

Vol. 291 No. 5502 Pages 197–384 \$9

Paleontology in China

AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE



Introducing the Mx4000[™] Multiplex Quantitative PCR System designed especially for multiplex QPCR!



Quantitation of up to 4 gene targets in a single tube gives you more stringent controls, increases throughput and decreases reagent costs

STRATAGENE USA and CANADA ORDER: (800) 424-5444 x3 TECHNICAL SERVICES: 800-894-1304

STRATAGENE EUROPE Belgium, Germany, The Netherlands, Switzerland, United Kingdom Europan 101/Free Numbers ORDER: 00800 7000 7000 TECHNICAL SERVICES: 00800 7400 7400 Austria 0800 312 526 France 00800 7000 7000 or 0800-100391 INTERNET eMAIL: Iechservices@stratagene.com WEBSITE: www.stratagene.com The Mx4000[™] system performs effortless multiplex detection of up to four dyes in a single tube, while controlling variability, increasing throughput and reducing reagent costs!

This high-quality multiplexing is a result of the Mx4000 system's wide excitation and detection ranges plus optimized filter sets.



- Excitation Range: 350-750 nm
- Emission Range: 350-830 nm
- Multiplexing with up to 4 dyes



For more information. visit our website www.stratagene.com Circle No. 66 on Readers' Service Card



with BL21 Star^m Competent Cells. Get a bumper crop of protein



Harvest more protein than ever before in your expres-

Watch your yield grow. mRNA degradation RNA polymerase-based expression system. You'll get the highest protein yield from a T7 sion experiments. Using BL21 Star^a E. coli as your host,

is more mRNA for translation and higher protein yield. problem with a unique RNase deficiency. The result expression system. BL21 Star[™] eliminates this T and in blaiv wol to asues of low yield in the

нгиабодный лаэндааг црад ценн

187 6675 05(0) 18

667 6675 05(0) 18+ 191

2312 roa .0.9

puenadiaN ad

910 HO #026

iaho

шоэльболылыг

Fax: 1-760-602-6500 Enail: tech-services invitrogen.com

Tel: 1 760 603 7200 Tel: 1 760 603 7200

80059 6imotile.) (bedshe.)

menpheaH safet2 batinU

ounovA yabarat 008

sults. For more information or peonpul : | peonpuiu/) : r BL21 Star Start enjoying larger-than-life reprotein from your experiment.

Expression of 8-gal

0987 0987 00800 redmun x63

European Toll Free Numbers:

Circle No. 12 on Readers' Service Card

Order line 00800 5456 5456 Technical support 00800 5455 5345

1961 85 20 uedet 1910 03 28 1921 1111 **485 20** 984 111 121 482 60 brielni 222 S88 008 1 6ileuz sionausia

to order call Invitrogen today.

шоэгцаболидигммм ганядал All other countries, see our

£££0 627 160 ni6q2 807 524 145 820 breio9 807 524 120 leputro9

KOLEY 05 3421 6500

052 152 080 newist

living science

"nəportivni 🛃

Reap a bumper crop of expression with

deficient to guarantee the highest quality

format. In addition, these cells are protease

are available in the high-efficiency, single-use One Shot[®]



Volume 291 12 January 2001 Number 5502 203 **SCIENCE ONLINE**

EDITORIAL

K. Prewitt

An Update

205

209

THIS WEEK IN SCIENCE

U.S. Census 2000:

215

211

NETWATCH 218

CONTACT SCIENCE

EDITORS' CHOICE

329 **NEW PRODUCTS**

NEWS

	NEWS OF THE WEEK	229	PALEONTOLOGY: Mammoth Hunters Put	
222	U.S. SCIENCE POLICY: New Faces Please and Puzzle Researchers	230	Hopes on Ice PALEOANTHROPOLOGY: Oldest Human DN Reveals Aussie Oddity ▼ Skull Study Targets Africa-Only Origins 293	
222	SOLAR, PLANETARY STUDIES: Two Fields Prepare to Take the Long View			
223	HUMAN GENOME: NIH Considers Paying to Use Private Database		News Focus	
			PALEONTOLOGY IN CHINA	
225	PALEONTOLOGY: New Fossil Fills Gap in Bird Evolution	232	THE FOSSILS: Exquisite Chinese Fossils Add New Pages to Book of Life	
225	SCIENCESCOPE		A Peek at China's Paleontological Bounty	
226 309	TRANSGENIC ANIMALS: Infant Monkey Carries Jellyfish Gene	237	PLAYERS: Research Kicks Into High Gear After a Long, Uphill Struggle	
226	CIRCADIAN RHYTHMS: Mutant Gene Speeds Up the Human Clock	239	PROBLEMS: Internal Fights, Looting Hinder Work in the Field	
227 297	FISHERIES SCIENCE: Ear Bones Reveal Homing Tendencies	241	PARTNERS: Fruitful Collaborations Follow a Two-Way Street	
229	AIDS RESEARCH: HIV Inhibitor Blocks Virus From Cell	243	RANDOM SAMPLES	

SCIENCE'S COMPASS

251 LETTERS

Evolution of Sockeye Salmon Ecotypes R. G. Gustafson, R. Waples, S. T. Kalinowski, G. A. Winans. Response A. P. Hendry, J. K. Wenburg, P. Bentzen, E. Volk, T. P. Quinn. Selfish DNA and the Origin of Genes D. S. Dwyer. Response H. Ogata, S. Audic, J.-M. Claverie. Scientific Whaling W. Aron. Tenured Faculty on Soft Money E. L. Kean. No Error in Vote Counts---in Principle **v** 263 C. D. Thron; V. Crespi. Corrections and Clarifications 285

POLICY FORUM

255 **DISASTERS: Volcano Fatalities—Lessons** from the Historical Record T. Simkin, L. Siebert, R. Blong

BOOKS ET AL.

- 257 HISTORY OF SCIENCE: The Nuclear Muse Literature, Physics, and the First Atomic Bombs J. Canaday, reviewed by G. Benford
- 258 **PUBLIC HEALTH:** Betrayal of Trust The Collapse of Global Public Health L. Garrett, reviewed by R. E. Shope

PERSPECTIVES

259 PARTICLE PHYSICS: The Search for the Higgs Boson M. Riordan, P. C. Rowson, S. L. Wu

- **¥ 260** 312 **NEUROSCIENCE:** Seeking Categories in the Brain S. J. Thorpe and M. Fabre-Thorpe
 - **MOLECULAR METALS: Staying Neutral for a** Change P. Cassoux
- **▼ 264** 300 **ECOLOGY: Bird Navigation—Computing** Orthodromes R. Wehner

REVIEW

266

BIOPHYSICS: Electron Spin Resonance in Studies of Membranes and Proteins P. P. Borbat, A. J. Costa-Filho, K. A. Earle, J. K. Moscicki, J. H. Freed

259

Hunting an elusive particle



Look homeward. weakfish



RESEARCH

REPORTS

- 277 Fluid Control in Multichannel Structures by Electrocapillary Pressure M.W. J. Prins, W. J. J. Welters, J. W. Weekamp
- **Proximity-Induced Superconductivity in** 280 DNA A. Yu. Kasumov, M. Kociak, S. Guéron, B. Reulet, V. T. Volkov, D. V. Klinov, H. Bouchiat
- **Resonant Electron Scattering by Defects** 283 in Single-Walled Carbon Nanotubes M. Bockrath, W. Liang, D. Bozovic, J. H. Hafner, C. M. Lieber, M. Tinkham, H. Park
- 285 A Three-Dimensional 263 Synthetic Metallic **Crystal Composed** of Single-Component Molecules H. Tanaka, Y. Okano, H. Kobayashi, W. Suzuki, A. Kobayashi
- 288 String Tension and Stability of Magic Tip-**Suspended Nanowires** E. Tosatti, S. Prestipino, S. Kostlmeier, A. Dal Corso, F. D. Di Tolla
- 290 **Orbital Forcing of the Marine Isotope** Stage 9 Interglacial C. H. Stirling, T. M. Esat, K. Lambeck, M. T. McCulloch, S. G. Blake, D.-C. Lee, A. N. Halliday
- **v** 293 Modern Human Ancestry at the 231 **Peripheries: A Test of the Replacement** Theory M. H. Wolpoff, J. Hawks, D. W. Frayer, K. Hunley

v 297 Natal Homing in a Marine Fish Metapopulation S. R. Thorrold, C. Latkoczy, P. K. Swart, C. M. Jones

- **7 300** 264 **Migration Along Orthodromic Sun Compass Routes by Arctic Birds** T. Alerstam, G. A. Gudmundsson, M. Green, A. Hedenström
 - 303 A Ribonucleotide Reductase Homolog of Cytomegalovirus and Endothelial Cell Tropism W. Brune, C. Ménard, J. Heesemann, U. H. Koszinowski
 - A Role for Flavin Monooxygenase-Like Enzymes in Auxin Biosynthesis Y. Zhao, S. K. Christensen, C. Fankhauser, J. R. Cashman, J. D. Cohen, D. Weigel, J. Chory

285

A one-component molecular metal

- **Transgenic Monkeys Produced by Retroviral Gene Transfer into Mature** Oocytes A.W.S. Chan, K.Y. Chong, C. Martinovich, C. Simerly, G. Schatten
- **312 Categorical Representation of Visual** Stimuli in the Primate Prefrontal Cortex D. J. Freedman, M. Riesenhuber, T. Poggio, E. K. Miller
 - 316 Role of ER Export Signals in Controlling Surface Potassium Channel Numbers D. Ma, N. Zerangue, Y.-F. Lin, A. Collins, M. Yu, Y. N. Jan, L.Y. Jan
 - 319 Autoimmune Dilated Cardiomyopathy in PD-1 Receptor–Deficient Mice H. Nishimura, T. Okazaki, Y. Tanaka, K. Nakatani, M. Hara, A. Matsumori, S. Sasayama, A. Mizoguchi, H. Hiai, N. Minato, T. Honjo





This dinosaur, most likely a stegosaur, was excavated last year from Early Cretaceous rocks in the Urho region of Xinjiang in northwestern China by paleontologists from the Natural History Museum of Los Angeles County and the National Geological Museum of China. Many joint teams are eagerly digging for fossils in China, which has become perhaps the hottest area in the world to prospect. An overview of recent discoveries—as well as stories about opportunities and problems facing paleontologists in China-begins on page 232. [Photo: Luis Chiappe]



309 Producing a transgenic monkey



312

dogs

Separating the cats from the

> SCIENCE (ISSN 0036-8075) is published weekly on Friday, except the last week in December, by the American Association for the Advancement of Science, 1200 New York Avenue, NW, Washington, DC 20005. Periodicals Mail postage (publication No. 484460) paid at Washington, DC, and additional mailing offices. Copyright © 2001 by the American Association for the Advancement of Science. The title SCIENCE is a registered trademark of the AAAS. Domestic individual membership and subscription (51 issues): \$115 (\$64 allocated to subscription). Domestic institutional subscription (51 issues): \$370; Foreign postage extra: Mexico, Caribbean (surface mail) \$55; other countries (air assist delivery) \$87. First class, air-mail, student, and emeritus rates on request. Canadian rates with GST available upon request, GST #1254 88122. Publications Mail Agreement Number 1069624. Printed in the U.S.A. Change of address: allow 4 weeks, giving old and new addresses and 8-digit account number. Postmaster: Send change of address to Science, P.O. Box 1811, Danbury, CT Change of address, alow heeks, going out and new addresses and oblight decign monthly for any of the second monthly of address and oblight decign address addre

v 309 226

260

306

227

Provide ultimate sectority when working at molecular level. And with 50 mass dedication to supplying customers with the number one choice in radiochemicals, we've never been more serious about the business.

Today, we offer you more than just a truly comprehensive range of quality products. Ordering is simple and our fast and reliable worldwide delivery service means you get what you want, when you want it.

When you need to know more about specific applications, you can call for expert technical support from our dedicated radiochemical specialists. And we go even further: our specialists can provide training programmes and additional customised support for RPOs and RSOs.

Whatever it takes. If you can think of a way of making a great service even better, then let us know. You bet we're serious about this business. For more information, visit: www.apbiotech/radiochemicals

A tradition of excellence in Radiochemicali



Science online

www.scienceonline.org

science magazine www.sciencemag.org

SCIENCE EXPRESS

www.sciencexpress.org

Room Temperature Ferromagnetism in Transparent Transition Metal-Doped Titanium Dioxide Y. Matsumoto, M. Murakami, T. Shono, T. Hasegawa, T. Fukumura, M. Kawasaki, P. Ahmet, T. Chikyow, S. Koshihara, H. Koinuma

PERSPECTIVE: Toward Functional Spintronics H. Ohno

Preparing transparent ferromagnetic semiconductors for room temperature operation.

An hPer2 Phosphorylation Site Mutation in Familial Advanced Sleep–Phase

🛪 Syndrome K. L. Toh, C. R. Jones, Y. He, E. J. Eide, W. A. Hinz, D. M. Virshup, L. J. Ptáček, Y.-H. Fu 226 Š A family of early risers has a mutation in a circadian clock gene.

▼ Protein Design of an HIV-1 Entry Inhibitor M. J. Root, M. S. Kay, P. S. Kim 229 A designed protein 5-Helix targets the COOH-terminal region of the goal

A designed protein, 5-Helix, targets the COOH-terminal region of the gp41 ectodomain and inhibits viral entry.

TECHNICAL COMMENTS

Mechanism of Ribosomal Peptide Bond Formation

Three papers in the 11 August 2000 issue characterized the atomic structure of the large ribosomal subunit and used that structural underpinning to explore the mechanisms of peptide bond formation in the nbosome. In a comment, Barta et al. question whether the highly conserved nucleotide A2451 is the sole catalytic site, as suggested in the 11 August papers, and argue that metal ion catalysis may remain a viable alternative to the acid-base catalysis model favored in those studies. Berg and Lorsch, in a separate comment, put forth an alternative mechanism for peptide bond formation that they maintain avoids "three significant difficulties" implicit in the mechanism proposed in the 11 August papers. In their response, Nissen et al. critically review the literature cited by Barta et al. and conclude that it does not substantially undermine their proposals; they also present additional information bearing on the three deficiencies alleged by Berg and Lorsch.

The full text of these comments can be seen at www.sciencemag.org/cgi/content/full/291/5502/203a

SPECIAL FEATURES

Quarterly Author Index

science's stke

Perspective: New Responsibilities for the PI3K Regulatory Subunit p85lphaK. Okkenhaug and B. Vanhaesebroeck

The regulatory subunit of phosphoinositide 3-kinase does more than regulate signals through the PI3K catalytic subunit.

science's next wave

Canada: Research and the Red Book 2 D. McPhee

Can the reelected Liberal Party fulfill its promise to "brand Canada as a strong knowledgebased society"?

UK: Writing Competition Winners

Loni Anton and Jonathan Wood write, respectively, about the importance of a good support network and the supervisor/student relationship.

US: Getting to Know Me L. Labrat

Our "What's Next?" columnist zeroes in on the first step for anyone planning a career: assessing their skills and interests.

NeuroAIDS

www.grantsnet.org **RESEARCH FUNDING DATABASE**

GrantsNet

www.sciencemag.org/NAIDS **EXPERIMENTAL WEB SITE**

ONLINE STAFE

SCIENCENOW EDITORS Laura Helmuth, Martin Enserink, Erik Stokstad

Science's Next Wave Editional: Insurance Editor Crispin Taylor; Editors Robert Metzke (Germany), Kirstie Urguhart (UK); contributing Edi-tors Lesley McKamey (Canada), Mark Sincell; moject Manager Emily Klotz; Watters Katie Cottingham, Mona Mort; Marketing: Marketing Managers Karen Horting (US and Canada), Hazel Crocker (Europe); PROGRAM DRECTOR Lisa Kozlowski; Marketing Associate Joey D'Adamo SCIENCE'S STKE EDITOR Bryan Ray; ASSOCIATE EDITORS Lisa Chong, Nancy Gough, John Nelson

ELECTRONIC MEDIA MANAGER David Gillikin; INTERNET PRODUCTION MANAGER Betsy Harman; Assistant Production Manager Wendy Stengel; SENIOR PRODUCTION ASSOCIATE Lisa Stanford; Associates Carla Cathey, Mark Croatti, Robert Owens, Louis Williams

SCIENCECAREERS.ORG

Daily

coverage of

science and science policy by

Science's news team

sciencenow

w.sciencenow.org

ROW

0

 α

00

T

Career Advice and Resume/CV Database:

In addition to searchable job postings, Science Careers has extensive career advice articles and an online resume database. Go to www.sciencecareers.org to learn more.

26 JANUARY ISSUE

UPCOMING FEATURES

Focus on Graduate

Programs: In this issue, this supplement will look at nontraditional programs, which are growing in popularity and provide excellent alternatives for individuals to obtain advanced degrees within narrow branches of science.

26 JANUARY ISSUE

LAB TECHNOLOGY TRENDS

Functional Genomics:

This report will look at topics such as SNPs, DNA sequencing, PCR/DNA cloning, knockout mice, and information analysis.



www.sciencemag.org

www.stke.org

www.nextwave.org

Freeze Your Gene-Expression Profile ...



... at Room Temperature

RNeasy[®] Protect Kits — the complete solution for stabilization and isolation of intact RNA

Once a biological sample is harvested, its RNA becomes extremely unstable. Immediate stabilization of the RNA and preservation of the RNA expression pattern is a prerequisite for accurate gene-expression analysis. With RNeasy® Protect Kits, containing RNA*later*[™] RNA Stabilization Reagent, QIAGEN offers the solution.

- Immediate RNA stabilization and protection in biological samples to ensure reliable gene-expression and gene-profiling data
- Convenient and safe handling with innovative RNA*later* stabilization at room temperature no need for liquid nitrogen or dry ice
- Archived biological samples can go through multiple freeze-thaw cycles without risk of RNA degradation
- Easy, fast, and reliable RNA isolation ready-to-use RNA for all downstream applications

For stabilization and isolation of high-quality RNA, try RNeasy Protect Kits today!

Trademarks: QIAGEN, RNeasy (QIAGEN); RNAlater (AMBION).

© 2000 QIAGEN, all rights reserved. Circle No. 63 on Readers' Service Card

www.qıagen.com

QIAGEN:		
Australia	Canada	France
Tel. 03-9489-3666	Tel. 800-572-9613	Tel. 01-60-920-93
Fax 03-9489-3888	Fax 800-713-5951	Fax 01-60-920-93
	Italy Tel. 02-33-43-04-11 Fax 02-33-43-04-26	
Switzerland	UK	USA
Tel. 061-319-30-31	Tel. 01293-422-999	Tel. 800-426-815
Fax 061-319-30-33	Fax 01293-422-922	Fax 800-718-205



THIS WEEK IN Science

Microfluid Actuation

For complex microfluid systems (such as transporting chemicals in lab-on-chip devices) that may comprise many thousands of micrometer-sized flow channels, a method for the controlled movement of fluid through individual channels will be required. Prins *et al.* (p. 277) describe how electrocapillary pressure can be used to actuate fluid flow in an array of such microchannels. In their de-

edited by Gilbert Chin

309 Primate Genetic Engineering

The ability to genetically engineer nonhuman primates would facilitate the development of animal models of human diseases. Chan *et*

al. (p. 309; see the news story by Vogel) transferred the gene encoding green fluorescent protein (GFP) to rhesus macaques oocytes by injecting a pseudotyped retroviral vector. After intracytoplasmic sperm injection and transfer of the embryos to surrogate mothers, one live animal and one stillborn set of twins were observed to be transgenic by polymerase chain reaction analysis and by fluorescence of toenails, hair, and placenta. materials will operate in device structures. Bockrath *et al.* (p. 283) present experimental results on metallic singlewalled carbon nanotubes showing that defects can result in inhomogeneous electronic properties along the length of the tube. Specifically, when the tubes are gated, the defects are switched on, and electronic properties of the tubes may then differ from what was expected.

sign, an electrode is embedded within the walls of each flow channel. Application of a bias to an individual channel electrode attracts the conducting liquid to the wall, effectively decreasing the diameter of the capillary channel, and results in upward movement of the liquid.

Magic Wires Under Tension

The recent discovery of helical multishell gold wires provides a particularly clear demonstration of the effect of size and dimension on

nanoscale materials. Regular but noncrystalline nanowires suspended between tips were shown to form discrete multishell structures of specific "magic" sizes. Tosatti *et al.* (p. 288) have performed density functional calculations of the wires and show that nanowire stability is determined by the wire string tension



rather than its total free energy. "Magic" struc-

tures correspond to string tension minima; no such minima are found for silver wires.

Superconducting DNA

Long strands of DNA have been proposed to provide a possible solution for molecular wiring in nanoscale electronics, but the conduction state of DNA remains unclear. Bridging the gap between superconducting rhenium/carbon electrodes with strands of λ -DNA, Kasumov *et al.* (p. 280) show that, below the transition temperature of the superconducting contacts, a proximity-induced superconductivity effect is produced in the DNA. The observation of this proximity effect, occurring when the superconducting wave function penetrates into a normal conductor, suggests not only that the molecules conduct, but that their phase coherence length is of the order of their actual length.

Turning-On Defects in Carbon Nanotubes

As one of the leading contenders for applications in molecular electronics, much effort is being spent on elucidating the electronic and structural properties of carbon nanotubes. While most experimental and theoretical work has concentrated on defectfree nanotubes, defects can play a role in determining how such

A One-Component Molecular Metal

The formation of a metal requires a source of conduction-band carriers (electrons or holes) and good overlap between their wave functions. Although many elements can form metals as one-component systems (such as silver and sodium), molecular metals usually need two components to create carriers through a charge transfer process. Tanaka *et al.* (p. 285; see the Perspective by Cassoux) now report that single crystals of $[Ni(tmdt)_2]$ show metallic behavior from room temperature down to 0.6 K. Moreover, first-principles calculations indicate that this material has a fully three-dimensional band structure despite the planar nature of the molecule.

Forcing Glacial Cycles

Milankovitch theory says that the timing of glacial cycles is controlled by July insolation (i.e., the season during which fallen snow either melts or persists to help form ice sheets) at $65^{\circ}N$ (a latitude near the center of the range of where the vast Northern Hemisphere continental ice sheets accumulate during glaciations). The timing of the last deglaciation (termination 1, about 20,000 years ago) supports this hypothesis, but some evidence indicates that the penultimate deglaciation (termination 2) occurred thousands of years before the date of about 127,000 years ago predicted by Milankovitch. This apparent contradiction makes it important to determine precisely when other deglaciations happened. Stirling *et al.* (p. 290) have measured the ages of corals that formed during the high sea-level stands after termination 4 and find that their dates agree with Milankovitch.

Mixed Ancestry

Accumulating evidence indicates that hominids first migrated out of Africa into Eurasia more than one million years ago and reached lands as distant as parts of Indonesia. Yet molecular evidence suggests that modern humans arose from a separate, much later, migration. Models of human migration and evolution depend on the extent to which these later hominids replaced or interbred with earlier populations, which include, for example, the Neandertals in Europe. As a test, Wolpoff *et al.* (p. 293; see the news story by Pennisi) examined shared physical characteristics in two populations at far

CONTINUED ON PAGE 207



0

Apoptosis is Our Business

- study apoptosis with easy-to-use assays for
 - caspase activity
 - phosphatidylserine exposure
 - DNA fragmentation
- or quantify cell proliferation with convenient assays for
 - cell viability
 - metabolic activity

For further information, please contact your local representative or check out our Apoptosis Interest Site: http://biochem.roche.com/apoptosis

Argentina Tel.: + 54-19510041 Australia Tel.: + 61-298997999 Austria Tel.: + 43-1277870 Belgium Tel.: + 32-22474930 Brazil Tel.: + 55-1136663565 Canada Tel.: + 1-4506867050 + (8 00) 3612070 Chile Tel.: + 56-2 3752011 China Tel.: + 862164275586 Czech Republic Tel.: 03 24/62 66 48-9 + 4 20-57 12 50 18 (Zurek) Denmark Tel.: + 45 63 99 99 9(Information) + 45 49 12 66 66 (Orders) Egypt Tel.: 2 02-3 61 90 47 Finland Tel.: + 35 8-9 52 53 33 66 France Tel.: + 33-4 76 76 46 85 Germany Tel.: + 49-6 21-7 59 85 39 Greece Tel.: + 30-16 86 06 00 Hong Kong Tel.: + 8 52-24 85 75 96 India Tel.: 202 43 11 23 12 Indonesia Tel.: + 62-57 73 8 Iran Tel.: 09 8 212 08 22 66 + 00 98 218 78 5566 Israel Tel.: 9 72 66 38 05 69 Italy Tel.: + 39-03 92 47 41 08 Japan Tel.: + 81-35 43 52 84 Malaysia Tel.: + 60-37 55 50 39 Mexico Tel.: + 52-50 81 58 27 Netherlands Tel.: + 31-36 53 94 91 1 New Zealand Tel.: + 64-92 76 41 57 Norway Tel.: + 47-23 37 33 00 Philippines Tel.: + 63-28 39 45 67 Poland Tel.: + 48-2 66 79 16 8 Portugal Tel.: + 31-32 1.7 17/4 16 44 00 Russia Tel.: + 96 61 40 10 33 3 Singapore Tel.: + 65-37 16 83 25 South Africa Tel.: + 27-1 18 86 24 00 South Korea Tel.: + 82-23 47 165 00 25 poin Tel.: + 34-9 32 01 44 11 Sweden Tel.: + 46-84 04 88 00 Switzerland Tel.: + 41-17 99 61 61 Taiwan Tel.: + 86-22 50 55 33 Thailand Tel.: + 66-29 37 04 44 Turky Tel.: + 60-29 37 04 44 Turky Tel.: + 1-31 75 76 23 13

Circle No. 35 on Readers' Service Card



Diagnostics

Roche Diagnostics GmbH Roche Molecular Biochemicals D-68298 Mannheim Germany

CONTINUED FROM 205 THIS WEEK IN SCIENCE

ends of the migration, in Australia and Europe. They conclude that the shared features of both populations argue against a complete replacement model.

Tracing Otolith Signatures

Natural chemical labels—relative concentrations of stable isotopes and of elements increasingly are used to monitor migratory patterns of animals. Thorrold *et al.* (p. 297; see the news story by Malakoff) provide estimates of natal homing in estuarine-spawning marine fish by examining the chemical signatures of otoliths ("earbones") in juvenile and adult weakfish along the east coast of the United States. They show details of natal homing and population differentiation not revealed by genetic studies, indicating that models used in fisheries management need to incorporate a spatial component.

Guided by the Sun

Tens of millions of shorebirds migrate from the Southern Hemisphere to breed in the high Arctic and then to return in the fall. Progress has been made on understanding how migrating birds use different compasses based on the sun, light polarization patterns, stars, and geomagnetic fields, but most studies have used cage experiments rather than observations in the field. Alerstam *et al.* (p. 300; see Perspective by Wehner) investigate this problem close to the magnetic north pole in the high Arctic of Canada, using radar to track migrating flocks. The results indicate that the birds follow sun compass trajectories that—at least in high latitudes—conform closely to cost-efficient great circle routes.

Heart of the Matter

Dilated cardiomyopathy is a severe cardiac disease in which the ventricles of the heart become enlarged, leading to compromised function. Several studies have suggested that a dysregulated immune system may be involved in some forms of this condition. In the course of analyzing the immunoregulatory molecule, PD-1, Nishimura *et al.* (p. 319) observed that genetic deficiency for PD-1 resulted in a form of dilated cardiomyopathy. This disease only developed when the mice were bred on a particular genetic strain and when the animals were otherwise immunologically intact.



How to Make Auxin

Auxin is an essential plant hormone that is involved in regulation of plant growth and development, however the mechanism of auxin biosynthesis in plants is poorly understood. Now Zhao *et al.* (p. 306) show that the *Arabidopsis* gene *YUCCA* encodes a flavin monooxygenase-like enzyme that catalyzes hydroxylation of the amino group of tryptamine. The step appears to be rate-limiting in auxin biosynthesis via a tryptophan-dependent pathway.

Neuronal Representation of Visual Categories

Categories are the fundamental building blocks of nearly all higher level cognitive functions. Using a sophisticated graphics system, Freedman *et al.* (p. 312; see the Perspective by Thorpe and Fabre-Thorpe) generated stimuli that were morphs between prototype cats and dogs. The activity of many neurons in the primate lateral prefrontal cortex reflected the category of visual stimuli rather than physical appearance. In addition, categorical representations changed during learning, when stimuli were assigned to new categories.

Export Signal Unveiled

Newly synthesized plasma membrane proteins enter the secretory pathway at the level of the endoplasmic reticulum (ER). Export from the ER has been thought to be by default for proteins that are correctly assembled and folded. Ma *et al.* (p. 316) examined the regulation of export of a potassium channel from the ER and found that the protein included a pair of sorting motifs that stimulated export from the ER, thereby controlling the level of surface expression.



Novagen www.novagen.com

www.sciencemag.org SCIENCE VOL 291 12 JANUARY 2001







96-well 0.2 mL block







new 60-well 0.5 mL block

Flexible formats, uncompromised performance

Thanks to the new 60-well 0.5 mL block, the GeneAmp® PCR System 9700 now offers a high-volume option, for the ultimate in flexibility. But regardless of the sample block you select, you're investing in the industry's premier thermal cycler capabilities, including oil-free operation, compact 30 x 41 cm footprint, intuitive graphical user interface, and high-speed, uniform heating and cooling. Guaranteed performance and reliability, all within budget. For more information or to place an order, call 650.638.5800, contact your local sales representative, or go to **www.appliedbiosystems.com.**

The GeneAmp® PCR System 9700: we've got you covered.

GeneAmp® PCR System 9700



ORDER ON-LINE

store.appliedbiosystems.com



PE Corporation is committed to providing the world's leading technology and information for life scientists. PE Corporation consists of the Applied Biosystems and Celera Genomics businesses.

Applied Biosystems is a registered trademark of PE Corporation or its subsidiaries in the U.S. and certain other countries. Applied Biosystems develops and produces its products in accordance with ISO 9000 quality system requirements. GeneAmp is a registered trademark of Roche Molecular Systems, Inc. The PCR process is covered by patents owned by Roche Molecular Systems and F. Hoffman-La Roche Ltd. For Research Use Only. Not for use in diagnostic procedures. ©2000 Applied Biosystems

Circle No. 8 on Readers' Service Card



Finally – Affordable Array Analysis

Hybridize each membrane array 10 times or more

0

Complete array system contains two ULTRArrays[™] with all ecessary reagents for probe labeling, and blot hybridization, washing, and

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

PROTOCOL USES PROVEN METHODS OF PROBE LABELING AND HYBRIDIZATION

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, ³³P-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. 23 on Readers' Service Card

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

Blink™ Info PRODUCT INFO IN A BLINK!

Troice data obtained with the ULTRATES'

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





PowerScript[™] Reverse Transcriptase



Superior first strand cDNA synthes of from PowerScript™ RT. A poly A+ RNA ladder was incubated with equivalent am $\ensuremath{\mathsf{c}}$ nts of different RNase H- RTs using the conditions suggested by each manufacturer. PowerScript generated large amounts of the 9.5 kb fragment.

Austria: BD CLONTECH Austria • Tel: 01 310 6688 Fax: 01 310 7744 Germany & East Europe: BD CLONTECH Germany • Tel: 06221 34170 Fax: 06221 303511 Japan: CLONTECH Japan Laboratories Ltd. • Tel: 03 5324 9609 Fax: 03 5324 9636 Switzerland: BD CLONTECH Switzerland • Tel: 061 68354 50 Fax: 061 68354 52 United Kingdom: BD CLONTECH UK • Tel: 01256 476500 Fax: 01256 476499

 Bit Control
 Contro
 Control
 <thControl</th>

Illustration inspired by the art of Robert Indiana

Get the power of longer cDNAs for less money with Pov erScript[™] Reverse Transcriptase (RT). PowerScript is a point mutant of the Moloney murine leukemia virus nat lacks RNase H activity but retains wild-type RT pol nerase ability---this means you get cDNAs consisten y longer than 3 kb. PowerScript is cleaner than oth commercially available RTs. In fact, we guarantee it to be free of DNase and RNase. And it costs less, ma ng PowerScript RT the most economical choice for cDI A library construction, RT-PCR, labeling probes, or any application requiring efficient reverse transcription.

Cal and order today!

Circle No. 14 on Readers' Service Card

0 W 0 U

1020 East Meadow Circle, Palo Alto, California 94303 USA Tel: 80()62-2566 (CLON) 650-424-8222 • Fax: 800-424-1350 650-424-1088 E-ma products@clontech.com orders@clontech.com • Internet: www.clontech.com © 2000, CLONTECH Laboratories, Inc. (AD03403)



Looking for something you know is there but you just can't find it?

Introducing GMP Conversion Technology." An affordable process for experimentally deriving unambiguous haplotypes that is applicable to a gene, a chromosome, or the entire genome.

Until now, haplotypes had to be inferred. The process was prone to error and was time-consuming, expensive, and statistically cumbersome. All that has changed with the introduction of GMP Conversion Technology,™ a breakthrough that allows direct determination of haplotypes, potentially revolutionizing the way you conduct genetic research.

Finally, a clear look at individual alleles.

GMP Conversion Technology[™] is a powerful new tool that dramatically improves the accuracy of genetic analysis and testing. It is a proprietary diploid-to-haploid sample preparation process that produces separate, stable, reproducible alleles.

Clear benefits to genetic research.

By giving you haploid samples to work with, GMP Conversion Technology¹⁵ provides a clean template for your research. The analysis of individual alleles allows you to unambiguously determine haplotypes, even in single individuals without parents or any other family members. This means fewer samples are needed and that data obtained on each sample is both more informative and more accurate.

Mutation Detection.

In addition to enhancing haplotyping and linkage analyses, GMP Conversion Technology™ has been proven extremely useful for identifying mutations. In a recent study*, researchers investigated patients with hereditary non-polyposis colorectal cancer. Using conventional techniques, the researchers were unable to identify mismatch-repair deficiency gene mutations in 10 of the 22 patients. By using GMP Conversion Technology,[™] disease-related alterations were identified in all 22 patients.

Once your interval is defined through linkage studies using GMP Conversion Technology,™ a search for variants/mutations in affected individuals is dramatically simplified through the analysis of DNA from the haploid cells containing the linked allele.

Start working with the most accurate information.

Now that GMP Conversion Technology[™] is available, you finally have a cost effective way to directly determine haplotypes – and expedite your research. This service can provide you with customized products for the exact chromosomes you specify, or the entire human genome.



Expedite Your Research.

To find out more about this important breakthrough, contact:

GMP GENETICS, INC. A GMP Company 1.888.467.4321 (TOLL-FREE) email: info@gmpgenetics.com mention science1 www.gmpgenetics.com/science

* Yan H., et. al., Conversion of Diploidy to Haploidy, Nature, v. 403, 723, (2000)

- GMP Conversion Technology[™] is applicable to:
 - Sib-pair analysis
 - Linkage disequilibrium
 - Pharmocogenomics
 - Gene discovery

www.sciencemag.org cienc

1200 New York Avenue, NW Washington, DC 20005 Editorial: 202-326-6550, FAX 202-289-7562 News: 202-326-6500, FAX 202-371-9227 Permissions: 202-326-7074, FAX 202-682-0816 Subscriptions: 800-731-4939 or 202-326-6417, FAX 202-842-1065

Bateman House, 82-88 Hills Road Cambridge, UK CB2 1LQ		
(44) 1223-326500, FAX (44) 1223-326501		
EDITOR IN CHIEF Donald Kennedy		

EDITOR-IN-CHIEF	Donato Kennedy
EDITOR	Ellis Rubinstein
MANAGING EDITOR	Monica M. Bradford

NEWS EDITOR DEPUTY MANAGING EDITORS R. Brooks Hanson Katrina L. Kelner Colin Norman

dihough, Phillip D. Szuromi; SENIOR EDITOR/PERSPECTIVES Orla Smith; SE-NIOR EDITORS Gilbert J. Chin, Pamela J. Hines, Paula A. Kiberstis (Boston), L. Bryan Ray, Linda R. Rowan; Associate Editors Lisa D. Chong, Beverly A. Purnell, H. Jesse Smith, Valda Vinson; Associate

PUBLISHER Richard S. Nicholson ASSOCIATE PUBLISHER Beth Rosner MEMBERSHIP/CIRCULATION DIR. Michael Spinella

MEMBERSHIP/CIRCULATION (membership@aaas.org) DEPUTY DIRECTOR Marlene Zendell; MEMBER SERVICES: MANAGER Michael Lung; SENIOR SPECIALIST Mary Curry; coordinator Jantell Stone; specialists Laurie Baker. Pat Butler: REPRESENTATIVES Elizabeth Early, Elizabeth Haberkorn, Katrina Smith; MARKETING: ASSOCIATES Lauri Sirois, Deborah Stromberg; EUROPE SE-NIOR EXECUTIVE Ruth Jackson; EXECUTIVE Martin Paine; RESEARCH: MANAGER Renuka Chander; Business and Finance: Manager Teressa Ellis; Administra-TIVE SUPPORT Zadia McKinnon: COMPUTER SPECIALIST Charles Munson

SUBSCRIPTION SERVICES For change of address, missing issues, new orders and renewals, and payment questions: 800-731-4939 or 202-326-6417, FAX 202-842-1065. Mailing address-es: AAAS, P.O. Box 1811, Danbury, CT 06813 or AAAS Member Services, 1200 New York Avenue, NW, Washington, DC 20005

REPRINTS Ordering/Billing/Status 800-407-9190; Corrections 202-326-6501

MEMBER BENEFITS For Credit Card: MBNA 1-800-847-7378; Car Rentals: Hertz 1-800-654-2200 CDP#343457, Dollar 1-800 800-4000 #AA1115; AAAS Travels: Betchart Expeditions 1-800-252-4910; Life Insurance: Seabury & Smith 1-800-424-9883; Other Benefits: AAAS Member Services 1-202-326-6417

FINANCE AND ADVERTISING BUSINESS MANAGER Deborah Rivera-Wienhold SENIOR ANALYST Randy YI: FINANCIAL ANALYSTS LISA DONOVAN, JESSICA TIEFney-Rubin; rights and permissions: associate Emilie David; assistant

cific NW), Gretchen Vogel, John Davenport (intern); con-TRIBUTING CORRESPONDENTS Marcia Barinaga (Berkeley, CA), Barry A. Cipra, Jon Cohen (San Diego, CA), Daniel Ferber, Ann Gib-bons, Robert Irion, Charles C. Mann, Virginia Morell, Evelyn EDITORIAL/COMPASS SUPERVISORY SENIOR EDITORS Barbara Jasny, Guy Rid-Strauss, Gary Taubes, David Voss, Ingrid Wickelgren; COPY EDITORS

Linda B. Felaco, Daniel T. Helgerman; ADMINISTRATIVE SUPPORT Scherraine Mack, Fannie Groom; BUREAUS: Berkeley, CA: 510-

Karen Lentz Marketing: Director John Meyers: Associates Mary Filen Crowley, Amanda Donathen, Allison Pritchard ELECTRONIC MEDIA: MANAG ER David Gillikin; ASSISTANT PRODUCTION MANAGER Wendy Stengel; SENIOR PRODUCTION ASSOCIATE LISA Stanford; PRODUCTION ASSOCIATES Carla Cathey, Mark Croatti, Robert Owens, Louis Williams Administrative support Joyce Scott

BOOK REVIEW EDITOR Sherman I. Suter: ASSOCIATE LETTERS EDITOR Christine

M. Pearce; Associate tc/web editor Stewart Wills; Information specialist

Janet Kegg; contributing Editor Kevin Ahern; Editorial Manager Cara

Tate; SENIOR COPY EDITORS Harry Jach, Etta Kavanagh, Barbara P. Ord-

way; COPY EDITORS Jeffrey E. Cook, Jason Llewellyn, Joshua Marcy,

Monique Martineau, John Meade; EDITORIAL COORDINATORS Carolyn

Kyle, Ellen E. Murphy, Beverly Shields; publications assistants Chris

Filiatreau, Joi S. Granger, Jeffrey Hearn, Charlene King, Gail Murphy,

Anita Wynn; EDITORIAL ASSISTANTS Elise Laffman, Kathy Libal; EDITORIAL

SUPPORT ASSISTANTS OSA Atoe, Christopher Kenny, Patricia M. Moore,

Brian White; EXECUTIVE ASSISTANT Sylvia S. Kihara; ADMINISTRATIVE SUP

NEWS SENIOR CORRESPONDENTS Eliot Marshall, Jean Marx; DEPUTY

NEWS EDITORS Robert Coontz, Jeffrey Mervis, Leslie Roberts; con-TRIBUTING EDITORS Elizabeth Culotta, Polly Shulman; NEWS WRITERS

Martin Enserink, Laura Helmuth, Constance Holden, Jocelyn

Kaiser, Richard A. Kerr, Andrew Lawler (Boston), David Malakoff, Elizabeth Pennisi, Charles Seife, Robert F. Service (Pa-

science_bookrevs@aaas.org (for book review queries)

(for general editorial queries)

(for returning manuscript reviews)

(for letters to the editor)

PORT Patricia F. Fisher

science editors@aaas.org

science_letters@aaas.org

science_reviews@aaas.org

PRODUCT ADVERTISING (science_advertising@aaas.org) NATIONAL SALES MANAGER Richard Teeling: 973-694-9173, FAX 973-694-9193 • NORTH-EAST AND E. CANADA Elizabeth Pointek: 978-969-1542, FAX 413-480-0008• мюжест Rick Bongiovanni: 330-405-7080, FAX 330-405-7081 • WEST COAST/W. CANADA Neil Boylan: 415-673-9265, FAX 415-673-9267 MID-ATLANTIC AND SOUTHEAST SALES Christopher Breslin: 443-512-0330. FAX 443-512-0331 NEW MEDIA SALES MANAGER Chris Peterson: 410-560-3960, FAX 410 560-3961 • UK/SCANDINAVIA/FRANCE/ITALY/BELGIUM NETHERLANDS Andrew Davies: (44) 7-071-226-216, FAX (44) 7-071-226-233 · GERMANY/SWITZERLAND/AUSTRIA Tracey Peers: (44) 1-782-752-530, FAX (44) 1-782-752-531 JAPAN Mashy Yoshikawa: (81) 3-3235 5961, FAX (81) 3-3235-5852 · TRAFFIC MANAGER Carol Maddox; TRAFFIC ASSOCIATE Halimah S. Whitby; SENIOR SALES ASSOCIATE Sheila Myers

RECRUITMENT ADVERTISING (science_classifieds@aaas.org); PRODUCTION IAGER Jennifer Rankin U.S. SALES MANAGER Gabrielle Boguslawski: 718-491-1607, FAX 202-289-6742; WEST COAST SALES MANAGER Kristine von Zedlitz: EAST COAST SALES MANAGER JIL Steinberg; INTERNET SALES MANAGER Beth Dwyer; Assistant Sales MANAGER Daryl Anderson; SENIOR SALES COORDINATOR Erika Bryant; sales coordinators Rohan Edmonson, Caroline Gallina, Shirley Young; SALES REPRESENTATIVES Kathleen Clark, Jody Fenty, Christina Geiger, Bren Peters-Minnis; Assistants Sussy Castilla, Emnet Tesfave: As SOCIATES Christine Hall, Dawn Bruno, Dina Freeman; PUBLICATIONS ASSIS TANTS Robert Buck, Jane Vaughn; U.K./EUROPE: SALES MANAGER Debbie Cum652-0302, FAX 510-652-1867, Boston, MA: 617-542-5098, San Diego, CA: 760-942-3252, FAX 760-942-4979, Pacific Northwest: 541-342-6290

PRODUCTION DIRECTOR James Landry; MANAGER Wendy K. Shank; ASSISTANT PRODUCTION MANAGER ROD MASSON; ASSOCIATES Rebecca Doshi, Vicki J. Jorgensen, Tara L. Kelly, Jessica K. Moshell

ART DESIGN DIRECTOR C. Faber Smith; ART DIRECTOR Alan T. Stonebraker; Associate art director Stephanie D. Halvorson; Illustrators Cameron Slayden, Katharine Sutliff; Associates Holly Bishop, Joshua Moglia, Debra J. Morgenegg, Preston Morrighan; рното RESEARCHER Leslie Blizard

SCIENCE INTERNATIONAL

EUROPE (science@science-int.co.uk) EDITORIAL: SUPERVISORY SENIOR EDITOR Andrew M. Sugden; SENIOR EDITOR/PERSPECTIVES Julia Uppenbrink; ASSOCIATE EDITORS Caroline Ash, Stella M. Hurtley, Ian S. Osborne, Stephen J. Simpson, Peter Stern; EDITORIAL SUPPORT Jenny Parker, Sarah Parker; ADMINISTRATIVE SUPPORT Janet Mumford, Liz Ellis: NEWS: EUROPEAN NEWS EDITOR Richard Stone, CORRESPONDENT Michael Balter (Paris: (33) 1-49-29-09-01, FAX (33) 1-49-29-09-00); CONTRIBUTING CORRESPONDENT ROBERT KOENIG (Bern)

Asia Japan Office: Asca Corporation, Eiko Ishioka, Fusako Tamura, 1-8-13, Hirano-cho, Chuo-ku, Osaka-shi, Osaka, 541-0046 Japan; (81) 6-6202-6272, FAX (81) 6-6202-6271; asca@os.gulf.or.jp JAPAN NEWS BUREAU: Dennis Normile (contributing correspondent, (81) 3-3335-9925, FAX (81) 3-3335-4898; dnormile@twics.com); CHINA REPRESENTATIVE Hao Xin, (86) 10-6255-9478; science@public3. bta.net.cn; илли Pallava Bagla (contributing correspondent (91) 11-271-2896; pbagla@ndb.vsnl.net.in)

mings: promotions coordinator Richard Walters: internet sales executive Tracy Holmes; sales executive Bonnie Price Lofton; australia/New zealand: Keith Sandell: (61) 02-9922-2977, FAX (61) 02-9922-1100 JAPAN: Mashy Yoshikawa: (81) 3-3235-5961, FAX (81) 3-3235-5852

AAAS BOARD OF DIRECTORS RETIRING PRESIDENT, CHAIR Stephen Jay Gould; PRESIDENT Mary Lowe Good; PRESIDENT-ELECT Peter H. Raven; TREASURER David E. Shaw: EXECUTIVE OFFICER Richard S. Nicholson: BOARD Lewis M. Branscomb; Nina V. Fedoroff; Robert D. Goldman; Alice S. Huang; Sally Gregory Kohlstedt; Richard A. Meserve; Robert C. Richardson; Neena B. Schwartz

Published by the American Association for the Advancement of Science (AAAS), Science serves its readers as a forum for the presentation and discussion of important issues related to the advancement of science, including the presentation of minority or conflicting points of view, rather than by publishing only material on which a consensus has been reached. Accordingly, all articles published in *Science*—including editori-als, news and comment, and book reviews—are signed and reflect the individual views of the authors and not official points of view adopted by the AAAS or the institutions with which the authors are affiliated

The American Association for the Advancement of Science was founded in 1848 and incorporated in 1874. Its objectives are to further the work of scientists, to facilitate cooperation among them, to foster scientific freedom and responsibility, to improve the effectiveness of science in the promotion of human welfare, to advance education in science, and to increase public understanding and appreciation of the importance and promise of the methods of science in human progress.

INFORMATION FOR CONTRIBUTORS

See pages 145 and 146 of the 5 January 2001 issue or access www.sciencemag.org/misc/con-info.shtml.

MILLIPORE

pure improvement

Introducing Montage[™] Genomics Kits. No binding. No eluting. No kidding.

New Montage PCR Cleanup and Plasmid Miniprep Kits deliver the high reproducibility and high recovery you're looking for — only faster. Our membrane-based, automation-friendly protocols save you steps, and time, with every sample. No centrifugation, no precipitation, and no solvents. You'll save money, too, with a significant price advantage compared to bind-wash-elute kits. How much faster and easier are Montage protocols than what you're using now? It won't cost a thing to find out.

Visit www.millipore.com/montage or call us at 1-800-MILLIPORE to qualify for a free trial kit. In Europe, fax +33.3.88.38.91.95; in Japan, call 0120-63-3358.



Simply load, filter and recover. Montage makes it quick and easy.



- Compatible with 384 well plates
- 84 Slide capacity
- User friendly, networkable software
- High pressure wash station
- 1µm resolution encoders
- HEPA Air Filtration and humidity control

Circle No. 12 on Readers' Service Card

GENFTIX

222

 Compatible with ArrayIt[™]* micro spotting pins

The QArray from Genetix is a novel. automated microarraver from the makers of the **QBot** and **QPix**. The **QArray** offers high speed and high accuracy microarraying at an affordable cost.

GENET

Aug

Tel: +44 (0) 1202 483900

Fax: +44 (0) 1202 480289

Email: sales@genetix.co.uk

Web: http://www.genetix.co.uk

63-69 Somerford Road, Christchurch, Dorset, BH23 3QA, UK.



ONE COMPANY... ONE SOLUTION

Easy access to the world of Genomics



 Germany: Tel.: +49 (0) 8092/8 39-0
 E-mail: info@mwgdna.com
 US: Tel.: +1-336-812-9995
 E-mail: info@mwgbiotech.com

 UK: Tel.: +44 (0) 1908/525300
 E-mail: info@mwg.co.uk
 France: Tel.: +33 (1) 69592050
 E-mail: info@mwg-biotech.fr

 Switzerland: Tel.: +41 (0) 61/4160616
 -mail: info@mwg-biotech.ch
 Italy: Tel.: +39 055/4289-161
 E-mail: info@mwg-biotech.it

 Scandinave: Tel.: +45 8617-2788
 E-mail: info@mwg.dk

www.mwg-biotech.com

Defining Sequence Analysis S TO AND A CO 3. analysis tools contig assembly, course discovery, Primer design, Lasergene (11ā-zər. Plienment, restricjēn) n. 1. easyaus mapping, protein structure to-use sequence No. Software for Win analysis software and Mac computers 2. comprehensive software suite with integrated BLAST and Entrez Searching Widnestar.com

DNASTAR, Inc. 1228 S. Park St., Madison, WI 53715 USA www.dnastar.com Phone: 608+258+7420 FAX: 608+258+7439 e-mail: info@dnastar.com

GATC GmbH, Fritz-Arnold-Str. 23, D-78467 Konstanz, Germany Phone: 49•7531•81600 FAX: 49•7531•816081 e-mail: sales@gatc.de





TripleMaster PCR System: Triple your success!



The **TripleMaster PCR System** from Eppendorf is an innovative three-in-one kit combination. Its unique mixture of three key components – Taq DNA Polymerase, Polymerase Enhar cing Factor, and Proof Reading Enzyme – combines with two new buffers to produce outstanding results for Long Range PCR, High Fidelity PCR, or the amplification of complex templates.

- Long Range PCR: High product yield with fragment lengths of up to 40 kb and more
- High Fidelity PCR: The High Fidelity Buffer and the unique enzyme mix guarantee minimal error rates
- Complex templates: TripleMaster easily takes care of troublesome secondary structures and high GC-content

Want to find out more? Visit us at www.eppendorf.com



Implification of 10–40 kb fragments from λ DNA and 4.8–26 kb fragments from numan DNA with TripleMaster PCR system using the special Tuning Buffer™. Double bands (gDNA) are caused by amplification of the two different allels.



Eppendorf AG · 22331 Hamburg · Germany · Phone +49 40-5 38 01-0 · Fax +49 40-5 38 01- 36 · e-mail: eppendorf.com · home page: http://www.eppendorf.com

Eppendorf Scientific, Inc. · One Cantiague Road · Westbury, NY 11590-0(17 · Phone 800-421-9988 or 516-876-6800 · Fax 516-876-8599 vebsite: www.eppendorfsi.com · e-mail eppendorf@eppendorfsi.com

Circle No. 69 on Reade Service Card

STATISTICA (automatically configures itself for Windows 95/98/2000) • A complete data analysis system with thousands of graphs integrated with all procedures = DDE, OLE client/server, customizable AutoTask toolbars - The largest selection of statistics and graphs in a single system; comprehensive implementations of: Exploratory techniques; multi-way tables/banners; nonparametrics; distribution fitting; regression; general nonlinear estimation; logit/probit; general ANCO-VA/MANCOVA; GLM and Generalized LM; partial least squares analysis; variance components; discriminant; log-linear; correspondence; cluster, confirmatory/exploratory factor analysis; multidimensional scaling; classification trees; canonical correlation; item analysis/reliability; survival analysis; time series modeling/forecasting; structural equation modeling, Monte Carlo simulations; and much more - On-line comprehensive introductions/overviews, over 3 hours of multimedia step-bystep examples = Stats Advisor expert system = Workbooks with AutoOpen documents = Extensive data management facilities (fast spreadsheet of unlimited capacity with formulas, Drag-and-Drop, AutoFill, Auto-Recalculate, split-screen/variable-speed scrolling, advanced Clipboard support, DDE links, hot links to graphs, relational merge, data verification/cleaning) = Powerful STATISTICA BASIC language (professional development environment) with matrix operations, full graphics support, and interface to external programs - Batch command language, editable macros, "turn-key" automation - Open Architecture: custom-designed procedures can be added to toolbars - All output displayed in Scrollsheets[™] (customizable, presentation-quality tables with instant 2D/3D/multiple graphs) or word processor-style (unlimited) editor with text and graphs - Extremely large analysis designs (e.g., correlations up to 32,000x32,000) - Megafile Manager with up to 32,000 variables (8 Mb) per record - Unlimited file size; extended/quadruple precision; unmatched speed -Exchanges data/graphs with other applications via DDE, OLE, or extensive file import/export facilities (including ODBC access to virtually all databases and mainframe files) = Internet/HTML support Hundreds of types of graphs = Facilities to custom-design new graph types and add them to menus or toolbars - Advanced drawing tools (e.g., editing of complex objects in 32x zoom mode), compound (nested) OLE documents, Multiple-Graph AutoLayout Wizard, page layout control; unmatched speed of graph redraw - Interactive rotation, perspective and cross-sections of 3D displays - Large selection of tools for graphical exploration: animated brushing, fitting/smoothing, spectral planes, projections, layered compressions - Price \$1095

Quick STATISTICA • A subset of *STATISTICA*; a selection of basic statistics and the full graphics capabilities of *STATISTICA* • Price **\$495**

STATISTICA Neural Networks (interfaces with but does not require *STATISTI-CA*) • The most comprehensive and user friendly neural networks application on the market • Unique Intelligent Problem Solver (IPS) network wizard • Endless array of statistics, charting options, network architectures and training algorithms • Price **\$795**

STATISTICA Power Analysis (interfaces with but does not require *STATISTICA*) • A comprehensive, extremely precise, and user-friendly research tool for analyzing all aspects of statistical power and sample size calculation • Price **\$495**

STATISTICA Industrial/SPC Solutions • A comprehensive selection of the most flexible, customizable tools for quality control and improvement applications (ISO 9000), single-user and enterprise, including extensive implementations of: • *Quality Control Charts* Price **\$695** • *Process Analysis** Price **\$495** • *Design of Experiments** Price **\$495** *These add-on products require STATISTICA, Quick STATISTICA, or QC Charts.

STATISTICA/Macintosh • Price \$695 • Quick version also available, Price \$395

STATISTICA Enterprise Versions: SEWSS (SPC) and SENS • Data warehouse integration, data mining, extensive groupware functionality.

Overseas prices 25% higher. Domestic sh/h \$12; 30-day money back guarantee.

STATISTICA has received the highest rating in EVERY comparative review of statistics software in which it was featured, since its first release in 1993.







• e-mail: info@statsoft.com • WEB: http://www.statsoft.com StatSoft Ltd. (London, UK), ph: +44-1234-341226, fax: +44-1234-341622 StatSoft France (Paris, France), ph: +33-145-185-999, fax: +33-145-185-285 StatSoft Japan Inc. (Tokyo, Japan), ph: +81-3-5475-7751, fax: +81-3-5475-7752 StatSoft Italia srl (Padova, Italy), ph: +80-3049-693-4654, fax: +39-049-893-2897 StatSoft Korea (Seoul, Korea), ph: +82-2-783-5875, fax: +82-2-783-5874 StatSoft Korea (Alges, Portugal), ph: +35-121-411-3008, fax: +70-95-916-0393 StatSoft Russia (Moscow, Russia), ph: +97-23-562-7110, fax: +97-23-562-3807 StatSoft StatSoft State (Tel-Aviv, Israel), ph: +97-23-562-7110, fax: +97-23-562-3807 StatSoft S.E. Asia (Singapore, Singapore), ph: +65-473-2520, fax: +67-473-302(Card





and a design of the second



11111

idu idu

nated Over and Examo phi phi phi phi

や開開





Information on our bacteria, quality control organisms, and other microorganisms is available at

rg



10801 University Blvd. ● Manassas, VA 20110

Phone: 800-638-6597 or 703-365-2700 • Fax: 703-365-2750 • E-mail: news@atcc.org

Circle No. 24 on Readers' Service Card

The Convergence of What to make and How to make the Molecules that will become the Medicines

PARALLEL TRACK

ArQule's new Parallel Track Drug Discovery program is targeted toward delivery of compounds selected for GLP toxicology and IND candidates. The program combines chemistry, computational design, predictive modeling, and ADMET profiling in an integrated process for lead generation, qualification, and optimization.

- ▼ LEAD GENERATION: Active chemotypes are first identified by screening ArQuIe's Compass Array[™] or Biased Array[™] compound libraries. Initial SAR is then developed by screening analog compounds from our Mapping Array[®] libraries.
- ▼ LEAD QUALIFICATION: Hits are qualified through *in vitro* ADMET profiles and additional biological assays. Initial SAR data and ADMET profiling are combined to identify qualified hits that are amenable to further optimization.
- ✓ LEAD OPTIMIZATION: Structural requirements for ADMET, potency, and selectivity are developed in parallel and used to direct synthesis of Candidate Discovery[™] compounds in rapid, iterative cycles of optimization.

ArQule, Inc. 19 Presidential Way Woburn, MA 01801-5140 www.ArQule.com 781-994-0527



Molecules that will become Medicines"



SeqWeb[®]-Powerful sequence analysis from your internal Web.

SeqWeb connects you to a core set of powerful GCG[®] Wisconsin Package[™] programs via common web browsers, giving you more time for analyses, not learning new software.

Ease of use	SeqWeb visually guides you through core analysis programs, presenting the most critical parameters with suggested default values.
Fast, secure computing	SeqWeb is installed at your site, on your network, behind your firewall, ensuring the security of your work and faster results.
Single-step analyses	Turn many multi-program analyses into a single-step. SeqWeb seamlessly links all necessary programs - simply load your sequences, review the parameters, and hit Run.
Extensibility	Expand SeqWeb's power by incorporating other GCG and third-party programs, maintaining consistency and accessibility of all programs within a single, easy interface.

SEE SEQWEB TODAY: WWW.GCG.COM/SEQWEB4 AND TAKE IT FOR A SPIN.



Genetics	An Oxford Molecular
Computer	Molecular
Group	Company

Worldwide	Europe	North America
608.231.5200	+44 1865 784600	800.876.9994
www.gcg.com/seqweb4		

© 2000, Genetics Computer Group. SeqWeb, GCG and GCG logo are registered trademarks of Genetics Computer Group. Oxford Molecular is a trademark of Oxford Molecular Ltd.

Progression of technology: a: Someone invents it.



b: Mosaic improves it.

EZ-RAYS[°] activated slides are a more robust and reliable way to fabricate microarrays with PCR products and oligos. This novel technology combines proprietary slides with a unique three-dimensional coating and optimized DNA attachment chemistry to produce breakthrough performance.

EZ-RAYS Chemistry:

- Low background and high signal-to-noise for detection of low abundance transcripts
- Highly reproducible hybridization and slide-to-slide consistency
- Stable probe attachment with minimal wash-off
- Extended linearity across broad dynamic range

EZ-RAYS" Activated Microarray Slide Kit:

- Complete kit (just add probes)
- Easy to use: no specialized chemical techniques required
- Compatible with available spotting and scanning systems

To check out our spots and performance data (or for more information and to order), visit our web site at www.mosaic-technologies.com or call 800-832-5652.



Mosaic Technologies, Inc.



And for a limited time, get a FREE validation kit (a \$500 value!) with every order of at least two **EZ-RAYS**[°] kits! (Validation kit contains spotting and hybridization control reagents to eliminate protocol guesswork and trial and error.)

Mosaic Technologies, Inc. • 303 Bear Hill Road • Waltham, MA 02451-1016 Tel: 800-832-5652 • Web site: www.mosaic-technologies.com • Fax: 781-890-7770 Circle No. 18 on Readers' Service Card



LOOKING FOR SUPERIOR RESEARCH ON THE WEB? The Answers you need emerge at ingenta.com

ingenta sets a new research standard. Easy access to a rich resource library of specialized journals and reports, the opportunity to interact with your peers through ingenta communities, and the ability to customize ingenta for your own information needs. High-quality, multi-level, timely research.

It's a powerful reason to visit www.ingenta.com



Circle No. 34 on Readers' Service Card

Today is the day 139,000 people will die prematurely from disease.

Over 25,000 of them will be children under five.

But today is also the day that Glaxo Wellcome and SmithKline Beecham become one.

This means that, for the first time, over 100,000 people will pool their unique talents to seek causes and find remedies for diseases all over the world.

They will do so not just with a sense of hope. But with a sense of urgency.

Disease does not wait. Neither will we.



www.gsk.com



Is video resolution limiting your image quality?

Get INSIGHT and see what you've been missing.



VIDEO RESOLUTION 768 columns/493 rows



INSIGHT RESOLUTION 1600 columns/1200 rows

Insight digital cameras provide real-time viewing and high resolution digital images with an easy to use interface.

- 1600 X 1200 Resolution
- 15 Frames Per Second
- Comprehensive Software
- Outstanding Images

Circle No. 33 on Readers' Service Card





Diagnostic Instruments, Inc. 6540 Burroughs St. Sterling Heights, MI 48314-2133 USA Toll Free Ph: 888-396-1218 Ph: 810-731-6000 Fx: 810-731-6469 E-mail: info@diaginc.com Website: www.diaginc.com/a22.htm

Discover more. With a Discovery[™] SE Ultracentrifuge.



<u>SORVALL</u>®

New Discovery[™] SE Ultracentrifuges offer everything you'll need to discover more. All the advanced Ultra features you want come **standard** - along with top-of-the-line performance, powerful functionality and revolutionary ease of use, all built into the smallest, quietest floor model Ultras on the market.

- Simple keypad and large LCD display for easy set-up of routine spins
- Dual display of SET and RUN conditions verify performance at a glance
- On-Line Rotor Catalog call up specifications for SORVALL® and competitive rotors
- Automatic RCF/RPM mode no protocol conversion necessary for rotors in the catalog
- Real Time Control for delayed start/stop runs
- Top speeds to 90,000 or 100,000 rpm

Laboratory Products

Quality Products - Lifetime Care

Want to discover more? Contact Kendro Laboratory Products today.

Circle No. 26 on Readers' Service Card

Warranted for use with Beckman Ultra rotors!

SORVALI

info@kendro.com

Offices worldwide. In the U.S., call 1-800-522-SPIN, Fax 203-270-2210. In Europe, 49 (1805) 536 376, Fax 49 (1805) 112 114. In Asia Pacific, (852) 2711-3910, Fax (852) 2711-3858. Or contact your local Kendro Laboratory Products Revresentative.

VISIT OUR NEW WEBSITE www.kendro.com





HeLaMONSTERTM

HeLa-Specific Transfection Reagent

- Monstrous results with difficult-to-transfect HeLa cells.
- Reagent optimized for HeLa cells – saves you time!
- Newest addition to the trusted Trans IT[®] product line.
- Joins our growing line of cell-specific transfection reagents, including Trans IT®-293 and Trans IT®-Keratinocyte.

Relax. It's really quite friendly.



Developed by Mirus

Gene Transfer Specialists

PanVera Corporation • 545 Science Dr., Madison WI 53711 Phone: 608.233.9450 • Fax: 608.233.3007 E-Mail: info@panvera.com

The Protein Company[™] Circle No. 9 on Readers' Service Card

> 800.791.1400 In the USA and Canada

Call now for 50% off introductory offer!

The Protein Company is a trademark of PanVera Corporation. HelaMONSTER is a trademark and *Trans*IT is a registered trademark of Mirus Corporation.

www.panvera.com © 2000 PanVera Corporation. All rights reserved. Lit.#L0199 Rev. 12/00

Cell Proliferation & Cytotoxicity Assays

ne Solution

The new standard in cell proliferation and cytotoxicity assays

When choosing a cell proliferation assay, get the first step right. Promega's CellTiter 96st AQ_{ueous} One Solution Cell Proliferation Assay (MTS^{*}) makes the choice easy. By eliminating radioactivity with a simple "addand-read" assay, the One Solution method has surpassed tritiated thymidine as the gold standard for cell proliferation assays.

To prove how easy the CellTiter 96 AQueous One Solution Assay is, we are offering our 200 assay system for FREE. Just request your FREE assay system at www.promega.com/cellsig/celltiter1 and we will get you started on the One Step Solution to simplified cell proliferation assays.

> Comparison between MTS and [³H]Thymidine Incorporation Assay



CPM (x 10⁻³)

Vbsorbance (490nm

CellTiter 96 A



Samples vailable through participating Promega Branch offices and distributors. Offer good for a limited time. *The MTS tetrazolium compound is the subject of U.S. Pat. No. 5,185,450 assigned to the University of South Florida and is licensed exclusively to Promega Corporation. Promega Corporation • 2800 Woods Hollow Road • Madison, WI 53711-5399 USA • Telephone 608-274-4330

Ine ster

Fax 608-277-2601 ration All Rights Reserved





ELECTRONIC

Accurate
Quick Assay Development
Versatile: Design Your Own Chip

GENOMIC

- SNPs

- Repeats and Microvariants
- Insertions, Deletions
- Gene Expression (under development)

FUTURE

DIAGNOSTIC

- APPLICATIONS
- Oncology
- Infectious Disease
- Heritable Disease
- Pharmacogenetics

For a FREE GIFT go to ... www.nancgen.com/selecte

10398 Pacific Center Drive San Diego, CA 92121 끎ដ (877)-NANOGEN

an an an the

Molecular

Biology Workstation

the people behind the dot

E-commerce is great for streamlining lab supply purchasing. But you can't lose sight of the human element. **vwrsp.com** goes further than other "dot coms," bringing a personal touch that ensures even more efficiency for our customers.

VWR Scientific Products, through our **Total Supply Chain Management** approach, delivers services that help you to

better focus on your core business. And realize lower total costs and higher profits!

In addition to Sales and Customer Service, VWR has developed **Managed Services**. This support lets you leverage VWR's core competencies—distribution, e-business, sourcing and more—for your non-core areas. Our people handle the detailed tasks of supplying and maintaining a research laboratory so you can better concentrate on what you do best.

So, before you shop, look behind the dot. At vwrsp.com, you'll discover the support you need to stay focused on what's important...your research and development. **Visit vwrsp.com now and enter** our "Dot-on-the-Map" sweepstakes for a chance to win a fabulous vacation.



Circle No. 5 on Readers' Service Card



*No purchase necessary to qualify for sweepstakes. For complete contest rules, go to VWR's Web Site at www.vwrsp.com or send a self addressed stamped envelope to VWR Scientific Products, Dept. LM-2/Hules, 1310 Goshen Parkway, West Chester, PA 19380.

CHANGE THE WAY YOU LOOK AT CELL CULTURE



TOTAL CELL MANAGEMENT







OptiCellTM is a new concept in high performance cell culture technology that revolutionizes the cell culture process. OptiCell accommodates the full range of cell culture activities from cell growth and magnetic cell separation to transfection, cloning, and drug discovery in a device with the footprint of a standard microtiter plate. OptiCell can also be used for the production of monoclonal antibodies,

- Growth surface area to volume ratio 100 cm² per 10 ml media volume
- High efficiency, low-cost magnetic cell separation
- Closed cell environment with self-sealing ports

cytokines, and other secreted molecules.

- · Accommodates continuous media perfusion and recovery
- Visual access to living cells and processes with any kind of microscope and standard or specialized optics
- Cell growth surface is sectionable into multiple samples for assays, stains
- Growth surface sections are suitable for TEM and SEM
- Designed for laboratory and industrial automation
- Dramatically reduces space requirements a 5 cubic foot incubator can hold up to 90 square feet of growth surface area (900 OptiCells)
- Barcoded for automated sample tracking

BioCrystal BioCrystal Ltd. 575 McCorkle Blvd - Westerville, OH (3082-8888 USA Tel: (614) 818-0019 - Fax: (614) 818-1117 - e-mail sales@opticell.com

> WWW.OPTICELL.COM Circle No. 55 on Readers' Service Card

Not to spoil the fun, but there are some rather pressing risks at hand. >

> Perhaps you haven't considered all the risks in your intellectual property transaction. Our visionary tools eliminate hazards, and offer remarkable solutions. Log on to the world's

safest online marketplace, at www.pl-x.com.



Circle No. 36 on Readers' Service Card

Minimize risk. Maximize opportunity.



Have you been looking for a microscope with a comprehensive environmental incubation chamber and temperature control? Do you need to use multi-well plates for a simultaneous monitoring of multiple or single experimental variables?

Zeiss has a high-throughput Cell Observer System that will do just what you need. Now you can scan multi-well plates under full environmental control and create time-lapse sequences to trace direct lineage of single cell expressing a gene of interest. You can monitor accumulated cell deaths following various experimental treatments.

A Zeiss Vision software fully supports all computer and microscope functions as well as digital cameras including epi-fluorescence and data acquisition of single or multiple populations in multi-well plates.

See for yourself.

For an immediate demonstration, call 800-233-2343.

Carl Zeiss, Inc. Microscopy & Imaging Systems micro@zeiss.com www.zeiss.com/micro



Circle No. 12 on Readers' Service Card



The International HDL **Research Awards Program**

Enhancing Our Understanding of HDL Biology and Its Relationship to Atherosclerosis

2000 - 2002

Call for Proposals \$100,000 per year for 2 years

Pfizer Inc is pleased to announce the development of the International HDL Research Awards Program (HDL Research Program). The HDL Research Program is a unique opportunity for Pfizer to reinforce its commitment to supporting research at academic institutions throughout the world.

The mission of the International HDL Research Awards Program is to support outstanding investigators in the field of HDL biology, including its relationship to atherothrombotic disease. This program will support basic and clinical research into the metabolism and biological activities of HDL particles including their role in the atherothrombotic process.

Research may be in but is not restricted to any of the following areas:

- Arterial wall
- Inflammation/apoptosis
- Assembly/remodeling
- Atherosclerosis
- Cell biology
- · Epidemiologic studies utilizing existing populations or samples (not new epidemiologic studies)
- Genetics

- Metabolism
- · Oxidative phenomena
- Reverse cholesterol transport
- Structure function studies
- Thrombosis
- Genomics
- Transcription factors
- Vascular biology

The intent of the program is to fund \$100,000 of direct costs per year for 2 years with 10% overhead. Announcement of the award recipients will be made on or before July 15, 2001.

Application Deadline: March 15, 2001

Start of Award: on or about August 1, 2001.

For further information and application materials, please contact:

Grant Coordinator The International HDL Research Awards Program 847A Second Avenue, PMB 379 New York, NY 10017-2945 hdlawards@mindspring.com





单 **1**82 - 131变

seneral

Now availableeasy-to-use scientific information on the World Wide Web

Life Sciences Science Engineering CAS Registry Numbers® Pharmaceuticals Debala MSDS

11 18 No. 4 19 1

Searching for scientific information has never been easier!



FOR MORE INFO AND A FREE DEMO:

http://sineasy.cas.ch. Circle No. 4 on Readers' Service Card

THE LOUIS-JEANTET PRIZE FOR MEDICINE

is awarded in 2001 to:

Alain FISCHER

Groupe hospitalier Necker – Enfants malades, Paris for his work in clinical immunology

Iain MATTAJ

European Molecular Biology Laboratory, Heidelberg for his work on nucleo-cytoplasmic transport

Alfred WITTINGHOFER

Max-Planck-Institute of Molecular Physiology, Dortmund for his work on the structure of signalling proteins

The Louis-Jeantet Foundation for medicine awards the three laureates the global sum of 2'100'000 Swiss francs, equally divided between them.

The Louis-Jeantet Prize for medicine is not only intended to honour past accomplishments but mainly to encourage innovative research of the highest quality. Candidates must be engaged in basic or clinical biomedical research in member countries of the Council of Europe. The Prize is awarded each year to one to three researchers or research groups. Since its inception in 1986, the Prize has encouraged fifty researchers.

Call for nominations

Nominations for the 2002 Louis-Jeantet Prize for medicine will be accepted until February 15, 2001. Candidates must be nominated by scientists, physicians or institutions having detailed knowledge of their research. Self-nominations are not accepted. The Science Committee of the Foundation will select the laureates.

Application forms and further information are obtainable from the Secretary of the Science Committee The Louis-Jeantet Foundation for medicine, P.O. Box 277, CH - 1211 GENEVA 17, Switzerland Tel. ++4122 704 36 36; Fax ++4122 704 36 37; E-mail: <u>info@jeantet.ch</u>; Home page: <u>www.jeantet.ch</u> Only original signed application forms will be considered.

The name(s) of the laureates of the 2002 Louis-Jeantet Prize for medicine will be announced in January 2002. The Prize Ceremony will take place in Geneva (Switzerland) in April 2002.



Circle No. 13 on Readers' Service Card