, University of Pennsylvania, Philadelphia, PA 19104. E-mail: muschel@xrt.upenn.edu**.

POSITIONS OPEN

LABORATORY OF MOLECULAR ENDOCRINOLOGY
McGill University Health Center

POSTDOCTORAL POSITIONS are available immediately for molecular structure/function analysis of G protein-linked receptors (with focus on the oxytocin receptor), uterine signaling mechanisms, uterine gene expression patterns, and mechanisms inducing parturition. Demonstrated expertise with one or more of the following is required: GPCR structure/function analysis, GPCR signaling, genome-wide expression profiling, protein-protein interaction analysis (including FRET, BRET, etc). Please send curriculum vitae and the names and addresses of two academic references to: **Hans H. Zingg, M.D., Ph.D., Wyeth Ayerst Chair in Women's Health, Royal Victoria Hospital, 687 Pine Avenue West, Montreal, Quebec H3A 1A1 Canada. E-mail: hans.zingg@mcgill.ca**. *McGill University is committed to Equity in Employment.*

EDUCATIONAL OPPORTUNITY

POSTDOCTORAL RESEARCH ASSOCIATE position available to study regulation of gene expression by steroid hormone receptors in the female reproductive tract. Candidates should be highly motivated and have a recent Ph.D. and experience in molecular and cell biology. Send letter of application, curriculum vitae, and names and addresses of three references to: **Dr. Indrani Bagchi, University of Illinois at Urbana/Champaign, Veterinary Biosciences, 2001 South Lincoln, Urbana, IL 61802. E-mail: ibagchi@uiuc.edu; Telephone: 217-333-7986; FAX: 217-244-1652**. For full consideration, applications should be received by March 31, 2001. The position is expected to begin May 1, 2001. *The University of Illinois is an Affirmative Action/Equal Opportunity Employer.*

We are seeking a **POSTDOCTORAL FELLOW** to study virus receptor proteins (including DAF and CAR) and their roles in viral pathogenesis using human cells and mouse models.

Candidates should have a Ph.D. or M.D. degree or have completed degree requirements. Experience in molecular biology and/or biochemistry and publication of papers in the areas of receptor biochemistry and/or cell signaling required. Those interested should send curriculum vitae and names of three references by FAX or mail to:

Robert Finberg, M.D.
University of Massachusetts Medical School
Department of Medicine
55 Lake Avenue North
Room S6-824
Worcester, MA 01655

POSTDOCTORAL POSITION
HARVARD MEDICAL SCHOOL

Position available to study cell death mechanisms and functional genomics in neurodegenerative diseases and aging. Projects focus on genes that cause Alzheimer's and Parkinson's disease and mechanisms of normal brain aging. For reference, see *PNAS* **96:**6959, 1999; *Nature* **395:**698, 1998; *Neuron* **16:** 921, 1996. Experience in molecular and cell biology is required. Send curriculum vitae, a brief description of research experience, and names of three references to: **Dr. Bruce Yankner, Children's Hospital, Enders 260, 300 Longwood Avenue, Boston, MA 02115. FAX: 617-738-1542**. *An Equal Opportunity Employer.*

HUNTINGTON'S DISEASE

POSTDOCTORAL POSITION to study cell/molecular aspects of Huntington's disease. Available at once. Requires experience in molecular cloning and *U.S. citizenship or permanent residency.* Contact: **Dr. A. Tartakoff, Pathology Department and Cell Biology Program, Case Western Reserve University, Cleveland, OH. E-mail: amt10@po.cwru.edu.**

NEDO

Announcement Regarding Entrustment of an Industrial Science and Technology Research and Development Project

The New Energy and Industrial Technology Development Organization (NEDO) is planning to launch a new research and development project in FY 2000 based on funds provided by the Ministry of Economy, International Trade and Industry (METI) of Japan. The name of this new research and development project is "High-Performance Glass Technology for Tera Bit Scale Optical Storage System."

NEDO is planning to invite applications from organizations interested in participating in the above project. It is planned that a public announcement calling for applications will be made by February 6, 2001. Details regarding application procedures, project outline and the date and place of the explanatory meetings will be posted on NEDO's homepage (http://www.nedo.go.jp) and announced in Keizai Sangyo Koho by February 6, 2001.

Key Technology Development Department
Fax: 81-3-3987-9394
New Energy and Industrial Technology Development Organization (NEDO)
Sunshine Building 60 29F 3-1-1, Higashi-Ikebukuro, Toshima-ku, Tokyo, Japan

SCIENCE-RESEARCH SCHOLARSHIP AVAILABLE

Opportunities for Outstanding Students

NATIONAL INSTITUTES OF HEALTH
Undergraduate Scholarship Program

Qualified undergraduates can train and be mentored at the cutting edge of biomedical research while receiving scholarship support.

NIH is dedicated to building a diverse community in its training and employment programs.

The UGSP is sponsored by the National Institutes of Health (NIH), the Federal Government's premier biomedical research and research training agency. NIH offers scholarships to qualified students who are committed to a career in biomedical research.

Scholarships of up to $20,000 per year support tuition, educational, and qualified living expenses (room, board, transportation) while students pursue an undergraduate degree.

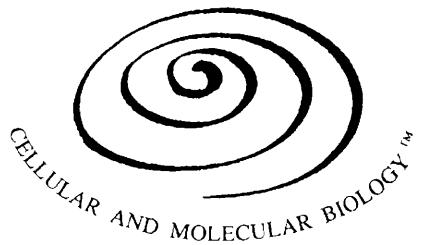
For each award year, scholars work 10 weeks with salary/benefits in our research laboratories in Bethesda, Maryland. They are assigned mentors, participate in developmental and science enrichment seminars, and are provided with housing and transportation. After graduation, they work 1 year of full-time employment at NIH for each year of scholarship award.

THIS IS A SPECIAL OPPORTUNITY FOR SPECIAL STUDENTS!

Advise students to apply if they:

- Are committed to a career in biomedical research;
- Are from a disadvantaged background;
- Have a GPA of at least 3.5 or are in the top 5 percent of their class;
- Are a U.S. citizen, national, or permanent resident;
- Are enrolled or accepted for enrollment as a full-time student at a qualified accredited institution.

For more information, contact the UGSP at:
http://ugsp.info.nih.gov ▪ E-mail: ugsp@nih.gov
Phone: 1-800-528-7689 ▪ TTY: 1-888-352-3001



CELLULAR & MOLECULAR BIOLOGY™

is a **Journal** and a **World-Society**, supported by
FORTEEN NOBEL PRIZE WINNERS
TWELVE Laureates had accepted our Invitation
EIGHT of them participated ACTIVELY
to our 3rd CMB World-Congress in Jena (Germany)
The journal publishes now in the year 2001
Volume 47
New Editor-in-Chief: Professor K.-J. Halbhuber, Germany

1/ TWO TYPES OF PUBLICATIONS

- **The traditional printed journal: ISSN 0145-5680**
  Devoted exclusively to Themes
  For solicited papers, original and reviews
  Under the direction of a Guest Editor
  8 issues with 1200 to 1400 pages /year
  Interesting Themes are welcome !
- **An online publication: ISSN 1165-158X**
  Devoted to regular papers, short communications, ...
  Ultra rapid publication

2/ PEER REVIEWING

Both types are **severely Peer Reviewed**
But the author has to select himself his Peer Reviewers
Traditionally two: One from USA & One from another country
But **none** from his own university or institution

3/ SELECTION of DOCUMENTS

Visit our web site: www.cmb-ass.com
For Instructions to Authors, Checklist, and
Other documents needed for writing a paper
As well for online as for printed publication

4/ INSTITUTIONAL SUBSCRIPTIONS (calender year)

1/ The printed CMB (*themes*): 627 US$ /year
It includes free access online CMB for the year 2001
2/ The online CMB only (*regular papers*): 242 US$ /year

5/ AUTHORS PRIVILEDGE (for online papers)

Each online published paper receives a DOI number,
Costs for Authors: 200 US$ the 1st paper in a year
a 2d paper in the same year: 150 US$
It gives one year access to CMB online (from date to date)
It includes one year membership to the World-Society
Gives reduced prices for CMB-Society activities
Unlimited free colour figures, and reprints (PDF)

6/ THE WEB SITE

The web site presents, with free access:
The TOCS and summaries of all papers of the year
All documents needed for publishing a paper
Book titles with their reviews
The news of the CMB World-Society:
congresses, meetings, other activities...

7/ ADDRESS

CMB-Association
1b, Avenue du Pavé Neuf
F-93160 Noisy-le-Grand
France

tel: +33 (0)1 45 92 37 19
fax: +33 (0)1 43 04 20 30
e-mail: journal@cmb-ass.com
web: www.cmb-ass.com

POSITIONS OPEN

POSTDOCTORAL POSITIONS INSECT MOLECULAR GENETICS

Two Postdoctoral positions are available immediate to study insect transposable elements and to develop enhancer-trapping technology for mosquitoes. The laboratory investigates the basic biology of insect *hAT* transposable elements and applies this information to the development of insect transformation technologies. Enhancer-trapping technology is being developed for *Aedes aegypti* and will be used to identify and isolate genes involved in host/parasite interactions. Highly motivated individuals with technical skills in molecular genetics, genetics, insect vector biology, and/or entomology are encouraged to apply. Send curriculum vitae, a statement of research interests and skills, and three letter of reference to: **Research Associate (R3-137/R3-206), Center for Agricultural Biotechnology, University of Maryland Biotechnology Institute, 5115 Plant Sciences Building, College Park, MD 20742-4450**. Consideration of applications will begin February 5, 2001, and continue until the position is filled. Additional information available at **website: www.umbi.umd.edu/jobs**. *The University System of Maryland is an Equal Opportunity/Affirmative Action Employer.*

POSTDOCTORAL FELLOWSHIPS AT COLUMBIA UNIVERSITY

Two two-year Fellowships are available in the Center for Molecular Cardiology at Columbia University College of Physicians and Surgeons. Ongoing studies focus on calcium channels and excitation-contraction coupling, molecular triggers of fatal cardiac arrhythmias, kinase and phosphatase regulation of ion channel function, cell cycle regulation, and p27. Background in molecular biology, physiology, biophysics, or structural biology is preferred. M.D. and Ph.D. candidates are invited to apply for these positions funded with support from an award from the Doris Duke Charitable Foundation. Please forward curriculum vitae and three letters of reference to: **Andrew R. Marks, M.D., Director, Center for Molecular Cardiology, Columbia University College of Physicians and Surgeons, 630 West 168th Street, New York, NY 10032. E-mail: arm42@columbia.edu**. *Columbia University is an Affirmative Action/Equal Opportunity Employer committed to diversity in hiring.*

TWO POSTDOCTORAL POSITIONS

The University of Rochester School of Medicine and Dentistry is seeking two Postdoctoral Fellows. The first position involves investigating the role of B lymphocytes and prostaglandins in cancer and immunity. The ideal candidate will have expertise in immunology and cell and molecular biology. The second position will pursue fibroblast activation by cytokines and immune cells in lung inflammation and fibrosis. Expertise with signal transduction or cell and molecular biology is desired. The positions are available immediately. Support for these positions is derived from NIH, private foundation, and industry; they are for a minimum of two years. Send cover letter, curriulum vitae, and names/addresses of three references to: **Dr. Richard P. Phipps, University of Rochester Cancer Center, Box 704, 601 Elmwood Avenue, Rochester, NY 14642. E-mail: richard_phipps@urmc.rochester.edu**. *Affirmative Action/Equal Opportunity Employer.*

POSTDOCTORAL POSITION (Massachusetts General Hospital, Harvard Medical School) to examine transcriptional mechanisms governing intestinal epithelial differentiation. The research will focus on specific transcription factors as well as the role that histone proteins (chromatin) play in regard to gut differentiation in both normal and diseased conditions. Molecular biology experience is required. Please send curriculum vitae and two references to: **Richard Hodin, M.D., Department of Surgery, 330 Brookline Avenue, Boston, MA 02215. E-mail: rhodin@caregroup.harvard.edu**. *The Massachusetts General Hospital is an Equal Opportunity/Affirmative Action Employer.*

POSITIONS OPEN

GEORGIA INSTITUTE OF TECHNOLOGY
School of Biology

A **POSTDOCTORAL POSITION** is available immediately to work on developing algorithms of DNA and protein sequence interpretation, particularly on gene-finding algorithms using Markov and Hidden Markov models of DNA and protein sequence and structure (**website: http://dixie.biology.gatech.edu/**). Our research group is affiliated with Georgia Tech's Petit Institute for Bioengineering and Bioscience.

Strong preference wll be given to candidates who have already published their works in bioinformatics and those who were awarded at least partial financial support for postdoctoral studies. Applicants must be within three years of being awarded a Ph.D.

Please respond with curriculum vitae and contact information for two references to: **Professor Mark Borodovsky, School of Biology, Georgia Institute of Technology, Atlanta, GA 30332-0230. E-mail: mark@amber.gatech.edu**.

POSTDOCTORAL POSITIONS DEPARTMENT OF OPHTHALMOLOGY JONES EYE INSTITUTE
University of Arkansas for Medical Sciences

Two Postdoctoral positions in viral pathogenesis are available in ongoing NIH-funded projects, one to study HSV−1 neurovirulence and latency and the other to study CMV retinitis. Strong background in molecular virology and/or immunology required. *Applicants must be U.S. citizens to be eligible for funding.* Please submit curriculum vitae and names of three references to: **Dr. Richard D. Dix, Department of Ophthalmology, University of Arkansas for Medical Sciences, 4301 West Markham, Mail Slot 523, Little Rock, AR 72205-7199. E-mail: dixrichardd@uams.edu**.

POSTDOCTORAL RESEARCH POSITION available to study the mechanism of antibody class switch recombination. Possible topics for research are the role of mismatch repair in class switching or the identification of genes specifically expressed in B cells capable of undergoing switch recombination. Apply to: **Dr. Janet Stavnezer, Department of Molecular Genetics and Microbiology, University of Massachusetts Medical School, Worcester, MA 01655-0122. E-mail: Janet.Stavnezer@umassmed.edu**. See **website: www.umassmed.edu/mgm/faculty/stavnezer.cfm**.

POSTDOCTORAL POSITIONS, Harvard Medical School, are available to study glutamate transporters in the brain. We are interested in their role in the physiology of excitable synapses and in the pathogenesis of neurodegenerative diseases. Highly motivated candidates with substantial experience in molecular neurobiology are expecially encouraged to apply. Send curriculum vitae to: **Dr. Paul Rosenberg, Department of Neurology, Children's Hospital, 300 Longwood Avenue, Boston, MA 02115. E-mail: paul.rosenberg@tch.harvard.edu**.

Two **POSTDOCTORAL RESEARCH FELLOWSHIPS** available for (1) studies on bone cell regulatory proteins. Experience in protein purification, basic biochemistry, molecular biology techniques, and signal transduction mechanisms desirable. Ph.D. with two to three years of previous postdoctoral experience desirable. (2) Studies on signal transduction mechanisms in bone cells. Experience in signal transduction studies and cell and molecular biology essential. *Both positions open to U.S. citizens and permanent residents only due to NRSA grant.* Salary and benefits competitive; possibility exists for long-term positions. Send résumé, cover letter, and names of three references to: **Ms. Gonzalez, P.O. Box 7210, Loma Linda, CA 92354**.

POSITIONS OPEN

POSTDOCTORAL FELLOWSHIP DEPARTMENT OF PSYCHOLOGY
University of Pittsburgh

A Postdoctoral position is available immediately to study the neuropsychopharmacology of nicotine. NIDA-funded projects include research on the neural, endocrine immunological, and behavioral consequences of self-administered and noncontingently administered nicotine and the development of tolerance and sensitization to those effects in rats. Emphasis is placed on the role of learning and drug-related environmental cues in nicotine reinforcement and on its neural substrates. Other studies examine gender differences in nicotine reinforcement in both rats and humans. Collaborating laboratories are in the Departments of Psychology, Psychiatry, Neuroscience, and the University of Pittsburgh Cancer Institute. Interested candidates should send curriculum vitae, a brief statement of research interests, and the names of three references to: **Dr. Anthony Caggiula, Department of Psychology, 455 Langley Hall, University of Pittsburgh, Pittsburgh, PA 15260**. *The University of Pittsburgh is an Affirmative Action/Equal Opportunity Employer. Women and members of underrepresented minority groups are especially encouraged to apply.*

The Department of Molecular Cardiology in the Lerner Research Institute of the Cleveland Clinic Foundation seeks a **POSTDOCTORAL FELLOW** (M.D. or Ph.D.) with experience in cell and molecular biology to study the molecular mechanism of angiogenesis, cell migration, and intracellular signaling. Qualified applicants should send curriculum vitae including contact information of three references to: **Dr. Tatiana Byzova, Department of Molecular Cardiology, The Cleveland Clinic Foundation, 9500 Euclid Avenue/NB50, Cleveland, OH 44195. E-mail: byzovat@ccf.org**. *The Cleveland Clinic is an Equal Opportunity/Affirmative Action Employer.*

SYMPOSIUMS

RECENT ADVANCES IN ALZEHEIMER'S DISEASE RESEARCH
Sponsored by Alzheimer's Disease Research, a Program of the American Health Assistance Foundation

A one-day symposium covering early disease/mild cognitive impairment, disease genetics, and the role of disease-associated genes in neuronal function plus present and future directions for therapeutic approaches. Speakers include some of the leading Alzheimer's researchers in the world.

Friday, March 9, 2001
San Mateo Marriott
San Mateo, California

RHIZOSPHERE CONTROL POINTS: MOLECULES TO FOOD WEBS

A symposium for Scientists interested in using mathematical, molecular, and organismic tools to understand below-ground ecosystems. University of California, Davis; June 1−3, 2001. Organizers: **D.A. Phillips, D.R. Strong**. Details at **website: http://agronomy.ucdavis.edu/ucd-rbp/**. Student travel awards are available.

ANNOUNCEMENTS

OTS

ATTENTION OTS COURSE ALUMNI

The Organization for Tropical Studies (OTS) is conducting a comprehensive review of its Graduate Education Program, 1963−2001. Please help us to evaluate our program and to chart our course for the future by completing the English or Spanish alumni survey found on the OTS **website: http://www.ots.duke.edu/**.

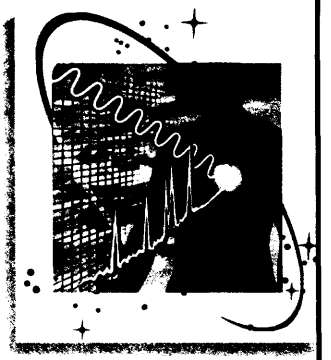
NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
NATIONAL CANCER INSTITUTE

Fundamental Technologies For the Development of Biomolecular Sensors

NASA and NCI are jointly seeking innovations in fundamental technologies that will support the development of minimally invasive biomolecular sensor systems that can measure, analyze, and manipulate molecular processes in the living body.

Specific areas of interest include novel:

- molecular recognition chemistries, materials, chemical composites, nanoparticles, nanostructures, agents, and devices suitable for *in vivo* use.
- strategies for *in vivo* signal generation and amplification.
- dynamic signal acquisition systems and instrumentation suitable for non-invasive, dynamic signal acquisition from deep tissues and systems of reduced scale suitable for manned space missions.
- tools for feature definition, extraction, and processing including computational and mathematical approaches.
- approaches and multifunctional, miniature, technology platforms to create an interface between *in vivo* detection and targeted intervention, including nanostructures/devices and novel materials and composites.



Proposals are encouraged from investigators from a variety of disciplines including, but not limited to, nanotechnology, chemistry, materials science, physics, engineering, biomedical research, and computational sciences; particularly as multidisciplinary teams.

For complete information on this Broad Agency Announcement visit:
http://rcb.nci.nih.gov/appl/rfp/17016/Table%20of%20Contents.htm

Or request information by phone at **301.496.8620**

ANNOUNCEMENTS

GRANTS

NEUROSCIENCE

THE EJLB FOUNDATION

SCHOLAR RESEARCH PROGRAMME

The EJLB Foundation awards each year up to seven (7) grants for research projects in all areas of neuroscience that pertain directly or indirectly to schizophrenia and mental illness. Specific areas of support in the past have included: developmental neurobiology, synaptic mechanisms, systems and cognitive neuroscience, and clinical studies on the genetic and physiopathologic aspects of neurological and psychiatric disorders.

Eligibility for such grants is restricted to young scientists who are pursuing an independent research career and have given evidence of having significant potential. It is also a requirement that these scientists (i) have earned an MD and/or a Ph.D. degree; (ii) have completed their post-graduate training; and (iii) have been admitted after **June 15, 1996** as faculty members of a leading university, or an affiliated non-profit research centre, in Canada or elsewhere in the world.

Each grant is of CAN$300,000, is disbursed over three (3) years and is non-renewable.

The next closing date for receipt of letters of intent is **May 1, 2001**.

Full details regarding this programme and required letter of intent forms may be obtained from:

The EJLB Foundation
1350 Sherbrooke Street West Suite 1050
Montréal QC H3G1J1
Canada

Fax: (514) 843-4080
Website: www.ejlb.qc.ca

CONFERENCES

NEW YORK ACADEMY OF SCIENCES CONFERENCES

International Conference on the West Nile Virus

- April 5-7, 2001
- White Plains, New York

Organizers: Dennis J. White and Dale L. Morse

A review and update of the state of knowledge on arboviruses in general and the West Nile Virus, in particular. Individuals and agencies working on the detection, surveillance, control, treatment, management and other aspects of the WNV will discuss their findings from the Summer of 2000 and earlier.

Alcohol and Wine in Health and Disease

- April 26-29, 2001
- Palo Alto, California

Organizers: Dipak K. Das and Fulvio Ursini

In recent years, the possible beneficial role of mild-to-moderate alcohol consumption in the prevention of heart disease has gained attention in the media and in the scientific community. This conference will provide a forum to discuss information regarding the potential cardioprotective effect of wine and alcohol consumption, including the mechanisms of such effects, and the health risks associated with excessive alcohol intake.

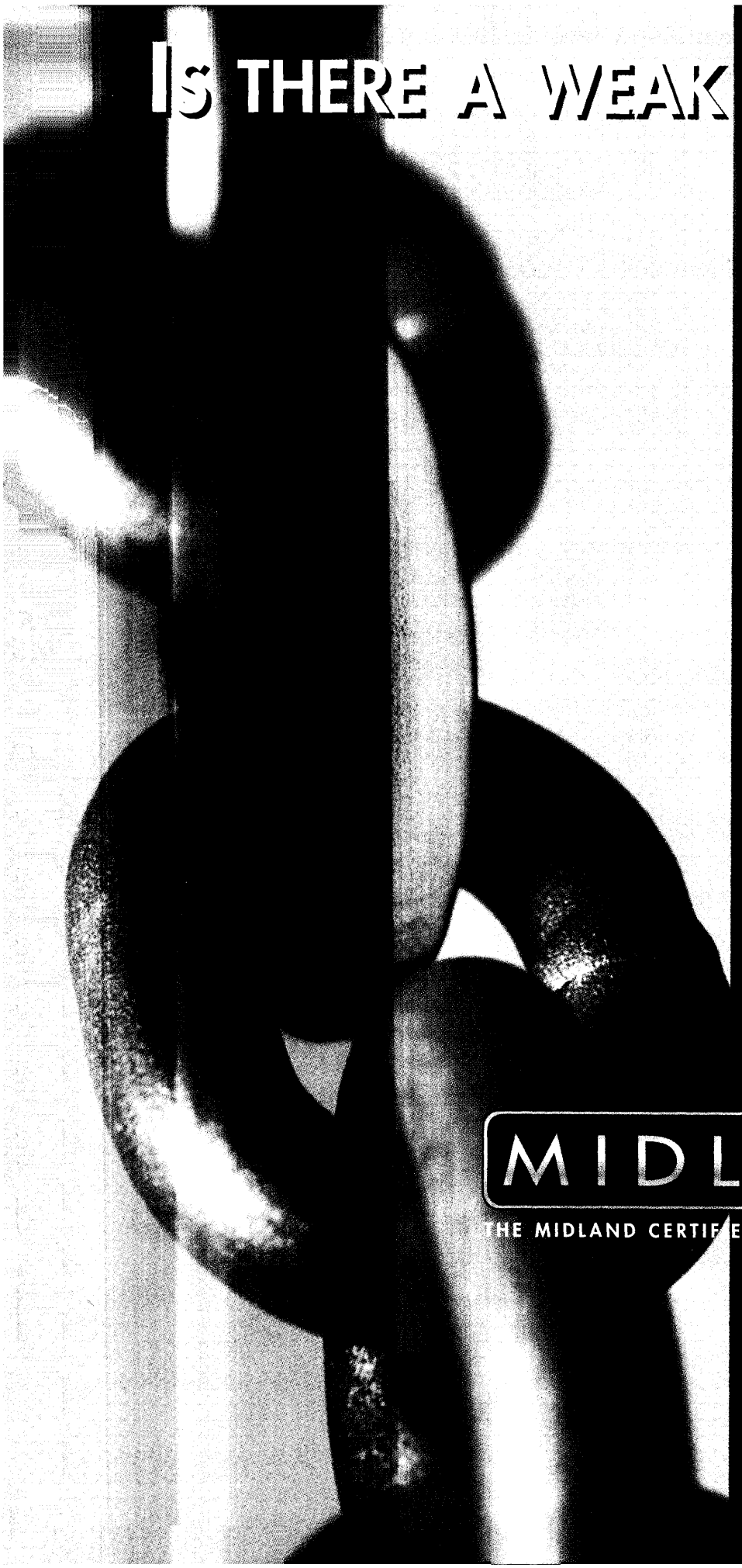
Both conferences will include poster sessions.

TO RECEIVE PROGRAM AND REGISTRATION DETAILS CONTACT:

New York Academy of Sciences

Science and Technology Meetings
NEW YORK ACADEMY OF SCIENCES
2 East 63rd Street
New York, New York 10021
Tel: 212.838.0230, ext. 324
Fax: 212.838.5640
E-mail: conference@nyas.org
Website: http://www.nyas.org

MARKETPLACE



IS THERE A WEAK LINK IN YOUR EXPERIMENT?

STRENGTHEN YOUR RESULTS WITH OUR PRODUCTS AND SERVICES.

Custom Oligonucleotide Services

- Since 1978 Midland has been a leading supplier of synthetic oligonucleotides. We offer a full range of synthesis scales to suit your budget with hundreds of modifications available.

Dual-labeled Fluorescent Probes

- High throughput synthesis
- FAM/TAM probes for today's real-time analyses
- Wide selection of fluorophores and quenchers is available for multiplexing
- Complete Molecular Beacons synthesis and services available

Gene Construction & Custom Mutagenesis

- From gene construction and DNA sequencing to mutagenesis and custom molecular cloning—we have everything you need. Our success rate is 100%!

DNA Sequencing

- When you need quick and accurate results, our automated sequencing services will deliver long reads—up to 1,000 BP—99% accuracy!

MALDI-TOF QC Analytical Services

- Call us for independent mass verification of modified oligonucleotides and other biological molecules.

MIDLAND

THE MIDLAND CERTIFIED REAGENT COMPANY

Midland's Services Speak for Themselves. Let's Talk . . .

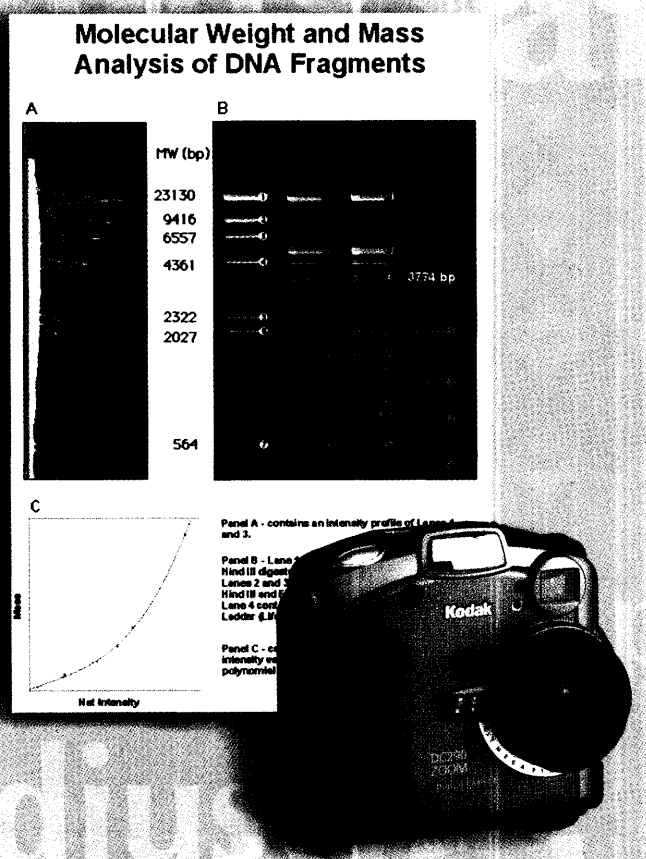
Circle No. 44 on Readers' Service Card

THE MIDLAND CERTIFIED REAGENT CO.
1-800-247-8766
3112-A W. Cuthbert Ave. • Midland, Texas 79701
Order online at: www.mcrc.com

CLEARLY SUPERIOR.

The New KODAK EDAS 290 Gel Imaging System makes instant film a thing of the past!

- Eliminate film cost and waste.
- Faster, more accurate analysis.
- Easier publication and printing.



Benefit immediately from the KODAK Electrophoresis Documentation and Analysis System (EDAS) 290's 2.1 mega pixel resolution, comprehensive analysis and publishing software and fast, versatile workflow.

You'll be amazed at the improvement in the quality and convenience of your results.

For furter details on the features and benefits of EDAS 290, visit www.kodak.com/go/edas290h.

For pricing and ordering information, contact us at 1•877•SIS•HELP, express code 12 (US and Canada only) or 1•203•786•5657 (outside the US)

CLEARLY KODAK

SCIENTIFIC IMAGING SYSTEMS

Circle No. 16 on Readers' Service Card