

expect that it is right. The question is, is it indeed right? Its mathematical complexity has so far prevented the quantitative testing of its correctness. The past ten years have been unusual in that we have what we believe is the correct theory of strong interactions, although we have not been able to make precise calculations to compare with experiment and thus prove that the theory is correct.

An annual summer institute on particle physics at the Stanford Linear Accelerator Center (SLAC) has for the past nine years provided an excellent forum for the confrontation of high-energy theory with experiment. This book is a collection of four lectures originally given at the seventh of these institutes. The lectures explain the development of high-energy theory from the parton and quark model to our present understanding of QCD.

The primary obstruction to making precise calculations is that the fundamental quarks and gluons of QCD apparently cannot be isolated as free particles but are always confined within hadrons (protons, pions, and so on) by strong forces not amenable to treatment by perturbative methods. Nevertheless, because QCD is an asymptotically free theory, interaction forces become weak at small distances (large energies) and calculations using perturbation theory and Feynman diagrams are possible. Unfortunately, most processes involve both low- and high-energy aspects, and ways of separating the low-energy pieces, which are not calculable by perturbative methods, from the high-energy perturbative ones are just becoming understood.

Because of our inability to make one precise calculation to compare with experiment, evidence in support of QCD as the correct underlying theory comes from its success in approximately describing a wide class of physical phenomena. As is discussed in detail in the lecture by Atwood, QCD correctly describes data on the deep inelastic scattering of electrons and neutrinos off protons and neutrons. In his lecture Stroynowski shows that the theory also describes correctly the data on massive muon pair production in proton-proton and pion-proton collisions and gives a good qualitative understanding of the production of large transverse momentum hadrons and "jets" in hadron-hadron collisions. Brodsky shows in his lecture that perturbative QCD can be applied with success to a wider class of phenomena than originally expected. He presents some of his original work showing that perturbative QCD can be applied to large transverse

momentum exclusive processes. In addition, he very clearly discusses the applications of perturbative QCD to the pion and proton form factor.

The lectures give a feeling of the fun, excitement, and sometimes frustration particle physics has provided over the past ten years. The fun began around 1968 when it became evident from deep inelastic scattering experiments at SLAC that the proton was not elementary but was composed of constituents or pieces (called "partons"). After many experiments it became evident that partons had the quantum numbers of quarks but that the quarks carried only about 50 percent of the momentum of a fast-moving proton. The remaining momentum, presumably, was carried by the gluon, the object mediating the force between the quarks. Efforts to knock a quark out of the proton and view it directly in the laboratory were fruitless. Instead of the struck quark, experiments detected a collection of roughly parallel moving hadrons called a "jet." The study of jets became synonymous with the study of quarks. The jet was the realization in the laboratory of the initiating quark. The challenge for theorists was to come up with a theory that could explain how at short distances the proton could behave like a collection of essentially noninteracting quarks whereas once the quark was knocked a distance out of the proton the forces became enormous, resulting in the production of ordinary hadrons in the form of a jet.

The situation became clear after the invention and comprehension of the theory of quantum chromodynamics, with its feature of asymptotic freedom. Experiments changed from simply observations of nature to "tests of QCD." Every effort is being made to make precise calculations to compare with experiment. The frustration lies in our present inability to do this. However, as these lectures show, all the qualitative features expected from the theory are seen in the data. The theory is so simple and beautiful and the qualitative evidence from a wide class of experiments so overwhelming that most theorists now believe that QCD is indeed the correct theory of the strong interactions between quarks and gluons.

Bjorken's lecture is, as always, clear and informative, adding extra insight into the subject. I particularly enjoyed his discussion of gluonium. Unlike quantum electromagnetism, in which photons do not couple to each other, in QCD gluons interact with each other and can form interesting states of matter called "glue balls" (or gluonium), which con-

tain no quarks. It is an important test of QCD to find decisive evidence for or against the existence of these pure gluon states of matter. Experimentally one would look for neutral hadrons that do not fit into the normal quark-antiquark spectrum. Many high-mass gluonium states are predicted by QCD. Bjorken's lecture contains detailed discussions of the expected spectrum of states together with an examination of their decay schemes and production mechanisms.

This collection of lectures is a bit too technical for the layperson; however, it will be of benefit to beginning and advanced graduate students. It should also be useful to experimental high-energy physicists who want to keep abreast of current theory and to particle theorists doing research on other subjects who would like to keep informed of the progress in perturbative QCD.

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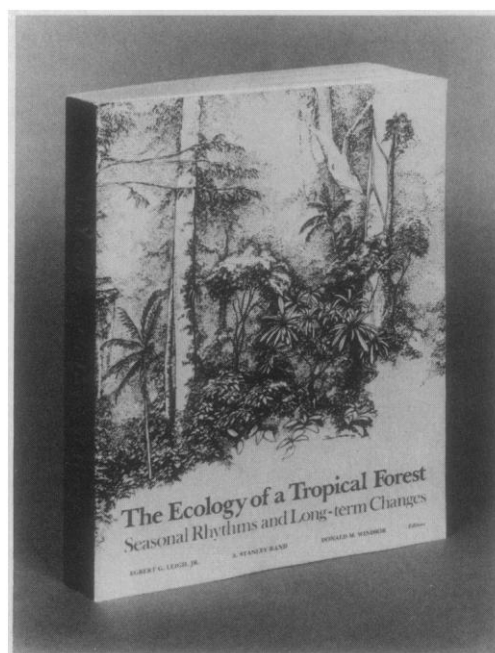
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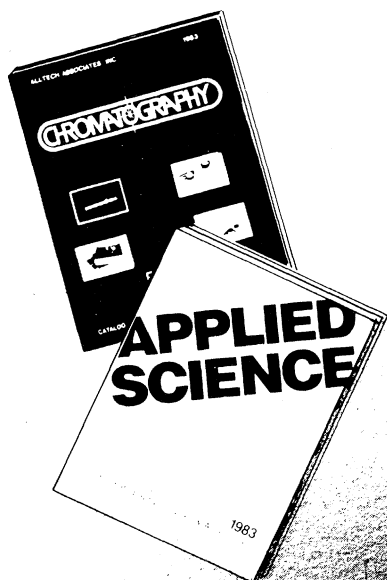
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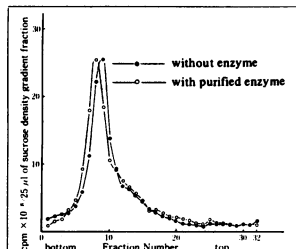


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8.3 μ g ³H-28S rRNA were incubated with 97 units of
reverse transcriptase in 0.01 M Tris, pH 7.4, 0.15 M
NaCl at 37°C for 1 hr and the reaction was stopped
with final 0.25% SLS. The mixture was layered over 15-
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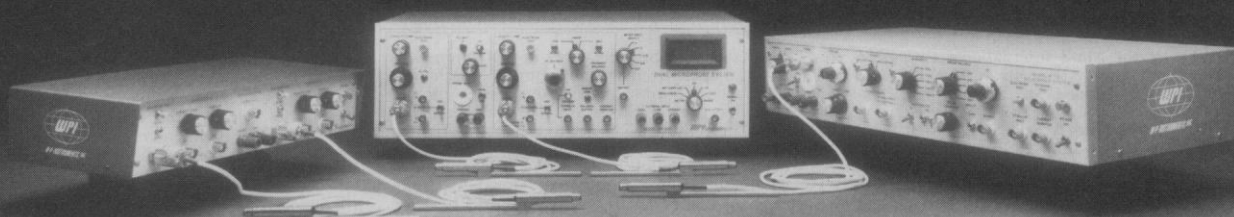
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The Random House Dictionary of New Information Technology. A. J. Meadows, M. Gordon, and A. Singleton. Vintage (Random), New York, 1983. 208 pp., illus. Paper, \$7.95.

Rationality and Science. A Memorial Volume for Moritz Schlick in Celebration of the Centennial of His Birth. Eugene T. Gadol, Ed. Springer-Verlag, New York, 1982. viii, 230 pp., illus. \$23.40.

Realism and the Aim of Science. Karl R. Popper. Hutchinson, London, 1983 (U.S. distributor, Rowman and Littlefield, Totowa, N.J.). xl, 422 pp. \$35. A volume of *Postscript to the Logic of Scientific Discovery*.

Recent Advances in Fertility Research. Proceedings of a symposium, Buenos Aires, Dec. 1981. Thomas G. Muldoon, Virendra B. Mahesh, and Bautista Pérez-Ballester, Eds. Liss, New York, 1982. Two volumes. Part A, Developments in Reproductive Endocrinology. xviii, 344 pp., illus. \$36. Part B, Developments in the Management of Reproductive Disorders. xx, 268 pp., illus. \$30. Progress in Clinical and Biological Research, vol. 112.

Rethinking Human Adaptation. Biological and Cultural Models. Rada Dyson-Hudson and Michael A. Little, Eds. Westview, Boulder, Colo., 1983. xii, 180 pp., illus. \$20. A Westview Special Study.

The Reticuloendothelial System. A Comprehensive Treatise. Vol. 4, Immunopathology. Noel R. Rose and Benjamin V. Siegel, Eds. Plenum, New York, 1983. xxiv, 440 pp., illus. \$55.

Science and Moral Priority. Merging Mind, Brain, and Human Values. Roger Sperry. Columbia University Press, New York, 1983. xvi, 152 pp. \$16.95. Convergence.

Skin. The Human Fabric. Doug M. Podolsky and the Editors of U.S. News Books. U.S. News Books, Washington, D.C., 1982 (distributor, Scribner, New York). 166 pp., illus. \$15.95.

The Solar Energy Almanac. Martin McPhillips, Ed. Everest House (Dodd Mead), New York, 1983. xiv, 240 pp., illus. Paper, \$10.95. Cloth edition, \$15.95, published by Facts On File, New York.

Solid Hydrogen. Theory of the Properties of Solid H₂, HD, and D₂. Jan Van Kranendonk. Plenum, New York, 1983. xvi, 306 pp., illus. \$39.50.

Solid-State Chemistry of Drugs. Stephen R. Byrn. Academic Press, New York, 1982. xiv, 346 pp., illus. \$55.

Special Topics in Endocrinology and Metabolism. Vol. 4. Margo P. Cohen and Piero P. Foà, Eds. Liss, New York, 1982. xvi, 252 pp., illus. \$38.

Species at Risk. Research in Australia. Proceedings of a symposium, Canberra, Nov. 1981. R. H. Groves and W. D. L. Ride, Eds. Springer-Verlag, New York, 1982. vi, 216 pp., illus. \$38.

Spinal Cord Reconstruction. Papers from a symposium, Las Vegas, Jan. 1980. Carl C. Kao, Richard P. Bunge, and Paul J. Reier, Eds. Raven, New York, 1982. xx, 490 pp., illus. \$75.

The S-Potential. Boris D. Drujan and Miguel Laufer, Eds. Liss, New York, 1982. xii, 324 pp., illus. \$60. Progress in Clinical and Biological Research, vol. 113.

Stargazers and Gravediggers. Memoirs to *Worlds in Collision*. Immanuel Velikovsky. Morrow, New York, 1983. 346 pp. \$14.95.

Structured FORTRAN 77 for Engineers and Scientists. D. M. Etter. Benjamin/Cummings, Menlo Park, Calif., 1983. xvi, 358 pp., illus. Paper, \$18.95.

Survey of Drug Research in Immunologic Disease. Vol. 1, Aliphatic Derivatives. Vassil St. Georgiev. Karger, Basel, 1983. x, 542 pp., illus. \$293.50.

Talking Tech. A Conversational Guide to Science and Technology. Howard Rheingold and Howard Levine. Quill (Morrow), New York, 1983. 324 pp., illus. Paper, \$6.95. Reprint of the 1982 edition.

Teoreticheskaya Biologiya. E. S. Bauer. Reprint of the 1935 edition with a preface, a biographical and critical essay. G. M. Frank, J. Tigyi, S. E. Shnol, and A. A. Zamyatnin, Eds. Akadémiai Kiadó, Budapest, 1982. 296 pp. \$14.

Thalassemia. Recent Advances in Detection and Treatment. Papers from a symposium, S. Margherita di Pula, Cagliari, Sardinia, Italy, June 1981. Antonio Cao and five others, Eds. Liss, New York, 1982. xxii, 378 pp., illus. \$75. Birth Defects: Original Article Series, vol. 18, No. 7.

World Energy Supply. Resources, Technologies, Perspectives. Manfred Grathwohl. Translated from the German. Walter de Gruyter, New York, 1982. x, 450 pp., illus. \$54.50.

World Hydrocarbon Markets. Current Status, Projected Prospects and Future Trends. Papers from a colloquium, Mexico City, 1982. Miguel S. Wionczek, Ed. Pergamon, New York, 1983. x, 286 pp., illus. \$40.

Personnel Placement

SCIENCE publishes each Friday, except the last Friday of the year. Advertising is accepted only in writing; no abbreviations. Also, personnel advertising is accepted only with the understanding that the advertiser does not discriminate among applicants on the basis of race, sex, religion, age, color, national origin, handicap, or sexual preference.

CLASSIFIED ADVERTISING DEADLINES:

8 July issue (mailed 1 July): **17 June**
15 July issue (mailed 8 July): **24 June**
22 July issue (mailed 15 July): **1 July**
29 July issue (mailed 22 July): **8 July**

POSITIONS WANTED: 40¢ per word, plus \$4 for use of box number, per insertion, \$10 minimum, per insertion. Prepayment required. This rate is available only to individuals seeking jobs.

DISPLAY (POSITIONS OPEN, COURSES, FELLOWSHIPS, MARKETPLACE, and so forth): \$9.80 per millimeter; \$245 minimum, per insertion (minimum charge covers 25 millimeters on a single column; 25 millimeters equals 10 lines of 50 spaces per line). No charge for use of box number. No agency commission for ads less than 103 millimeters (4 inches). No cash discount. Prepayment required for all foreign ads. Purchase orders and billing information required for all other advertising.

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Blind ad replies should be addressed as follows:

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1515 Massachusetts Avenue, NW
Washington, D.C. 20005

POSITIONS WANTED

Anatomist. M.Sc. in anatomy seeks position as instructor in the life sciences. Experienced as director/coordinator of undergraduate and allied health anatomy courses. Box 145, SCIENCE. 6/17, 24; 7/1, 8

Biologist. M.S. Research experience: microbiology, aquatic resources, agriculture, forestry. Additional skills: analytical chemistry, writing, computers, teaching. Desires challenging position. Box 142, SCIENCE. 6/17, 24

Collagen/Connective Tissue Biochemist. Ph.D. Extensive research experience in soft and hard tissue collagen types, glycoproteins, phosphoproteins, and proteoglycans. Preparative, analytical, and HPLC methods development. Publications. Box 144, SCIENCE. X

Computer Scientist. M.S.C.S. 1983, searching for position with group doing pure or applied research in biochemistry, biomedicine, or other area of the biological sciences. University or other academic environment preferred. Box 151, SCIENCE. 6/17, 24; 7/1

Geneticist. Ph.D. Board-certified medical cytogeneticist. Extensive genetics teaching experience; publications; seeks position in New York City area. Box 150, SCIENCE. X

Intellectual Property Lawyer. chemical/biotechnology/pharmaceutical; former chief patent counsel for Fortune 100 corporation; seeks senior-level university position involving administration of intellectual property and licensing policy. Box 147, SCIENCE. X

Microbiologist/Biochemist. Ph.D. Extensive experience in structural and immunochemical analysis of bacterial and mycotic antigens, animal studies, tissue culture, teaching, clinical and research laboratories, and preparative and analytical method development. Seeks industrial or government position. Box 148, SCIENCE. X

POSITIONS WANTED

Microbiologist. B.S. in bacteriology, M.S. December 1983. Six years of experience. Excellent references. Seeks challenging position in industry. Willing to relocate. R. M. Piantedosi, 2271 81st Street, Brooklyn, N.Y. 11214. 6/17, 24

Natural Resource Biologist. B.S., M.S. Eight years of fisheries-wildlife scientific/technical experience, including salmonid management, culture, nutrition, pathology; waterfowl/upland game lease-management; mined-land reclamation; range, soil, water resources evaluation for environmental statements/consolidated permits. Variety of publications. Desires challenging research/development position. Will relocate. William Logan, P.O. Box 4325, Boulder, Colorado 80306. 6/17, 24

Neural Prosthetics Engineer. Ph.D. Research, development, and application. Mature professional seeks part-time association with reputable organization. Box 149, SCIENCE. X

Plant Pathologist/Forensic Serologist. Ph.D. 1979, plant pathology; 3½ years as FBI agent, including FBI laboratory. Seeks position with university (teaching/research), forensic laboratory, government, industry. Graduate/undergraduate teaching experience. Box 131, SCIENCE. X

Senior Neurophysiologist. Ph.D., with 18 years of experience in teaching and research, desires position with clinical team engaged in electrophysiological research. Box 146, SCIENCE. X

POSITIONS OPEN

ASSISTANT PROFESSOR—BIOLOGICAL STRUCTURE

Department recently reorganized to encourage research activity is seeking an individual with postdoctoral experience and ability to establish independent research program for a fully funded tenure-track position. Ability to teach gross anatomy to medical students is required. Located in new facility 38 miles north of downtown Chicago. Submit curriculum vitae, three references, and a statement of research plans to: **Dr. Robert G. Kemp, University of Health Sciences/The Chicago Medical School, 3333 Green Bay Road, North Chicago, Ill. 60064. An Equal Opportunity/Affirmative Action Employer.**

Department of Pharmacology, University of Michigan Medical School, seeks candidates for tenure-track position at level of **ASSISTANT OR ASSOCIATE PROFESSOR** in the area of **cancer pharmacology** to be part of a research group including synthetic chemists, pharmacologists, and clinical oncologists. Applicants must have Ph.D. or M.D. with at least 2 years of postdoctoral experience and training/research experience in structure-activity relationships, mechanisms of action, and pharmacology of anticancer agents. Send curriculum vitae (include grant support and teaching experience) and names of three references to: **Chairman, Search Committee, Department of Pharmacology, University of Michigan Medical School, M6322 Medical Sciences I, Ann Arbor, Mich. 48109.** Deadline for applications is 1 September 1983. A nondiscriminatory, Affirmative Action Employer. Code 26FO.

ASSOCIATE/FULL PROFESSOR—MANAGEMENT OF RENEWABLE AQUATIC RESOURCES, UNIVERSITY OF ALASKA, JUNEAU. Candidate should possess a Ph.D. in fisheries or related field. Teaching experience on university level is desired in population dynamics, fisheries management, ecosystem dynamics and modeling, operations research and optimization. Demonstrated research ability through publication record in primary field. Duties will include development of a program of research and teaching in resource management with emphasis on Alaskan fishery resources. Expected to participate in general instruction in quantitative subjects. Rank and salary dependent upon qualifications. This is a 9-month, tenure-track position with full university benefits beginning 1 September 1983 or whenever possible thereafter. Closing date is 1 August 1983 or until filled. A letter of application, current résumé, transcripts, and names of three references should be sent to: **Dean, School of Fisheries and Science, University of Alaska, Juneau, 11120 Glacier Highway, Juneau, Alaska 99801. Telephone: 907-789-4442. The University of Alaska is an Equal Opportunity/Affirmative Action Employer and Educational Institution.**

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**AUSTRALIAN NATIONAL ANIMAL HEALTH LABORATORY
GEELONG, VICTORIA, AUSTRALIA**

CSIRO conducts scientific and technological research in laboratories located throughout Australia and employs about 7500 staff, of whom some 2900 are professional scientists. The Organization's research activities are grouped into five Institutes: Animal and Food Sciences, Biological Resources, Energy and Earth Resources, Industrial Technology, and Physical Sciences.

The Australian National Animal Health Laboratory (ANAH), which is a member of the Institute of Animal and Food Sciences, is a high-security microbiological laboratory currently being built in Geelong, a city with a population of 170,000 people located 80 kilometers southwest of Melbourne. The Laboratory is scheduled for completion later this year and when fully operational will employ approximately 200 staff, including 35 scientists. The laboratory has been built to assist the diagnosis and control of animal diseases exotic to Australia and for research into such diseases and their causative agents. At present five research programme areas are planned: Diagnosis and Epidemiology; Molecular Nature of Infectivity, Virulence and Antigenicity; Pathogenesis of Disease; Vaccines and Immunity; and Microbiological Security.

The appointee shall join the Molecular Nature of Infectivity, Virulence and Antigenicity programme, whose research staff currently includes a viral immunochemist, a viral nucleic acid chemist, a genetic engineer, a biochemist/cell biologist (cell receptors), and an immunologist (monoclonal antibodies). At present emphasis is being placed on the study of members of the families Reoviridae (orbivirus genus-viruses related to bluetongue) and Bunyaviridae (Simbu serogroup viruses related to Akabane virus). Research is centred on serological and biochemical relationships among viruses in these families, identification of virulence markers, and the study of virus variation.

DUTIES: To develop and take part in research projects involving the analysis and synthesis of proteins and polypeptides; to assist in the definition of the structure and function of such molecules and to supervise research and technical staff in this area of research. The successful applicant will be involved in establishing protein chemistry technology at the Australian National Animal Health Laboratory, including techniques involving HPLC, protein sequencing, amino acid analysis, and polypeptide synthesis. The appointee may be required to undertake an overseas study trip soon after taking up the position, to evaluate new techniques in protein studies.

QUALIFICATIONS: A Ph.D. degree in a relevant discipline together with extensive experience, demonstrated research leadership, and significant research publications in the field of protein chemistry.

TENURE: Indefinite with Australian Government Superannuation benefits available.

APPLICATIONS: Stating full personal and professional details, the names of at least two referees, and quoting reference number A6776 should be directed to:

**The Officer-In-Charge
CSIRO ANAH
P.O. Bag 24
Geelong, Victoria, 3220 Australia**

By 15 July 1983.

Associate Director Microbial Biochemistry

SmithKline Beckman, a leader in pharmaceutical research, is seeking an outstanding senior scientist with an international reputation to provide the overall scientific direction of our Microbial Biochemistry Program in an environment designed to foster creative, innovative research and to promote personal and professional growth.

The successful candidate will be expected to direct a group of senior scientists in microbial biochemistry. The role of the group is to:

- exploit mechanistic studies on the interaction of substrates and inhibitors with enzymes with a view to designing site-directed antimicrobial agents.
- collaborate with medicinal chemists and microbiologists in the establishment of novel drug design and targeted screening programs for selective anti-infective agents.
- identify and evaluate biochemical targets directed against clinically important pathogens.

Candidates are required to have:

- a Ph.D. in Biochemistry or Biological Chemistry with 8 or more years relevant postdoctoral experience.
- experience in studying the mechanism of enzyme/inhibitor interactions.
- a working knowledge of purification and analytical techniques for enzymes and other biologically active proteins.
- demonstrated capacity for scientific innovation supported by an excellent publication record.

We offer excellent compensation and benefits and an attractive relocation policy. For confidential consideration, send your C.V. and names of 3 references to: **Mr. Walter Flagg, SMITHKLINE BECKMAN CORPORATION, P.O. Box 7929, 1526 Spring Garden Street, Philadelphia, PA 19101.** We are an equal opportunity employer, M/F/H/V.

SK&B
A SmithKline Beckman Company

Associate Director Bioactive Microbial Products

SmithKline Beckman, a leader in pharmaceutical research, is seeking an outstanding senior scientist with an international reputation to provide the overall scientific direction of our Bioactive Microbial Products Program in an environment designed to foster creative, innovative research and to promote personal and professional growth.

The successful candidate will be expected to direct a group of senior scientists engaged in the discovery and pilot plant development of new bioactive microbial products. The role of the group is to:

- isolate and culture micro-organisms for new product screening.
- supervise fermentation and detection systems for bioactive microbial products screening.
- operate a high technology pilot plant for scale-up of bioactive metabolites and rDNA products.
- supervise a product recovery group in isolation chemistry.
- interact with molecular geneticists, immunologists, tumor biologists and structure determination chemists in the natural products programs.

Candidates are required to have:

- a Ph.D. in Microbial Physiology, Microbial Biochemistry or Microbial Genetics with 7 or more years post doctoral experience in the study of commercially important micro-organisms.
- an understanding of the application of computers to controlling and monitoring biological reactors.
- an appreciation of the numerous factors that influence the overproduction of metabolites by micro-organisms.
- proven capacity of scientific innovation supported by an excellent publication record.

We offer excellent compensation and benefits and an attractive relocation policy. For confidential consideration, send your C.V. and names of 3 references to: Mr. Walter Flagg, SMITHKLINE BECKMAN CORPORATION, P.O. Box 7929, 1524 Spring Garden Street, Philadelphia, PA 19101. We are an equal opportunity employer, M/F/H/V.

SK&F

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RESEARCH

The Rohm and Haas Company, a leading multinational chemical company, has two Ph.D. level openings at their corporate research headquarters located in Spring House, PA, an attractive suburb of Philadelphia.

MOLECULAR BIOLOGIST: To design and carry out projects in gene transfer in microorganisms. You must have demonstrated skills in recombinant DNA technologies; and you must be familiar with the characterization of gene products, gene sequencing, and microbial biosynthetic pathways. A Ph.D. in molecular biology or biochemistry and 2 to 3 years of relevant postdoctoral experience are required.

PROTEIN CHEMIST: To design and carry out projects in the isolation and characterization of proteins. You must have demonstrated skills in protein isolation and quantification; and have familiarity with techniques such as gel electrophoresis, column chromatography, amino acid analysis, sequence determination, chemical modification of proteins, enzymology, and immunological methods. A Ph.D. in biochemistry and 2 to 3 years of relevant postdoctoral experience are required.

We offer an excellent salary and benefits program, including relocation assistance, and an environment conducive to professional advancement. Please send a detailed resume, in confidence, to:

Recruiting and Placement #783



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POSITIONS OPEN

ASSISTANT PROFESSOR, GENETICS. Full-time, 2-year appointment, beginning September 1983. Teaching responsibilities (12 hours per semester) include: genetics and vertebrate embryology for biology majors; human heredity and embryology for allied health students; and participation in introductory biology. Ph.D. required. Applicants should submit curriculum vitae, transcripts, and three letters of reference by 8 July 1983 to: Dr. Louis F. Gainey, Jr., Chairman, Department of Biological Sciences, University of Southern Maine, 96 Falmouth Street, Portland, Maine 04103. *Equal Opportunity/Affirmative Action Employer.*

Nontenure ASSISTANT PROFESSOR OF RESEARCH NEUROLOGY. The successful applicant must be versed in all aspects of cellular immunology, especially the use of T cell clones, and also have an extensive background in membrane biology. Ph.D. or M.D. with at least 2 years of postdoctoral experience and have existing funding to supplement at least 50 percent of salary. Salary range: \$22,000 to \$30,000 for 12-month appointment. Applicants should send their curriculum vitae and one letter of recommendation to: Leslie P. Weiner, M.D., University of Southern California School of Medicine, Chairman, Department of Neurology, Professor of Microbiology, 2025 Zonal Avenue, Los Angeles, Calif. 90033. *Equal Opportunity Employer, M/F/H.*

ASSISTANT PROFESSOR OF WILDLIFE BIOLOGY. Washington State University invites applications for a tenure-track position available 16 September 1983 (or 1 February 1984). Ph.D. in wildlife biology or related discipline and research interests in mammalian population modeling required. Teach mammalogy, animal population dynamics, and a graduate course in area of interest. Develop a vigorous research program. Send curriculum vitae and three letters of reference by 15 July 1983 to: Dr. Frederick F. Gilbert, Director, Wildlife Biology, Washington State University, Pullman, Wash. 99164-4220. *Washington State University is an Equal Opportunity/Affirmative Action Employer.*

CHAIRPERSON DEPARTMENT OF BIOCHEMISTRY THE UNIVERSITY OF TEXAS HEALTH SCIENCE CENTER AT DALLAS SOUTHWESTERN MEDICAL SCHOOL

Applications and nominations are invited for the position of professor and chairperson of the Department of Biochemistry. Candidates should have an outstanding record of research accomplishments and be dedicated to the provision of leadership in research and teaching for a department that currently includes more than 25 faculty. Nominations and applications will be received until the position is filled and should be addressed to: Alfred G. Gilman, Chairman of the Biochemistry Search Committee, Department of Pharmacology, The University of Texas at Health Science Center at Dallas, 5323 Harry Hines Boulevard, Dallas, Texas 75235. *An Equal Opportunity Employer.*

CHAIRMAN, BEHAVIORAL SCIENCES DEPARTMENT

The Armed Forces Radiobiology Research Institute is seeking an individual to serve as chairman, Behavioral Sciences Department. This Institute, a command of the Defense Nuclear Agency, is the principal radiobiology research laboratory for the Department of Defense. The Behavioral Sciences Department is responsible for research on the effects of ionizing radiation on behavior and on the interaction between chemical or pharmacological factors and the psychobiological response to radiation. Chairman is responsible for a multidisciplinary research program in experimental animal models ranging from operant conditioning techniques to methods in physiological psychology, neurochemistry, and neurophysiology. Candidate will be expected to plan, initiate, and direct a multidisciplinary research program, supervise a scientific and technical staff comprised of military and civilian personnel, and conduct personal research in an area of radiobiology. Desirable qualifications include a Ph.D. in psychology or a related biological science, a strong publication record, and management experience. This Civil Service position is available immediately. Salary ranges from \$41,277 to \$63,115. Direct inquiries to: Vince Ackermann, telephone: 202-295-1426. Submit application, including SF-171 and curriculum vitae, by 15 July 1983 to: The Armed Forces Radiobiology Research Institute, Civilian Personnel Office, Bethesda, Md. 20814. Reference announcement number 27/83. *Equal Opportunity Employer.*

CELL AND MOLECULAR BIOLOGY FACULTY POSITIONS

Faculty-level positions are becoming available at the Worcester Foundation for Experimental Biology. The major criteria in this search are scientific excellence and collegial qualities.

At present, the faculty and their areas of interest are:

- Earl Baril**—Enzymology of eukaryotic DNA replication.
- Edward Berger**—Cell-cell recognition and control of gene expression by cell-cell contact in *Dictyostelium*.
- William Crain**—Structure and developmental expression of sea urchin actin genes.
- Charles Glabe**—Gamete interactions and sperm adhesion.
- Grant Fairbanks**—Membrane proteins, regulation of erythrocyte shape and volume.
- Jay Greenberg**—Messenger RNA-binding proteins and control of protein synthesis.
- Thoru Pederson**—Nuclear ribonucleoproteins and messenger RNA processing.
- Harriet Robinson**—Avian retroviruses; oncogenes.
- Greenfield Sluder**—Timing and molecular control of mitotic events during early development.
- David Steffen**—Murine leukemia virus gene expression and oncogenicity.
- Richard Vallee**—Microtubule-associated proteins; mitosis, neuronal cytoskeleton, monoclonal antibodies.
- Samuel Wadsworth**—Gene expression during development in *Drosophila*.
- Robert Wehling**—Actin and actin-associated proteins in relation to cytoskeleton organization.
- David Wolf**—Control of lateral organization and motion of membrane components.
- George Witman**—Mechanism and control of flagellar motility in *Chlamydomonas*.
- Paul Zamecnik**—Nucleotide-enzyme interactions involved in DNA replication.
- Carol Ziomek**—Membrane structure and cell polarity in early mouse development.

We hope to make two appointments in the next 18 months. These positions can be filled at either junior or senior faculty rank. Send applications to: Dr. Thoru Pederson, Cell Biology Group, c/o Personnel Office, Worcester Foundation for Experimental Biology, Shrewsbury, Mass. 01545. An Equal Opportunity/Affirmative Action Employer.

THE COOPERATIVE ANTIVIRAL DRUG DEVELOPMENT PROGRAM

A need exists for antiviral compound(s) with which to treat military and civilian personnel who have contracted one of several high hazard viral infections. To meet this need, the Department of Antiviral Studies at the U.S. Army Medical Research Institute of Infectious Diseases (USAMRIID) has initiated an antiviral drug development program which seeks to identify compounds active against RNA viruses. Upon identification of a potential antiviral drug candidate, the Department will actively encourage the development of the compound culminating in submission of an FDA New Drug Application.

Ongoing antiviral drug screens at USAMRIID are directed against viruses that require biohazard containment facilities at either the P-3 or P-4 level and hence are beyond the safety capabilities of most universities and drug companies. Sixty to 100 mg of compound are required for the standard battery of in vitro tests. An additional quantity of 500 to 800 mg is needed for the in vivo screens; lesser amounts are required if the compounds are exceptionally active. Submitted compounds are promptly evaluated and test results returned to the submitter as soon as they become available.

The initial screen is a tissue culture screen using various concentrations of the compound in one or two monkey kidney cell lines. The viruses usually used in this screen are: Venezuelan equine encephalomyelitis (VEE) and Yellow Fever (both togaviruses), Pichinde (an arenavirus), and Rift Valley fever (RVF) (a bunyavirus). Promising compounds are also tested in a mouse RVF and VEE screen. For this screen, drug treatment using several dosages is begun one day prior to subcutaneous virus challenge. Efficacy in this screen could result in more extensive rodent efficacy or nonhuman primate studies.

The Department will not, without prior consent, voluntarily disclose or make public the identity of submitted compounds nor voluntarily disclose any proprietary information given in confidence. When appropriate, publication of test results in the scientific literature by the submitter is encouraged.

For additional information and procedures for submission of compounds for antiviral testing, contact:

Deborah Fry
Drug Acquisition Section, Building 1425
Department of Antiviral Studies
Virology Division, USAMRIID
Ft. Detrick, Frederick, Md. 21701
Telephone: 301-663-7691

POSITION AVAILABLE

DIRECTOR, SENIOR CLINICAL IMMUNOLOGIST

M.D. and/or Ph.D. Our client is a well established, multinational leader in the health care industry.

This senior level position provides opportunities for new product development and related research. Background in hypersensitivity, immunoglobulins, rDNA and monoclonal antibodies highly desirable. Proven record of research productivity, membership in immunological societies and demonstrated administrative abilities required.

Excellent salary and full benefits package including relocation assistance. For confidential consideration, please send CV, including bibliography, to:

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303 E. Ohio Street
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We will forward all responses to our client unopened.

SQUIBB

RESEARCH ASSOCIATE Pharmacology

The Squibb Institute for Medical Research, an established leader in the pharmaceutical industry, has two openings in our dynamic Pharmacology Department. For one of the positions, we are seeking an individual to conduct experiments involving mechanical and biochemical measurements of vascular smooth muscle. Experience with ⁴⁵Ca flux studies is required. The second position involves experimental work which is primarily based on radioligand binding techniques, enzyme activity assays and *in vitro* functional pharmacology in cardiovascular tissue. Experience working with radioactive compounds and basic biochemical and pharmacological methods is required.

Qualified applicants will have an MS or BS degree or equivalent work experience, preferably in biochemistry, biology or an allied science. Basic responsibilities will include animal handling and tissue preparation as well as the operation of laboratory equipment. The ability to read and understand current scientific literature is essential.

These challenging research positions, located at Squibb's Corporate Headquarters in Princeton, NJ, offer excellent starting salary and liberal benefits package. Please submit resume, including salary requirements, in confidence to: **E.R. SQUIBB & SONS, INC., Department PTZ/SM, P.O. Box 4000, Princeton, NJ 08540.** We will accept direct applicant response only. Equal Opportunity Employer, M/F/H/V.

THE HEBREW UNIVERSITY OF JERUSALEM

FACULTY POSITION IN BACTERIOLOGY

The Institute of Microbiology invites applications for a faculty position.

The appointee will be expected to develop an independent research program in general bacteriology or bacterial physiology and to participate in teaching undergraduate and graduate students.

Qualified candidates should submit a detailed curriculum vitae, list of publications, three references and research plans to:

**The Search Committee
The Institute of Microbiology
The Hebrew University—
Hadassah Medical School
P.O.B. 1172
Jerusalem 91010, Israel**

PHARMACOLOGISTS

Pharmaceuticals R&D

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Expanded program activity in these laboratories has established the following vacancy:

Ph.D. in Renal Pharmacology or Physiology. Competence in renal techniques in animals. Postdoctoral experience. Demonstrated expertise related to evaluation of novel diuretics and antihypertensive agents.

B.S./M.S. in Pharmacology or related area to support Ph.D. scientists in screening of compounds. Should demonstrate good animal techniques and experience in biochemical assays a plus.

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POSITIONS OPEN

BIOPHYSICS/BIOCHEMISTRY

Our laboratory is investigating the molecular biology of fibrinogen and plasma fibronectin. We are seeking someone with a biophysics background that includes analytical ultracentrifugation, spectropolarimetry, and/or EM. This is a challenging research opportunity for an individual who is capable of independent investigation in a programmatic setting. The position is available either at a postdoctoral (M.D./Ph.D.) or faculty level (University of Wisconsin Medical School), depending upon qualifications and experience. Send curriculum vitae plus statement of background, career goals, and research interests to: **Dr. Michael W. Mosesson, Department of Medicine, Mount Sinai Medical Center, 950 North 12 Street, Milwaukee, Wisconsin 53233.**

CYTOPATHOLOGIST. The Department of Pathology seeks a pathologist with experience in cytology and an active research interest in the application of new technologies to cytologic diagnosis. The appointment will be made on the tenure-track at either the assistant professor or associate professor level. Interested candidates should write to: **David Lagunoff, M.D., Department of Pathology, St. Louis University School of Medicine, 1402 South Grand Boulevard, St. Louis, Mo. 63104.** Please include curriculum vitae and a brief description of current research. *An Equal Opportunity/Affirmative Action Employer, M/F/H.*

DEAN, COLLEGE OF HEALTH—University of Utah, Salt Lake City, Utah. The University of Utah invites nominations and applications for the position of **DEAN, COLLEGE OF HEALTH.**

The dean is the chief academic and administrative officer for the College and reports directly to the Vice President for Health Sciences. The College of Health consists of three departments (Health Education, Physical Education, and Recreation and Leisure) and two divisions (Foods and Nutrition and Physical Therapy).

The starting date is 1 July 1984. The deadline for nominations and applications is 1 September 1983, unless a qualified candidate is not located. Nominations or applications with a complete, current résumé should be sent to:

Robert O. Ruhling, Ph.D., Chair, Search Committee, c/o Marilyn H. Howard, 2743 University Hospital, 50 North Medical Drive, Salt Lake City, Utah 84132.

Affirmative Action/Equal Opportunity Employer

DIRECTOR OPTICAL SCIENCES CENTER

The University of Arizona is seeking a director of the Optical Sciences Center.

The Optical Sciences Center is a leading center for research and graduate education in all aspects of optics. It currently has approximately 35 faculty members, 120 graduate students, a support staff of 50, and a funded research budget of \$4 million.

Candidates should have a broad knowledge of optical physics and engineering, significant research experience, and demonstrable administrative skills.

Applications and nominations should be received by 15 August 1983. They should include complete curriculum vitae and names of three references and be mailed to the chairman of the search committee: **Dr. H. H. Barrett, Optical Sciences Center, University of Arizona, Tucson, Ariz. 85721.**

The University of Arizona is an Equal Opportunity/Affirmative Action/Title IX/Section 504 Employer.

The Department of Surgery, Southwestern Medical School, is seeking applicants for:

INSTRUCTOR—M.D., accredited general surgery residency, interest in peripheral vascular surgery. Deadline for submission of applications for 1984–1985 is 30 June 1983; for 1985–1986, 30 October 1983; and for 1986–1987, 1 January 1984. Contact: **William J. Fry, M.D., Hudson-Penn Professor and Chairman, Department of Surgery, 5323 Harry Hines Boulevard, Dallas, Texas 75235.** *The University of Texas Health Science Center at Dallas is an Equal Opportunity Employer.*

EXPERIENCED MOLECULAR GENETICIST interested in the field of neurobiology. Full-time research position with academic rank. Available up to level of associate professor. Expertise in cloning, DNA sequence, and messenger RNA translation.

Please contact: **Dr. Michel Chrétien, Clinical Research Institute of Montreal, 110 Pine Avenue West, Montreal, Quebec, Canada H2W 1R7.** Telephone: 514-842-1481.

POSITIONS OPEN

American Institute of Nutrition (AIN)

and

American Society for Clinical Nutrition (ASCN)

Applications are invited from persons with a doctoral degree and recognized scientific competence for a full-time position as **EXECUTIVE OFFICER** of AIN and **SCIENCE OFFICER** of AIN and ASCN. Administrative experience desirable. Appointment effective 1 July 1984. Send curriculum vitae and names of three references by 15 July 1983 to: **Dr. Lucille S. Hurley, President, AIN, Department of Nutrition, University of California, Davis, Calif. 95616.**

FACULTY POSITION IN MARINE GEOLOGY University of Maryland Center for Environmental and Estuarine Studies (UMCEES)

Horn Point Environmental Laboratories of UMCEES invites applications for a tenure-track research faculty position (rank open) for a marine geologist. The successful candidate will join a growing physical/geological oceanography program, so applicants with a wide range of interests will be considered. Opportunities exist for interdisciplinary research with biological and chemical oceanography programs. Although some preference will be given to candidates with interests in estuarine and continental shelf sedimentological processes, the primary criterion for selection is the ability to develop a strong research program. The closing date for applications is 1 August 1983. Curriculum vitae, description of research interests, and list of references should be sent to:

**Dr. Larry G. Ward
Chairman, Search Committee
UMCEES**

**Horn Point Environmental Laboratories
P.O. Box 775
Cambridge, Maryland 21613**

The University of Maryland is an Affirmative Action/Equal Opportunity Employer.

MICROBIOLOGIST

The Department of Microbiology and Environmental Health, College of Veterinary Medicine and Biomedical Sciences, Colorado State University, seeks candidates for a 9-month, tenure-track position in microbiology at assistant or associate professor level. Responsibilities include teaching in the professional veterinary curriculum and graduate programs in microbiology. Candidates should have demonstrated research proficiency in an area related to mechanisms of bacterial pathogenesis, immunobiology, or microbial and molecular genetics. A research program that will complement modern veterinary diagnostic microbiology is desirable. Level of appointment and salary commensurate with training and experience. Ph.D., D.V.M./Ph.D., or M.D./Ph.D. degree preferred; postdoctoral research experience desirable. Applications should consist of curriculum vitae, statement of personal goals and objectives, and three letters of recommendation. Closing date of 15 August 1983 may be extended. Direct applications and inquiries to: **Dr. James E. Ogg, Chairman of Search Committee, Department of Microbiology and Environmental Health, Colorado State University, Fort Collins, Colorado 80523.** Telephone: 303-491-6136. *Colorado State University is an Equal Opportunity/Affirmative Action Employer.*

VETERINARY MICROBIOLOGIST

The Department of Microbiology and Environmental Health, College of Veterinary Medicine and Biomedical Sciences, Colorado State University, seeks candidates for a 12-month, tenure-track position in veterinary bacteriology at assistant or associate professor level. Responsibilities include teaching in the professional veterinary medicine curriculum and graduate programs. Candidates will be responsible for development of an independent research program. Level of appointment and salary commensurate with training and experience. D.V.M. and Ph.D. degree preferred; postdoctoral research experience desirable. Applications should consist of curriculum vitae, statement of personal goals and objectives, and three letters of recommendation. Closing date of 15 August 1983 may be extended. Direct applications and inquiries to: **Dr. James E. Ogg, Chairman of Search Committee, Department of Microbiology and Environmental Health, Colorado State University, Fort Collins, Colorado 80523.** Telephone: 303-491-6136. *Colorado State University is an Equal Opportunity/Affirmative Action Employer.*

NATIONAL INSTITUTES OF HEALTH STAFF FELLOWSHIP: BIOCHEMIST

The Clinical Investigations Section of the National Institute of Dental Research is seeking an individual to participate in ongoing studies of exocrine secretory mechanisms (signal transduction events; glycoprotein processing and translocation; see, e.g. J. Biol. Chem. 256, 9731, 1981; 257, 9532, 1982). The candidate should have strong experience in membrane chemistry (lipid, carbohydrate, protein) with at least two years post-doctoral training. The initial appointment is for two years (renewable extensions are available) with a starting annual salary range of \$24,000-\$30,000, depending on background and experience. The position is available October 1, 1983. Send curriculum vitae and three references to Dr. Bruce J. Baum, Clinical Investigations Section, National Institute of Dental Research, National Institutes of Health, Building 10, Room B1N-107, Bethesda, MD 20205.

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There's No Place Quite Like Syva... For Opportunities In The Healthcare Industry.

Senior Biochemist

Syva, a leading immunodiagnostics company, is growing to meet the challenge of providing the healthcare industry with progressive new technologies. Look into this opportunity that we currently have available and accept the challenge.

You will be responsible for research and development to refine and increase the quality of immunoassay reagents. Basic biochemical approaches will be utilized to improve our antibody, enzyme, and protein components. Imaginative problem solving skills are highly desirable. A PhD in biochemistry with post-doctoral or related experience is required.

Syva offers an attractive benefits package that includes medical and dental insurance. For prompt consideration, send your resume, indicating Opportunity Number 616, to Human Resource Staffing, Syva Company, P.O. Box 10058, Palo Alto, CA 94303. We are committed to an equal opportunity hiring policy m/f/h.



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Research Assistant

The Plant Genetics Department of Pfizer Central Research has an immediate opening for a Research Assistant to be part of a multidisciplinary research team.

You will be involved with experiments in plant molecular biology, including the design and construction of vectors for the transformation of plant cells, as well as investigation of gene organization, regulation and function in higher plants.

Qualified applicants should have an MS or equivalent experience in molecular biology with laboratory experience in recombinant DNA and nucleic acid biochemistry. Plant molecular biology experience is desirable.

This position offers a stimulating professional environment in an attractive Connecticut shore area, complemented by a competitive salary/benefits package and relocation assistance. Forward your resume, description of research and references to: Lorraine C. Corr, Personnel Associate, Pfizer Central Research, Eastern Point Road, Groton, CT 06340.



An equal
opportunity employer

ASSISTANT PROFESSORS

Research-track Medical School Department of Physiology

Candidates must have PhD or MD Degree and at least 4 years post doctoral experience. Competitive salary and comprehensive benefits. Unique requirements for the research areas are experience in:

1. Voltage clamping of cardiac muscle, calcium channel blockers and single cell techniques. Background in theoretical analysis of currents in electrical syncytia and experience with microcomputers is specifically desirable.
2. Physiology and biochemistry related to Cell O₂, CO₂ exchange, hemoglobin and enzyme separation, particularly carbonic anhydrase. Experience with mass spectrometry highly desirable.
3. Voltage and patch clamp technique in excitable membranes. Knowledge of analog and digital electronics, and computer programming and interfacing is necessary. Experience in primary tissue and cell culture desirable.
4. Tissue and cellular oxygenation in fetus and newborn placentar exchanges and mechanisms of metabolic and neurogenic control of brain and heart blood flow.
5. Lipid biochemistry, expertise in lung surfactant analysis and cell culture techniques and sub-cellular fractionation is desirable.

Send curriculum vitae and names of 3 references to: Dr. R.E. Forster, Chairman, Department of Physiology, University of Pennsylvania School of Medicine, Philadelphia, PA 19104.

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CELL BIOLOGY YALE UNIVERSITY DEPARTMENT OF BIOLOGY

Yale University's Department of Biology seeks applicants for one senior position and one junior position in cell biology.

Candidates' areas of interest should include chromosome structure and/or molecular biology of gene expression although applicants studying other aspects of cell structure and function will also be considered. Duties associated with these positions include teaching of graduate and undergraduate students and management of a strong research program.

Send curriculum vitae, résumé of past and present research, and the names of at least three referees to: Executive Secretary, Department of Biology, Yale University, P.O. Box 6666, New Haven, Conn. 06511. Deadline: 1 January 1984. Yale University is an Equal Opportunity/Affirmative Action Employer.

POSITIONS OPEN

DIRECTOR VA Longitudinal Aging Study

Applicant should be an M.D. or Ph.D. with expertise in longitudinal studies and interdisciplinary aging research. The VA Normative Aging Study is a large-scale study of both nonpathological and pathological age-related changes. The study, initiated in 1963, is located at the Veterans Administration Outpatient Clinic in Boston. The position permits the incumbent to conduct his/her own independent research as well as direct the research of other medical and behavioral scientists. The primary focus of this study is the biomedical aspects of aging with a strong emphasis on clinical epidemiology. The position also provides an opportunity for an academic appointment with teaching as well as research responsibilities. The incumbent's research and medical expertise may also integrate with the broader ambulatory patient care mission of the Clinic and the Geriatric Research, Education, and Clinical Center located at this facility. Salary commensurate with experience. Send curriculum vitae and three references to: Chairman, Search Committee for Director of Normative Aging Study, c/o Associate Chief of Staff for Research and Development, VA Outpatient Clinic, 17 Court Street, Boston, Mass. 02108. An Equal Opportunity/Affirmative Action Employer.

MOLECULAR GENETICIST

Applications are invited from molecular geneticists specializing in some aspects of plants or fungi. Practical experience with the modern techniques of DNA manipulation is expected. Research interests must be compatible with existing research interests in the department. Main teaching duties will involve cooperation in courses in introductory genetics, introductory biology, and plant genetics.

Salary from \$30,000 per annum, negotiable depending on experience.

The appointment will be made at the assistant professor level. The position is not a tenure-track position at this time; however, it is renewable annually for a period of up to 3 years, starting 1 September 1983.

In accordance with Canadian Immigration requirements this advertisement is directed to Canadian citizens and permanent residents. The University of British Columbia offers Equal Opportunity to men and women applicants.

Send curriculum vitae and the names of three referees to: Dr. R. F. Scagel, Head, Department of Botany, The University of British Columbia, 3529-6270 University Boulevard, Vancouver, British Columbia, Canada V6T 2B1, to arrive not later than 31 July 1983.

ORGANIC CHEMIST

Kallestad Laboratories is a growing manufacturer of medical diagnostic test kits located in suburban Minneapolis. We are currently seeking a bright organic chemist to produce a variety of organic reagents and derivatives. Applicants must have an M.S. in organic chemistry with two or more years of organic experience. (A B.S. degree with five or more years of organic experience or a Ph.D. with little or no experience will also be considered.) We offer competitive salaries and benefits, and pleasant working conditions. If you have the above qualifications and are interested in a new career opportunity, please send detailed résumé in confidence: c/o Ron Gay, Kallestad Laboratories, Inc., 1000 Lake Hazeltine Drive, Chaska, Minnesota 55318. An Equal Opportunity/Affirmative Action Employer, M/F.

PHYSICIST. Ph.D. in physics, and 5 years of experience as a physicist or 5 years of research experience in theoretical physics; experience must include the formulation of specific models of elementary particle interactions. Perform independent mathematical analyses and calculations of advanced and refined theoretical concepts, and formulate specific models of elementary particle interactions. Propose specific experimental tests of theories and models or a methodology for analyses of data in order to extract pertinent conclusions of interest to theories. Interpret published results of experimental investigations in terms of theoretical concepts or models. Act as a consultant to experimental high energy physicists in the High Energy Physics Division. Prepare publications and deliver seminars and colloquia on the research activities and results. Salary: \$3100 per month; 40 hours per week; 8:30 a.m. to 5 p.m. Send résumé to: ILLINOIS JOB SERVICE, 910 South Michigan Avenue, Room 400, Chicago, Ill. 60605. Reference Number 023,067-C. An employer paid ad. Advertiser is an Equal Opportunity Employer.

POSITIONS OPEN

PHYSIOLOGICAL OPTICS—Associate professor. Candidates must be optometrists with Ph.D. in physiological optics and established records of grant research and publication in ocular physiology and contact lenses. Salary competitive. Send curriculum vitae, bibliography, and names of three references to: Search Committee, Ohio State University, College of Optometry, 338 West 10 Avenue, Columbus, Ohio 43210. Ohio State University is an Affirmative Action/Equal Opportunity Employer.

POSTDOCTORAL POSITION available 1 December 1983, for study of the role of neuropeptides in normal and abnormal brain function. Training available in radioimmunoassay, HPLC, and other neurochemical techniques, as well as behavioral neuropharmacology. Experience in stereotaxic surgery and statistics preferred. Anticipate interaction with clinical psychiatric research program. Submit curriculum vitae and have three letters of recommendation sent to: Charles B. Nemeroff, M.D., Ph.D., Departments of Psychiatry and Pharmacology, Duke University Medical Center, P.O. Box 3950, Durham, N.C. 27710.

POSTDOCTORAL POSITIONS available for recent Ph.D.'s to participate in an active research program on the regulation of DNA repair in relation to human carcinogenesis. Current research efforts focus on the use of monoclonal antibodies for biochemical and cellular studies of DNA repair in normal human cells and in cells from cancer prone individuals. Interested individuals should submit curriculum vitae and the names of two references to: Dr. Michael A. Sirover, Fels Research Institute, Temple University School of Medicine, Philadelphia, Pa. 19140. Equal Opportunity Employer.

POSTDOCTORAL POSITIONS

Two postdoctoral positions available 1 September 1983 for research on lipid metabolism and drug/membrane interactions. Studies focus on (i) the effects of drugs on phospholipid metabolism in vivo and in vitro, and (ii) liposomes as models for drug/membrane interactions and as drug delivery systems. Individuals with appropriate backgrounds should send curriculum vitae and names of three references to: Dr. Jochen Schacht, Department of Biological Chemistry, or Dr. Normal Weiner, College of Pharmacy, University of Michigan, Ann Arbor, Mich. 48109.

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RESEARCH ASSOCIATE/POSTDOCTORAL. Two positions available (September 1983) in inner ear biochemistry and pharmacology. Research investigates the effect of ototoxic drugs on cochlear metabolism, regulation of inner ear fluids and the afferent hair cell transmitter in approaches that combine analytical biochemical techniques with electrophysiology and morphology. Individuals with Ph.D. or equivalent experience in neurochemistry, biochemistry, or pharmacology preferred. Send curriculum vitae and names of three references to: Dr. Jochen Schacht or Dr. Sanford Bledsoe, Kresge Hearing Research Institute, University of Michigan, Ann Arbor, Mich. 48109.

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RESEARCH INVESTIGATOR (CARDIOVASCULAR PHYSIOLOGY). Ph.D. or M.D. degree and 3 years of experience as a research investigator (cardiovascular physiology with emphasis on the control of coronary circulation by the central nervous system). At least one of the individual's 3 years of experience should be in the preparation of conscious animals for cardiovascular research including implantation of coronary artery flow transducers and pressure catheters. Another year of the 3 years of experience should be in implantation of chronic cannulas into a lateral cerebral ventricle of conscious dogs for the study of the effect of neurohormones on the coronary and systemic circulation. The investigator will work independently; prepare animals, carry out physiologic experiments, interpret data, and compare manuscripts for publication. The individual should have demonstrated expertise in these areas by publishing articles in recognized cardiovascular journals. A knowledge of the role of endogenous or exogenous opioids on the control of the coronary and systemic circulation is required for this position. Part of the individual's experience should be in clinical research involving monitoring of patients with cardiovascular disease. Salary: \$37,500; 40 hours a week.

Forward applications to: MESC, 7310 Woodward Avenue, Room 415, Detroit, Michigan 48202 (Reference 7483).



UNIVERSITY OF CAPE TOWN

Chair in Analytical Science

Applications are invited for appointment to the above post with effect from 1 February 1984.

The University wishes to appoint a scientist with an established research record to take responsibility for the further development of research and teaching in this recently created department. Candidates currently occupying either academic or non-academic positions should have a wide knowledge of modern instrumental analysis and this requirement will be of prime importance in making the selection for the post.

Appointment, depending on qualifications and experience, will be made in the salary range R23 109 to R30 255 per annum, to which is added an annual service bonus of nearly one month's salary.

Applicants should submit a full resumé and the names and addresses of three referees whom the University may approach.

Further information should be obtained from the Registrar (Attention: Appointments Office), University of Cape Town, Private Bag, Rondebosch, 7700, South Africa, by whom applications (quoting ref. no. AQ/333) must be received not later than 24 June 1983.

UCT is an equal opportunity employer.

FSR 0282



UNIVERSITY OF CAPE TOWN

Research Fellowships 1984

The University of Cape Town annually invites applications for Post-Doctoral Research Fellowships to be held at the University.

The Fellowships are tenable for a twelve month period and the stipend attached to the Fellowship is R18 000. Successful candidates from abroad will receive an additional travel grant up to a maximum of R2 000. There is no restriction to any particular field of research.

Applications must include full details of the applicant's envisaged research programme in addition to a full curriculum vitae and the names of two referees whom the University may consult. The policy of the University is not to discriminate in the appointment of staff on the grounds of sex, race, religion, colour or national origin. The dates at which the successful candidates will be expected to take up their duties are flexible and can be arranged to suit the special circumstances of the candidate; it is possible that one Fellowship could begin late in 1983 to suit the northern academic year.

Applications should be addressed to the Head, Research Administration, University of Cape Town, Private Bag, Rondebosch, 7700, South Africa, so as to reach him by 10 June 1983.

Successful candidates will be informed of their awards by the end of August 1983.

FSR 0332

AFOSR

SCEEE

AIR FORCE WEAPONS LABORATORY
RESEARCH SCHOLAR PROGRAM
1983 - 84

The Air Force Office of Scientific Research, The Air Force Weapons Laboratory, and The Southeastern Center for Electrical Engineering Education (SCEEE) are initiating an Air Force Weapons Laboratory (AFWL) Research Scholar Program beginning during the summer of 1983. This new research program is an adjunct effort to the U.S. Air Force Summer Faculty Research Program and will provide one year research opportunities for selected Engineers and Scientists, with research to be performed in residence at the AFWL, Kirtland AFB, Albuquerque, New Mexico. Scholars will be selected primarily from such fields as Engineering, Applied Science, Mathematics, and Computer Science. To be eligible, candidates must have a Ph.D. or equivalent in an appropriate technical field. All qualified applicants will receive consideration without regard to race, color, religion, sex, or national origin. SCEEE supports Equal Opportunity/Affirmative Action.

For Further Information Contact:

SCEEE

1101 Massachusetts Ave.
St. Cloud, FL 32769

Or Call:
(305) 892-6146

STAFF FELLOW

The Division of Cancer Biology and Diagnosis, National Cancer Institute, National Institutes of Health, Public Health Service, is seeking applicants for a Staff Fellow position in the Cellular Immunity Section of the Laboratory of Immunobiology.

The Cellular Immunity Section conducts studies on the basis of tumor graft rejection, the nature of tumor antigens and on methods for augmenting host response to poorly immunogenic tumors.

As a Staff Fellow, the incumbent will establish a research program involving application of the techniques of molecular biology to the definition of the genetic basis of tumor antigens. Applicants must have experience in molecular biology and genetics.

The position of Staff Fellow has a duration of 2 years, with the possibility of being extended for an additional 3 years. The salary range will be \$17,000-34,269, depending on the skill and experience of the individual selected for the position.

The position is located at the Frederick Cancer Research Facility in Frederick, Maryland (41 miles from Bethesda, Maryland).

Interested persons should respond by submitting a curriculum vitae with names of three references to:

**Dr. Berton Zbar, Chief, Cellular Immunity Section
Laboratory of Immunobiology, National Cancer Institute
Frederick Cancer Research Facility, Frederick,
Maryland 21701**

If you need additional information, please call Dr. Zbar at area code 301/695-1288.

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POSITIONS OPEN

POLYMER CHEMIST AND COMPOSITE ENGINEER

REQUIREMENTS: Master's degree in macromolecular science, 4 years of experience in field of polymer chemistry and composite engineering. Position involves responsibility for research and development of composite parts for high-temperature aerospace use and chemical resistance for industrial use. Position requires scientific and technological expertise to formulate specific and composite structures tailored to differing customer needs. Applicant must be able to supervise product quality control by mechanical, physical, and chemical testing for mechanical strength, abrasion, chemical resistance, and required dimensional and physical specifications. Applicant must be experienced in polymer chemistry and composite engineering technology and be capable of running and analyzing physical and chemical testing properties. **SALARY:** \$30,000 per year. **HOURS:** At least 40 hours per week. **EMPLOYER:** Plastonics International, Inc., Avon, Ohio. Résumés to be sent to: **Ohio Jobs Service, Attention: M. McGill, 3135 Euclid Avenue, Cleveland, Ohio 44115, Re: Order Number 0235578.**

POSTDOCTORAL POSITIONS IN CANCER RESEARCH—OAK RIDGE NATIONAL LABORATORY. Appointments are available in an interdisciplinary cancer research program which includes study of mechanisms of action of chemical and physical agents in the initiation and promotion of cancer; the biochemistry, cell biology, and pathology of carcinogenesis; carcinogen metabolism, molecular genetics, virology, immunology, and DNA repair. Beginning stipend is \$18,000; U.S. citizenship or permanent residency required. Persons soon to be awarded or holding recent Ph.D., M.D., or D.V.M. degrees are invited to write for information to: **Training Office, University of Tennessee—Oak Ridge Graduate School of Biomedical Sciences, Biology Division, Oak Ridge National Laboratory, Oak Ridge, Tennessee 37830. An Equal Opportunity/Affirmative Action Employer.**

POSTDOCTORAL POSITION available immediately for 2 years for studies employing hybridoma technology in the characterization of trypanosome antigens and their functions in provoking immune responses and resistance to infection. Send résumé and letters of recommendation to: **Dr. Donald G. Dusanic, Department of Life Sciences, Indiana State University, Terre Haute, Indiana 47809. Affirmative Action/Equal Opportunity Employer.**

POSTDOCTORAL POSITION available immediately for 2 years for study of papovavirus genomes. Main focus of research is investigation of clinical material and characterization of genomes. Background in molecular biology and recombinant DNA technology essential. Send résumé and three references to: **Dr. Keerti V. Shah, Department of Immunology and Infectious Diseases, The Johns Hopkins University, School of Hygiene and Public Health, 615 North Wolfe Street, Baltimore, Maryland 21205. An Equal Opportunity/Affirmative Action Employer.**

POSTDOCTORAL POSITION available immediately for studies on determinants of plasma lipoprotein recognition and metabolism by the liver and extrahepatic tissues. Experience in protein chemistry desirable. Please send curriculum vitae and two letters of reference to: **J. Borensztajn, M.D., Department of Pathology, Northwestern University Medical School, 303 East Chicago Avenue, Chicago, Ill. 60611. An Equal Opportunity/Affirmative Action Employer.**

POSTDOCTORAL POSITION IN CHEMISTRY available 1 July 1983. Organic chemist will synthesize radionuclide carrier molecules as part of a multidisciplinary program studying the toxic effects of internal emitters in cancer radiotherapy. Salary: \$14,000 (NRSA). Please contact: **Dr. A. I. Kassiss, Harvard Medical School, SWRL, 50 Binney Street, Boston, Mass. 02115. Telephone: 617-732-2185. An Equal Opportunity/Affirmative Action Employer.**

POSTDOCTORAL POSITION IN ENDOCRINE ELECTROPHYSIOLOGY studying bursting electrical activity and insulin secretion in pancreatic islets using patch-clamp and intracellular electrodes and single-islet insulin release measurements. Candidates must have a Ph.D. or M.D. with experience in electrophysiology or endocrine secretion. Salary per NIH guidelines, to begin winter 1983 in the Departments of Physiology and Biophysics, and Medicine, University of Washington. Send curriculum vitae to: **Daniel L. Cook, M.D., Ph.D., VA Medical Center, Division of Metabolism (151), 4435 Beacon Avenue South, Seattle, Wash. 98108. An Equal Opportunity Employer.**

POSITIONS OPEN

POSTDOCTORAL POSITION in a clinical immunology laboratory available 1 July 1983 providing training in all of the specialty areas of medical laboratory immunology. Please send curriculum vitae and three letters of recommendation to: **Ronald J. Harbeck, Ph.D., Division of Clinical Laboratory Investigation, National Jewish Hospital/National Asthma Center, 3800 East Colfax Avenue, Denver, Colo. 80206. An Affirmative Action/Equal Opportunity Employer.**

POSTDOCTORAL POSITION available beginning September 1983 for research on *Drosophila* ribosomal proteins. Previous training in molecular biology of nucleic acids essential. Applicants with experience in DNA sequencing, DNA cloning, restriction enzyme mapping, filter blot hybridization preferred. Send curriculum vitae and names of three references to: **Dr. Yean Chooi, Department of Biology, Indiana University, Bloomington, Ind. 47405. An Equal Opportunity/Affirmative Action Employer.**

POSTDOCTORAL POSITION available to study the role of the peripheral nervous system in inflammation. Experience in the electrophysiology of the nervous system useful. Stipend: \$15,000 to \$18,000 per year, depending on qualifications. Send curriculum vitae and names and telephone numbers of two references to: **Dr. Jon Levine, 473 HSW, Section of Rheumatology, University of California, San Francisco, San Francisco, Calif. 94143. An Equal Opportunity/Affirmative Action Employer.**

POSTDOCTORAL POSITION available 1 September for initial 1-year appointment to study vitamin K biosynthesis in bacteria. Background in biochemistry and some experience with protein fractionation and enzymes required. Send résumé and three reference letters to: **Dr. R. Bentley, Department of Biological Sciences, University of Pittsburgh, Pittsburgh, Pa. 15260. Equal Opportunity/Affirmative Action Employer.**

ARGONNE NATIONAL LABORATORY/CHEMISTRY DIVISION. An immediate **POSTDOCTORAL POSITION** is available for atmospheric chemistry studies based on stable isotope analytical methods. Research topics: source budgets and temporal trends of atmospheric trace gases; determination of atmospheric OH free radical concentrations using stable isotope tracers. Send résumé to: **Walter McFall, Personnel Division, Box D-CHM-55, Argonne National Laboratory, 9700 South Cass Avenue, Argonne, Illinois 60439. An Equal Opportunity Employer.**

TWO POSTDOCTORAL POSITIONS available immediately (i) to study developmentally regulated gene family in *Caulobacter* and (ii) to join ongoing project in development of genetic/transformation system in parasitic protozoa. Research experience in DNA sequencing, molecular and classical genetics preferred. Send curriculum vitae/references to: **Dr. Nina Agabian, Department of Biochemistry SJ-70, University of Washington, Seattle, Wash. 98195**

POSTDOCTORAL AND PREDOCTORAL POSITIONS AT THE CENTER FOR THE STUDY OF NITROGEN FIXATION AT THE UNIVERSITY OF WISCONSIN-MADISON. Members of the Center have recently been awarded a grant by the McKnight Foundation to study the biochemistry, physiology, regulation, genetics, and development of the nitrogen-fixing legume: rhizobia symbiosis. Individuals interested in participating in this interdisciplinary project should submit a letter of application and their curriculum vitae and have three letters of recommendation sent to: **Paul Ludden, Project Coordinator, McKnight Project, Department of Biochemistry, University of Wisconsin-Madison, Madison, Wisconsin 53706, or to one of the other project investigators: F. A. Bliss (Horticulture); W. J. Brill (Bacteriology); R. H. Burris (Biochemistry); S. H. Duke (Agronomy); and E. H. Newcomb (Botany). The University of Wisconsin is an Equal Opportunity Employer.**

POSTDOCTORAL/RESEARCH ASSOCIATE position for a Ph.D. for 2 to 3 years. Available immediately. Research relates to immunogenetics and biology of haplotype-associated microbial mitogens. Firm background required in cellular immunology and preferably also in biochemistry. Send résumé and three references to: **Dr. Barry C. Cole, Division of Rheumatology and Immunology, Department of Internal Medicine, University of Utah Medical Center, 50 North Medical Drive, Salt Lake City, Utah 84132. An Equal Opportunity/Affirmative Action Employer.**

POSITIONS OPEN

POSTDOCTORAL RESEARCH ASSOCIATE—Works on molecular biology of glucocorticoid receptors. Send curriculum vitae and names of three references to: **Gerald Litwack, M.D., Fels Research Institute, Temple University School of Medicine, 3420 North Broad Street, Philadelphia, Pa. 19140. Experience in molecular biology preferred. Stipend negotiated on basis of experience. Temple University is an Equal Opportunity Employer.**

POSTDOCTORAL RESEARCH ASSOCIATE position available for physical studies, especially dynamic light scattering, on natural membrane preparations and synthetic lipid vesicles. The studies will probe dynamics and conformational changes in lipids and proteins in bilayers. Send résumé to: **Dr. Thomas H. Haines, Department of Chemistry, City College of City University of New York (CUNY), 139 Street at Convent Avenue, New York, N.Y. 10031. CUNY is an Equal Opportunity Employer.**

TWO POSTDOCTORAL/RESEARCH ASSOCIATE positions in reproductive physiology available immediately in a research group studying influences of the autonomic nervous system on reproduction. Experience in RIA, RRA, histology-histochemistry, and catecholamine assays desirable. If interested, send curriculum vitae and names of three references to:

**Dr. Hubert W. Burden
Department of Anatomy**

or

**Dr. Charles A. Hodson
Department of Obstetrics and Gynecology
School of Medicine
East Carolina University
Greenville, N.C. 27834**

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POSTDOCTORAL—RESEARCH ASSOCIATE POSITIONS

Available now to investigate mechanisms of regulation of lipoprotein lipase and hepatic lipase protein synthesis and catalytic activities. Cell culture (liver, adipocyte, endothelial), molecular biology, and immunochemical (monoclonal antibodies) approaches are employed. Applicants should have training in biochemistry or molecular biology. Send résumé and names of three references to: **Dr. Andre Bensadoun, Division of Biological Sciences and Nutritional Biochemistry, 242 Savage Hall, Cornell University, Ithaca, New York 14853.**

POSTDOCTORAL RESEARCH ASSOCIATE Available late summer or early fall 1983 to work on the molecular biology, protein chemistry, immunology, and pathogenesis of the Marek's disease herpesvirus system. Ph.D. or M.D./D.V.M. with strong research background in virology, biochemistry, molecular biology, recombinant DNA technology, or immunology. Send résumé to: **Dr. L. F. Velicer, Microbiology, Giltner Hall, Michigan State University, East Lansing, Mich. 48824-1101. (Telephone: 517-355-6605). An Affirmative Action/Equal Opportunity Employer.**

POSTDOCTORAL RESEARCH ASSOCIATE—PHYSIOLOGICAL PLANT ECOLOGY. Study evapotranspiration, soil/plant water relations, and gaseous exchange of natural communities and different vegetation covers on waste management areas. Fieldwork will be conducted on the Idaho National Engineering Laboratory. Applicants should have expertise in computer modeling, strong background in soil science, and experience with gas-exchange techniques. Salary: \$16,000 plus benefits; position available 1 September 1983. Send résumé, letter providing details of relevant experience, and three letters of recommendation by 1 August to: **Jay E. Anderson, Department of Biology, Idaho State University, Pocatello, Idaho 83209. An Equal Opportunity Employer.**

RESEARCH TECHNICIAN, molecular genetics—Join an ongoing research project involved in the determination of mammalian gene organization and expression at this prestigious New York City research center. Position requires B.S./M.S. in biochemistry or genetics; previous research experience desirable. Ability to work effectively without supervision is necessary. Competitive salary and fringe benefits. Send résumé with salary requirements to: **Mrs. F. Stanley, Personnel Department, MEMORIAL SLOAN-KETTERING CANCER CENTER, 1275 York Avenue, New York, N.Y. 10021. Equal Opportunity Employer, M/F/H.**

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- Nucleic Acid Chemistry

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We welcome your inquiry. Send your C.V./resume, in confidence to:

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Box 6009, 8717 Grovemont Circle
Gaithersburg, Md. 20877



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SCIENTISTS

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Restriction Enzymology - Section Head

This senior position requires a highly motivated, innovative person with a Ph.D. degree in Biochemistry or related field. Extensive experience in nucleic acid enzymology, microbial physiology and/or genetics is necessary. Proven leadership potential is a must. The primary responsibilities of this position involve research and product development for BRL's restriction enzyme line.

Organic Chemistry — Group Leader

We seek a Ph.D. Organic Chemist to coordinate and develop procedures for the synthesis of modified nucleotides and nucleotide analogs. The selected individual will assume responsibility for organic synthesis of novel nucleotide derivatives and supervise new product development in organic chemistry. This position requires a highly motivated scientist with 2-3 years postdoctoral experience who can perform independent and creative research and can interact well with others in the development of new products.

Organic Chemistry — Staff Chemist

Requirements include BS/MS degree in organic chemistry, preferably with 2-3 years experience in organic synthesis and the ability to work well in interdisciplinary projects with a limited amount of supervision.

These positions offer growth opportunities for scientists interested in the challenges of industrial applications.

We welcome your inquiry. Send your C.V./resume, in confidence, to:



Personnel Director,
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- polymeric controlled-released drug delivery systems including the design of biodegradable, bioerodible materials, matrix polymeric materials, membrane polymeric materials and bioadhesive materials.
- factors influencing drug absorption from the gastrointestinal tract including mucosal transport processes, gastrointestinal motility and drug solubility and stability in gastrointestinal contents.
- transmucosal delivery systems including bronchial, buccal, rectal and sublingual systems.
- particulate carrier vehicles for parenteral use including liposomes nanoparticles or microspheres.

As well as:

- a doctoral degree and ten years postdoctoral experience in Pharmaceutical Chemistry, Physical Chemistry, Pharmacy or related discipline.
- a demonstrated record of excellence in research in either academia or industry.
- a significant bibliography of quality publications.
- proven administrative, interpersonal and communication skills.
- demonstrated supervisory abilities and capacity to motivate multi-disciplinary research team.

S K & F is committed to scientific excellence and encourages its staff to conduct basic research, publish, and to interact fully with the scientific community. Our compensation and benefits package, including our relocation policy, is among the best in the industry. For confidential consideration, send your c.v. and names of three references to: Department "J", Smith Kline & French Laboratories, a division of, SMITHKLINE BECKMAN CORPORATION, 1508 Spring Garden Street, Philadelphia, PA 19101. We are an equal opportunity employer, M/F/H/V.



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POSITIONS OPEN

RESEARCH ASSOCIATE, biochemist/microbiologist, GS-11/12, Fruit/Vegetable Chemistry Laboratory, U.S. Department of Agriculture, Pasadena, California; \$23,508 to \$29,375, for 2 years. To study the enzymes involved in the biosynthesis, metabolism, and regulation of abscisic acid in microorganisms/plants. Background in biochemistry, microbiology, and enzymology. Must be U.S. citizen. Contact: **Rita Millard**, telephone: 415-273-4281. *Equal Opportunity Employer.*

RESEARCH ASSOCIATE, Department of Medicine, Section of Hematology. To study the effects of hematopoietic growth factors, hormones, and drugs on normal and malignant hematopoietic stem cells and their effects on cell differentiation and expression of differentiation antigens. Candidates must have M.D. or Ph.D. in cell biology as well as proven experience in tissue culture, specifically in the establishment of cell lines and the technique for the study of erythropoiesis, hematopoietic growth factors, and human lymphokines. Experience in the use of different electrophoresis and chromatography systems, cryopreservation, radioimmunoassay, radioreceptor assay, enzyme kinetics, and monoclonal antibody systems is required. Full-time position with salary of \$19,500 per year. Interested applicants should send their résumés to: **Job Service Technical Unit, State Labor Department, Wethersfield, Conn. 06109**, and refer to J.O. Number 357852.

RESEARCH ASSOCIATE, Department of Pathology. To investigate the role of cell surface antigens in the control of the immune response. Candidates must have proven experience in both in vivo and in vitro assays of antibody production and heterogeneity, using cellular and serological techniques, including the construction and use of radiation chimeras, experience in the generation and use of helper T-cell clones, lymphoid cell separation by serological and physical means, generation of T- and B-cell hybridomas, plus extensive knowledge of mouse immunogenetics. Must have Ph.D. in immunology as well as 1 year of postdoctoral training in cellular immunology. Full-time position with annual salary of \$19,100. Interested applicants should send their résumés to: **Yale University, P.O. Box 4607, Yale Station, New Haven, Conn. 06520**. *Yale University is an Affirmative Action/Equal Opportunity Employer.*

RESEARCH ASSOCIATE position available 1 September 1983 for 1-year renewable appointment. Research involves studies of elastin gene structure and regulation in developing bovine aortic and lung tissues. Training in eukaryotic molecular biology desired. Ph.D. required in biology or biochemistry. Send résumé and three references to: **Judith Foster, Department of Biology, Syracuse University, Syracuse, N.Y. 13210**. *Equal Opportunity/Affirmative Action Employer.* Deadline for applications: 15 August.

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Responsible for administration of atmospheric research program. Includes financial management and contract negotiation and coordination of program with industry, universities, and federal/international governments and organizations.

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Major trade association; Washington, D.C. area. *Equal Opportunity Employer.* Send résumé to: **Box 143, SCIENCE.**

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A rapidly expanding contract research laboratory is seeking a senior toxicologist to manage a team of scientists conducting safety evaluation studies in laboratory animals.

A D.V.M. or Ph.D. in toxicology or related biological science discipline is required and direct experience with contract laboratories is helpful.

A proven record in toxicology including a minimum of 6 years of experience in industry conducting studies and submitting data to the FDA and/or EPA is essential to the position.

Send résumé, references, and salary information to:

Dr. G. Bruce Briggs
WIL Research Laboratories, Inc.
1407 Montgomery Township Road 805
Ashland, Ohio 44805

POSITIONS OPEN

POSTDOCTORAL POSITION available for research in molecular hematology utilizing gene mapping and cloning techniques. Experience in nucleic acid technology desirable. Send curriculum vitae to: **Dr. R. F. Rieder, State University of New York—Downstate Medical Center, 450 Clarkson Avenue, Brooklyn, New York 11203**. *Affirmative Action/Equal Opportunity Employer.*

POSTDOCTORAL RESEARCH ASSOCIATES. Project involves biochemical study to understand the regulation of actin-myosin interaction and contraction in normal and pathological smooth muscles. The approach is interdisciplinary and possibilities for physiological, biochemical, and structural studies exist. A strong background in protein purification, protein phosphorylation, enzyme kinetics, or metal-binding protein is preferable. However, a highly motivated person with background in electron microscopy, smooth muscle physiology, or developmental biology will be considered. The postdoctoral fellow may work either with Dr. Chacko or with Dr. Robert Cox (Department of Physiology, School of Medicine). Send curriculum vitae and names of three references to:

Dr. Samuel Chacko
Department of Pathobiology
305 Veterinary School of Medicine
University of Pennsylvania
3800 Spruce Street
Philadelphia, Pa. 19104

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RESEARCH ASSOCIATE (RESEARCH TEACHING SPECIALIST II)—BIOCHEMISTRY. Challenging opportunity to work with energetic team of biochemists to do research on new recombinant DNA techniques for prenatal diagnosis of genetic diseases. Successful candidate should have Ph.D. degree in biochemistry or chemistry with strong background in analytical or quantitative chemistry. Applicants with M.Sc. degree in a relevant science must have an additional 2 years of relevant experience. Background in DNA not essential, but project offers opportunity to develop career in recombinant DNA technologies. Excellent salary and benefits. Please send curriculum vitae and names of three individuals who may be contacted for references to: **Gwen Doyle, Personnel Department (P-102), UNIVERSITY OF MEDICINE AND DENTISTRY OF NEW JERSEY—Rutgers Medical School, P.O. Box 101, Piscataway, New Jersey 08854**. *An Equal Opportunity/Affirmative Action Employer, M/F.*

RESEARCH ASSOCIATES IN MOLECULAR PARASITOLOGY

Applications are invited from molecular biologists to join a newly established interdisciplinary group studying the expression and control of developmentally important genes in the human parasitic blood fluke *Schistosoma*. This is a unique opportunity for persons with molecular biology backgrounds to utilize recombinant DNA technology and to establish themselves in the emerging area of molecular parasitology.

Send résumé and the names of three referees with telephone numbers to:

**Dr. Philip T. LoVerde/
Dr. David Rekosh**
Department of Microbiology
School of Medicine
State University of New York at Buffalo
203 Sherman Hall
Buffalo, N.Y. 14214

RESEARCH FELLOW. Position available 1 July 1983, in the field of enzymology. Studies to be conducted on the mechanism of half-site reactivity and enzyme homology. Ph.D. in biochemistry desirable. Send curriculum vitae and letters of recommendation to: **Dr. Louis B. Hersh, Department of Biochemistry, University of Texas Health Science Center at Dallas, 5323 Harry Hines Boulevard, Dallas, Texas 75235**. *An Affirmative Action/Equal Opportunity Employer.*

SUPPLY ASSISTANT PROFESSOR for a 5-year (nontenure track) position in the Department of Biochemistry at the University of Wyoming. Candidate could expect to give 50 lectures per year at the undergraduate level and to participate in ongoing gonadotropin receptor research (protein chemistry, monoclonal antibodies, and gene expression). Send résumé and three letters of recommendation to: **Dr. Tae H. Ji (telephone: 307-766-6272 or -3126), Department of Biochemistry, University of Wyoming, Laramie, Wyo. 82071**. *Affirmative Action/Equal Opportunity Employer.*

POSITIONS OPEN

TOXICOLOGY. Special appointment in toxicology available 1 September 1983. Ph.D. in toxicology or pharmacology. Position involves team teaching and development of active research program. Send curriculum vitae and three references to: **Dr. R. Craig Schnell, Department of Pharmacodynamics and Toxicology, College of Pharmacy, University of Nebraska Medical Center, Omaha, Nebraska 68105**. *An Equal Opportunity/Affirmative Action Employer.*

SYMPOSIUM

SATELLITE SYMPOSIUM on "FUTURE DIRECTIONS OF PRECLINICAL SAFETY STUDIES"

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Washington Hilton Hotel
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The Symposium will follow the II World Conference on Clinical Pharmacology and Therapeutics. For information contact:

Dr. Michael Iatropoulos
American Cyanamid Company
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FELLOWSHIPS

POSTDOCTORAL FELLOWSHIP offered in basic aspects of exercise physiology and biochemistry, available 1 August 1983. Experience in skeletal muscle enzymology, subcellular fractionation techniques, protein purification, peptide mapping, and/or in RNA purification desirable. Send curriculum vitae and three letters of recommendation to: **Dr. R. Sanders Williams, Departments of Medicine and Physiology, Box 3945, Duke University Medical Center, Durham, N.C. 27710**. *An Equal Opportunity/Affirmative Action Employer.*

FELLOWSHIP IN BIOLOGICAL PSYCHIATRY available 1 July 1983 for PGY V or VI. Opportunity for clinical or clinical/preclinical research involvement in full academic program. Second year possible. Eligibility for New York State medical license, or VQE for FMG required. Excellent salary and benefits. Contact: **Herman M. van Praag, M.D., Ph.D., Professor and Chairman, Department of Psychiatry, ALBERT EINSTEIN COLLEGE OF MEDICINE, 1300 Morris Park Avenue, Bronx, N.Y. 10461**. Telephone: 212-430-2982. *Equal Opportunity Employer.*

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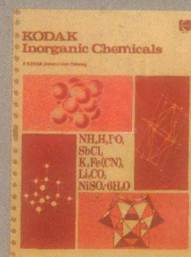


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