**Policy for Announcements in the FJ Calendar**

We will consider for advertising in the FJ Calendar any open meeting of a biological topic occurring in any location worldwide. Please send your announcement to the Executive Editor, The FASEB Journal, FASEB, 9650 Rockville Pike, Bethesda, MD 20814, USA. Your announcement should be restricted to: date (include year), title and location of meeting, contact address (with name if appropriate). We will advertise only meetings taking place more than 5 months after the date of receipt of the announcement. Meetings, symposia, and workshops will be included up to 2 years in advance; international congresses will be included up to 3 years in advance.

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<td><strong>4-8</strong> Recombinant DNA Methodology, The Catholic University of America, Washington, DC, USA. Dr. Roland M. Nardone, The Catholic Univ. of America, The Center for Advanced Training in Cell and Molecular Biology, Washington, DC 20064, USA.</td>
<td><strong>10-16</strong> Laboratory Animals and Health for All, Ninth International Council for Laboratory Animal Science Symposium, Bangkok, Thailand. Dr. H. C. Rowsell, CCAC, 1000-151 Slater St., Ottawa, Ontario, Canada KIP 5H3.</td>
<td><strong>17</strong> Canadian Physiological Society, Mont Tremblant, Quebec, Canada. Dr. James Lund, Dept. of Physiology, Univ. of Montreal, Montreal, Quebec, Canada.</td>
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<td><strong>4-16</strong> International Cell Research Organisation/UNESCO Training Course on Immunogenetics, New Delhi, India. Dr. T. V. Rajan, Albert Einstein Coll. of Medicine, 1300 Morris Park Ave., Rm. 607, Chanin Bldg., Bronx, NY 10461, USA.</td>
<td><strong>11-13</strong> Molecular Basis of the Immune Response, Vista International Hotel, New York City, USA. Conference Dept., The New York Academy of Sciences, 2 E. 63rd St., New York, NY 10021, USA.</td>
<td><strong>17-20</strong> Twelfth Clinical Congress of the American Society for Parenteral and Enteral Nutrition, Bally's Hotel, Las Vegas, Nevada, USA. ASPEN, 8605 Cameron St., Suite 500, Silver Spring, MD 20910, USA.</td>
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<td><strong>5-6</strong> Workshop on Molecular Biology Software, Cambridge, UK. Dr. M. J. Bishop, Univ. of Cambridge, Computer Lab., Corn Exchange St., Cambridge CB2 3QG, UK.</td>
<td><strong>11-15</strong> Basic Cell and Tissue Culture, The Catholic University of America, Washington, DC, USA. Dr. Roland M. Nardone, The Catholic Univ. of America, The Center for Advanced Training in Cell and Molecular Biology, Washington, DC 20064, USA.</td>
<td><strong>17-23</strong> Biological and Molecular Aspects of Atrial Peptides, Steamboat Springs, Colorado, USA. UCLA Symposia, Molecular Biology Inst., Univ. of California, Los Angeles, CA 90024, USA.</td>
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<tr>
<td><strong>9</strong> The Physiological Society and The Wessex Neuroscience Group Symposium on the Internal Environment of the Developing Nervous System, Southampton, UK. Prof. N. B. Saunders, Dept. of Physiology and Pharmacology, Univ. of Southampton, Medical and Biological Sciences Bldg., Southampton SO9 3TV, UK.</td>
<td><strong>12-14</strong> 1988 Workshop on Supercritical Fluid Chromatography, Prospector Square Hotel, Park City, Utah, USA. Dr. Milton Lee, Dept. of Chemistry, Brigham Young Univ., Provo, UT 84602, USA.</td>
<td><strong>21-23</strong> Genetic Experimentation and Evolutionary Change, Basel, Switzerland. W. Arber, Biozentrum, Univ. of Basel, Klingelbergstr. 70, Basel, CH 4056 Switzerland.</td>
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<td><strong>9</strong> Annual Symposium on Frontiers in the Nutrition Sciences, National Academy of Sciences Auditorium, Washington, DC, USA. Ms. Beth Hamill, Food and Nutrition Board, National Research Council, 2101 Constitution Ave., Washington, DC 20418, USA.</td>
<td><strong>12-15</strong> Third International Conference on Prevention of Human Cancer: Chemoprevention, Arizona Cancer Center, Tucson, Arizona, USA. Ms. Mary Humphrey, Conference Coordinator, Arizona Cancer Center, Tucson, AZ 85724, USA.</td>
<td><strong>24-30</strong> Oxy-Radicals in Molecular Biology and Pathology, Park City, Utah, USA. UCLA Symposia, Molecular Biology Inst., Univ. of California, Los Angeles, CA 90024, USA.</td>
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<td><strong>13-15</strong> Computer Applications in Molecular Biology, The Catholic University of America, Washington, DC, USA. Dr. Roland M. Nardone, The Catholic Univ. of America, The Center for Advanced Training in Cell and Molecular Biology, Washington, DC, 20064, USA.</td>
<td></td>
<td><strong>24-30</strong> Growth Factors and Their Receptors: Genetic Control and Rational Applications, Keystone, Colorado, USA. UCLA Symposia, Molecular Biology Inst., Univ. of California, Los Angeles, CA 90024, USA.</td>
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<td>24-30 Growth Inhibitory and Cytotoxic Polypeptides, Keystone, Colorado, USA. UCLA Symposia, Molecular Biology Inst., Univ. of California, Los Angeles, CA 90024, USA.</td>
<td>4-6 Third International Conference on Monoclonal Antibody Immunocoujugates for Cancer, Hotel Inter-Continental, San Diego, California, USA. Office of Continuing Medical Education, M-017, Univ. of California San Diego Sch. of Medicine, La Jolla, CA 92093, USA.</td>
<td>21-26 Cellular Proteases and Control Mechanisms, Lake Tahoe, California, USA. UCLA Symposia, Molecular Biology Inst., Univ. of California, Los Angeles, CA 90024, USA.</td>
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<td>26-28 AgBIOTECH ’88, Sheraton Washington, Washington, DC, USA. Ms. Judy Green, Conference Management Corp., 200 Connecticut Ave., Norwalk, CT 06856, USA.</td>
<td>6-12 Gene Transfer and Gene Therapy, Tamarron, Colorado, USA. UCLA Symposia, Molecular Biology Inst., Univ. of California, Los Angeles, CA 90024, USA.</td>
<td>28 Feb. 32nd Annual Meeting of the Biological Society, Phoenix Civic Plaza, Phoenix, Arizona, USA. Emily M. Gray, Administrative Director, 9650 Rockville Pike, Rm. 2503, Bethesda, MD 20814, USA.</td>
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<td>30 Jan. Technological Advances in Vaccine Development, Park City, Utah, USA. UCLA Symposia, Molecular Biology Inst., Univ. of California, Los Angeles, CA 90024, USA.</td>
<td>6-12 Molecular Biology of the Eye: Genes, Vision, and Ocular Disease, Santa Fe, New Mexico, USA. UCLA Symposia, Molecular Biology Inst., Univ. of California, Los Angeles, CA 90024, USA.</td>
<td>28 Feb. Cell Biology of Viral Entry, -6 Mar. Replication and Pathogenesis, Taos, New Mexico, USA. UCLA Symposia, Molecular Biology Inst., Univ. of California, Los Angeles, CA 90024, USA.</td>
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<td>30 Jan. International Laboratory Training Course on Molecular and Cellular Aspects of Immunology, Rehovot, Israel. Prof. Edna Moxes, Dept. of Chemical Immunology, The Weizmann Inst. of Science, Rehovot 76100, Israel.</td>
<td>7-10 Australian Societies for Experimental Biology Bicentennial Meeting, Canberra, Australia. ACTS, P.O. Box 1200, Canberra, ACT 2601, Australia.</td>
<td>MARCH 1988</td>
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<td>31 Jan. Synthetic Peptides: Approaches to Biological Problems, Park City, Utah, USA. UCLA Symposia, Molecular Biology Inst., Univ. of California, Los Angeles, CA 90024, USA.</td>
<td>7-11 Joint 13th Lorne Conference and Meeting of Associate Interest Group on Biorecognition Technology: Protein, Structure, Function, and Recognition, Lorne, Australia. CoSponsored by IUB. Dr. Richard Simpson, Ludwig Inst. for Cancer Research, P.O. Royal Melbourne Hospital, Victoria, 3050, Australia.</td>
<td>3-5 Immune Consequences of Trauma, Shock and Sepsis: Mechanisms and Therapeutic Approaches, Munich, FRG. Dr. Eugen Faist, Dept. of Surgery, Ludwig-Maximilians-Univ. Munich, Klinikum Grosshadern, Postfach 70 12 60, 8000 Munich 70, FRG.</td>
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<td>31 Jan. 3 Cell Development, Taos, New Mexico, USA. UCLA Symposia, Molecular Biology Inst., Univ. of California, Los Angeles, CA 90024, USA.</td>
<td>8-12 Advances in Gene Technology: Protein Engineering and Production, Knight International Center, Miami, Florida, USA. Miami Bio/Technology Winter Symposium, P.O. Box 016129, Miami, FL 33101, USA.</td>
<td>3-11 Recombinant DNA Methodology, The Catholic University of America, Washington, DC, USA. Dr. Roland M. Nardone, The Catholic Univ. of America, The Center for Advanced Training in Cell and Molecular Biology, Washington, DC 20064, USA.</td>
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<td>31 Jan. B Cell Development, Taos, New Mexico, USA. UCLA Symposia, Molecular Biology Inst., Univ. of California, Los Angeles, CA 90024, USA.</td>
<td>16-20 Liposomes in the Therapy of Infectious Diseases and Cancer, Lake Tahoe, California, USA. UCLA Symposia, Molecular Biology Inst., Univ. of California, Los Angeles, CA 90024, USA.</td>
<td>5-10 10th International Cystic Fibrosis Congress, Sydney, Australia. Secretary, 10th International Cystic Fibrosis Congress, G.P.O. Box 2609, Sydney NSW, Australia 2001.</td>
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<td>FEBRUARY 1988</td>
<td>17-19 Endocrine, Metabolic, and Immunologic Functions of Keratinocytes, Sheraton Centre, New York City, USA. Conference Dept., The New York Academy of Sciences, 2 E. 63rd St., New York, NY 10021, USA.</td>
<td>6-11 19th Annual Meeting of the American Society for Neurochemistry, Columbus, Ohio, USA. Lloyd Horrocks, Program Chairperson, The Ohio State Univ., 1645 Nell Ave., Columbus, OH 43210, USA.</td>
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MARCH 1988

6-12 Bone Marrow Transplantation: Current Controversies, TAMAR- 
ron, Colorado, USA. UCLA Symposium, Molecular Biology Inst., 
 Univ. of California, Los Angeles, CA 90024, USA.

7-18 International Cell Research Organization/UNESCO International 
Training Course on Oxygen Free Radicals: Biochemical, Physiological, and Clinical 
Aspects, University of Buenos Aires, Buenos Aires, Argentina. 
Dr. Enrique Cadenas, Dept. of Pathology II, Univ. of Linkoping, 
S-581 85 Linkoping, Sweden.

8-10 The Global Impact of AIDS, London, UK. Conf. ZZ, EMAP 
Maclaren Exhibitions Ltd., P.O. Box 138, Token House, 79-81 High 
St., Croydon CR9 3SS, UK.

13-18 First ESPEN Scientific Symposium: Current Perspectives in 
Nutrition and Infection, Jerusalem, Israel. H. R. Freund, M.D., 
Symposium Chairperson, P.O. Box 983, Jerusalem 90109, Israel.

14-18 Receptor Binding Techniques in Biology and Medicine, The 
Catholic University of America, Washington, DC, USA. Dr. 
Roland M. Nardone, The Catholic Univ. of America, The Center for 
Advanced Training in Cell and Molecular Biology, Washington, 
DC 20064, USA.

14-16 Arachidonic Acid Metabolism in the Nervous System: Physiological 
and Pathological Significance, Hyatt Regency Hotel, Bethesda, Maryland, USA. Conf. 
ence Dept., The New York Academy of Sciences, 2 E. 63rd 
St., New York, NY 10021, USA.

19-21 Transfusion-Associated Infections and Immune Response, 
The Fairmont Hotel, San Francisco, California, USA. Sara 
Burke, Extended Programs in Medical Education, Room U-569, 
Univ. of California, San Francisco, CA 94143, USA.

21-25 Plasma Membrane Oxidoreduc-
tase in Control of Animal and Plant Growth, NATO Advance 
Research Workshop, Cordoba, Spain. Prof. F. L. Crane, Dept. of 
Biological Sciences, Purdue Univ., West Lafayette, IN 47907, USA.

29-31 ANATECH 2nd International Symposium on Analytical Meth-
Delft Univ. of Technology, Julianalaan 67a, NL-2628 BC Delft, The 
Netherlands.

26 Mar. Molecular Genetics of Plant- 
-1 Apr. Parasite Interaction, Steamboat 
Springs, Colorado, USA. UCLA Symposium, Molecular Biology 
Inst., Univ. of California, Los Angeles, CA 90024, USA.

26 Mar. The Molecular Basis of Plant De-
-2 Apr. development, Steamboat Springs, 
Colorado, USA. UCLA Symposium, Molecular Biology Inst., Univ. of 
California, Los Angeles, CA 90024, USA.

29 Mar. International Symposium on Ex-
-2 Apr. citatory Amino Acids 88, 
Manaus, Brazil. E. Calvalheiro, Lab. de Neurologia Experimental, 
Escola Paulista de Medicina, Rua Botucatu, 862, CEP 04023, Sao 
Paulo, SP, Brazil.

MARCH 1988

3-10 Cellular and Molecular Biology of Muscular Development, Steam-
boat Springs, Colorado, USA. UCLA Symposium, Molecular Biology 
Inst., Univ. of California, Los Angeles, CA 90024, USA.

4-10 Molecular Biology of RNA, 
Keystone, Colorado, USA. UCLA Symposium, Molecular Biology 
Inst., Univ. of California, Los Angeles, CA 90024, USA.

4-10 DNA-Protein Interactions in 
Transcription, Keystone, Colorado, 
USA. UCLA Symposium, Molecular Biology Inst., Univ. of 
California, Los Angeles, CA 90024, USA.

5-8 First International Conference on the Release of Genetically En-
gineered Microorganisms, St. 
David's Hall, Cardiff, Wales, UK. 
Mr. Colin Griffiths, Conference Secretary, P.O. Box 50, Cardiff, 
Wales CF1 3XU, UK.

6-8 Modeling and Control in Bio-
medical Systems, Venice, Italy. 
Secretariat IFAC-BME-88 Symposium, Dept. of Electrical Engineer-
ing, Univ. of Padova, Via 
Gradenigo, 6/A, I-35131 Padova, Italy.

APRIL 1988

10-15 Advanced Methods in Pharma-
coKinetics and Pharmacodynamics, 
San Francisco, California, USA. 
Univ. of California, Extended Programs in Medical Education, Rm. U-569, San Francisco, 
CA 94143, USA.

10-16 Stress-Induced Proteins, Key-
stone, Colorado, USA. UCLA Symposium, Molecular Biology Inst., Univ. of California, Los Angeles, CA 90024, USA.

10-16 Metal Ion Transport and Stor-
age: Molecular Biology and Chemistry, Frisco, Colorado, USA.
UCLA Symposium, Molecular Biology Inst., Univ. of California, Los Angeles, CA 90024, USA.

10-17 Molecular Biology of Stress, 
Keystone, Colorado, USA. UCLA Symposium, Molecular Biology Inst., Univ. of California, Los Angeles, CA 90024, USA.

11-13 Sickle Cell Disease—The State of 
the Art, Hyatt Regency Hotel, Bethesda, Maryland, USA. Confer-
ence Dept., The New York Academy of Sciences, 2 E. 63rd 
St., New York, NY 10021, USA.

11-13 International Symposium BIO-
TECH Ria 88 on Molecular Probes: Technology and Medical Applications, Congress Palace, 
Florence, Italy. Organizing Secretariat, Fondazione Giovanni 
Lorenzini, Via Monte Napoleon, 23-20121 Milan, Italy.

11-15 Molecular Biology, London, UK. 
Histochemistry Unit, Royal Postgraduate Medical Sch., Hamme-
 smith Hospital, Du Cane Rd., London W12 OHS, UK.

14-16 Arachidonic Acid Metabolism in 
the Nervous System: Physiological 
and Pathological Significance, Hyatt Regency Hotel, New York, 
City, USA. Conference Dept., The New York Academy of Sciences, 2 E. 63rd St., New York, NY 10021, USA.

14-16 Arachidonic Acid Metabolism in 
the Nervous System: Physiological 
and Pathological Significance, Hyatt Regency, New York 
City, USA. Conference Dept., The New York Academy of Sciences, 2 E. 63rd St., New York, NY 10021, USA.

17-23 Molecular and Cellular Mechani-
s of Human Hypersensitivity and Autoimmunity, Keystone, 
Colorado, USA. UCLA Symposium, Molecular Biology Inst., Univ. of 
California, Los Angeles, CA 90024, USA.
MAY 1988

1 3rd Meeting of Associate Interest Group on Biorecognition Technology, Las Vegas, Nevada, USA. Cosponsored by IUB; satellite to FASEB Meeting. Dr. William S. Hancock, Genentech Corp., 460 Point San Bruno Blvd., S. San Francisco, CA 94080, USA.

1-6 72nd Annual Meeting of the Federation of American Societies for Experimental Biology, Las Vegas, Nevada, USA. PASEB Office of Scientific Meetings, 9650 Rockville Pike, Bethesda, MD 20814, USA.

5-6 Therapeutic Drugs and Drugs of Abuse Monitoring: Practice and Concepts, Boston University School of Medicine, Boston, Massachusetts, USA. Dept. of Continuing Medical Education, Boston Univ. Sch. of Medicine, 80 E. Concord St., Boston, MA 02118, USA.

8-12 79th American Oil Chemists' Society Annual Meeting, Phoenix Civic Plaza, Phoenix, Arizona, USA. Meetings Manager, American Oil Chemists' Society, P.O. Box 3489, Champaign, IL 61821, USA.

9-13 Endocrine Pathology, London, UK. Histology Unit, Dept. of Histopathology, Royal Postgraduate Medical Sch., Hammersmith Hospital, Du Cane Rd., London W12 0HS, UK.

9-13 VIIIth International Washington Spring Symposium: Biomedical Advances in Aging '88: Molecular and Immunological Mechanisms, Intervention and Clinical Approaches to Treatment, Washington, DC, USA. Dr. Allan L. Goldstein, Dept. of Biochemistry, The George Washington Univ. Sch. of Medicine and Health Sciences, 2300 Eye St., NW, Washington, DC 20037, USA.

10-13 Galveston Chapter of the Society for Neuroscience Symposium: Neuroendocrine Modulation of Central Nervous System Function, Galveston, Texas, USA. Dr. J. M. Lukoski, Dept. of Pharmacology J-31, Univ. of Texas Medical Sch., Galveston, TX 77550, USA.

11-13 Annual Meeting of the Association of Systematics Collections, Field Museum, Chicago, Illinois, USA. Dr. K. E. Hoagland, Association of Systematics Collections, 730 11th St., NW, 2nd Fl., Washington, DC 20001, USA.

12-14 Cholesterol Metabolism, an international symposium in memory of the 90th birthday of Rudolph Schoenheimer, New York University Medical Center, New York City, USA. Registration Office, NYU Post-Graduate Medical Sch., 550 First Ave., New York, NY 10016, USA.

16-20 In Vitro Autoradiographic Techniques, London, UK. Histology Unit, Dept. of Histopathology, Royal Postgraduate Medical Sch., Hammersmith Hospital, Du Cane Rd., London W12 0HS, UK.

19-23 Advances in the Biology and Chemistry of N-Nitroso and Related Compounds, Omaha, Nebraska, USA. Ms. Terri Eastman, Epley Inst. for Research in Cancer, Univ. of Nebraska Medical Center, Omaha, NE 68105, USA.

22-26 International Conference on Diet, Lipids and Cancer, Yulara Resort (via Ayers Rock), Northern Territory, Australia. Dr. John R. Sabine, Univ. of Adelaide, Waite Agricultural Research Inst., Glen Osmond, South Australia 5064, Australia.

25-28 Seventy-Ninth Annual Meeting of the American Association for Cancer Research, New Orleans Convention Center, New Orleans, Louisiana, USA. Margaret F. Busby, Executive Director, AACR, Temple Univ. School of Medicine, West Bldg., Rm. 301, Broad and Tioga Sts., Philadelphia, PA 19140, USA.

FJ CALENDAR

26-27 Current Issues in Anatomic Pathology, San Francisco, California, USA. Office of Extended Programs in Medical Education, RM. U-569, Univ. of California, San Francisco, CA 94143, USA.


26-31 Annual Meeting of American Association for the Advancement of Science, Boston, Massachusetts, USA. AAAS Meeting Officer, 1101 Vermont Ave., 10th Fl., Washington, DC 20005, USA.

JUNE 1988

1-4 Association of Medical Laboratory Immunologists, Pittsburgh, Pennsylvania, USA. Dr. Bruce S. Rabin, Rm. 5725, One Children's Place, Pittsburgh, PA 15213, USA.

5-11 American Chemical Society, Toronto, Ontario, Canada. ACS Meetings Dept., 1155 16th St. NW, Washington, DC 20036, USA.


8-10 70th Annual Meeting of The Endocrine Society, New Orleans, Louisiana, USA. The Endocrine Society, 9650 Rockville Pike, Bethesda, MD 20814, USA.

9-11 International Symposium on Immunotoxins, Sheraton University Center, Durham, North Carolina, USA. Ms. Rosemary Borsen, c/o Dr. Arthur Frankel, Duke Univ. Medical Center, Box 3898, Durham, NC 27710, USA.

12-15 International Symposium on Alzheimer's Disease, Kuopio, Finland. Prof. Paavo Reikkinen, Dept. of Neurology, Univ. of Kuopio, SF-70211 Kuopio, Finland.

12-16 Immunology and Immunopathology of the Alimentary Canal, 11th International Convocation on Immunology, Hyatt Regency Hotel, Buffalo, New York, USA. Dr. James F. Mohn, Director, The Ernest Wittebsky Center for Immunology, 233 Sherman Hall, State Univ. of New York at Buffalo, Buffalo, NY 14214, USA.


12-16 Hormones, Thermogenesis and Obesity, University of Wisconsin, Madison, Wisconsin, USA. Steenbock Symposium, Inst. for Enzyme Research, Univ. of Wisconsin, Madison, WI 53705, USA.

12-17 Yeast RNA: Transcription, Splicing, Translation, Replication and Transportation, FASEB Summer Research Conferences, Saxtons River, Vermont, USA. Dr. Robert W. Krauss, Executive Director, FASEB Summer Conferences, 9650 Rockville Pike, Bethesda, MD 20814, USA.

13-16 Biological Membranes in Cancer Cells, Le Tre Vaselle Hotel, Tor- giano, Perugia, Italy. New York Academy of Science Conference, Dr. A. Scarpa, Case Western Reserve Univ., Dept. of Physiology and Biophysics, Cleveland, OH 33106, USA.

15-18 Canadian Federation of Biological Societies (and Pharmacological Society of Canada, Canadian Society for Nutritional Sciences, and Society for Toxicology of Canada), Laval, Quebec, Canada. Robin Vander Kluet, 575 King Edward Ave., Ottawa, Ontario, Canada K1N 7N5.


19-22 International Symposium: Basic and Clinical Approaches to Virus Chemotherapy, University of Helsinki, Helsinki, Finland. Secretariat, Antivirals-88, c/o Duodecim, Kaledankatu 11 A SF-00100 Helsinki, Finland.

19-23 Molecular and Cellular Mechanisms of Antiarrhythmic Agents, Nashville, Tennessee, USA. Dr. Luc Hondeghem, Vanderbilt Univ., Cardiovascular Research Program, Rm. CC-2209 Medical Center N., Nashville, TN 37232, USA.

24-26 Retinoids, FASEB Summer Research Conferences, Saxtons River, Vermont, USA. Dr. Robert W. Krauss, Executive Director, FASEB Summer Conferences, 9650 Rockville Pike, Bethesda, MD 20814, USA.

26 Jun. Smooth Muscle, FASEB Summer -1 Jul. Research Conferences, Saxtons River, Vermont, USA. Dr. Robert W. Krauss, Executive Director, FASEB Summer Conferences, 9650 Rockville Pike, Bethesda, MD 20814, USA.

26 Jun. Neuroimmunomodulation, FASEB -1 Jul. Summer Research Conferences, Copper Mountain, Colorado, USA. Dr. Robert W. Krauss, Executive Director, FASEB Summer Conferences, 9650 Rockville Pike, Bethesda, MD 20814, USA.


JULY 1988

3-8 Somatic Cell Genetics, FASEB Summer Research Conferences, Copper Mountain, Colorado, USA. Dr. Robert W. Krauss, Executive Director, FASEB Summer Conferences, 9650 Rockville Pike, Bethesda, MD 20814, USA.
JULY 1988

3–8 Autoimmunity, FASEB Summer Research Conferences, Saxtons River, Vermont, USA. Dr. Robert W. Krauss, Executive Director, FASEB Summer Conferences, 9650 Rockville Pike, Bethesda, MD 20814, USA.


3–8 Sixth International Conference on Biochemistry and Biophysics of Cytochrome P-450, Vienna, Austria. Cosponsored by IUB. Dr. Inge Schuster, Sandoz Research Inst., Brunnenstrasse 59, A-1235 Vienna, Austria.

4–8 18th Linderstrom-Lang Conference: Aspartic Proteinas: Biochemical, Physiological and Clinical Aspects of Pepsin, Chymosin, Renin and Related Proteinas, Eslinore, Denmark. Prof. Bent Foltmann, Inst. of Biochemical Genetics, Univ. of Copenhagen, Oster Farimagsgade 2A, 4., 1353 Copenhagen K., Denmark.

5–9 Conference on Bioreactive Chromatography and Biotechnology, Mogilany, Poland. Satellite to IUB Congress in Prague. Dr. Grazyna Muszynska, Inst. of Biochemistry and Biophysics, Polish Academy of Sciences, Warsaw, Poland.


6–8 Biotechnological Aspects of Protein Production by Cultured Cells, Prague, Czechoslovakia. Satellite symposium of 14th IUB Congress. Dr. F. Franek, Inst. of Molecular Genetics, Videnska 1083 CS-142 20 Prague 4, Czechoslovakia.

6–9 Local Changes in DNA Structure and Their Biological Implications, Brno, Czechoslovakia, Satellite Meeting of the IUB. 14th International Congress of Biochemistry, 166 50 Prague 6, Czechoslovakia.

10–15 14th International Congress of Biochemistry, Prague, Czechoslovakia. Sponsored by IUB. 14th International Congress of Biochemistry, 166 50 Prague 6, Czechoslovakia.

10–15 Phospholipases, FASEB Summer Research Conferences, Saxtons River, Vermont, USA. Dr. Robert W. Krauss, Executive Director, FASEB Summer Conferences, 9650 Rockville Pike, Bethesda, MD 20814, USA.

10–15 Regulation of Gene Expressions in Higher Animals by Hormones and Nutritional Substrates, FASEB Summer Research Conferences, Copper Mountain, Colorado, USA. Dr. Robert W. Krauss, Executive Director, FASEB Summer Conferences, 9650 Rockville Pike, Bethesda, MD 20814, USA.

11–15 CRYO 85—25th Annual Meeting of the Society for Cryobiology, Aachen, FRG. Dr. Christoph Körber, Helmholtz-Inst. für Biomedizinische Technik, Pauwelsstr., D-5000 Aachen, FRG.

17–22 Immunopharmacology, FASEB Summer Research Conferences, Saxtons River, Vermont, USA. Dr. Robert W. Krauss, Executive Director, FASEB Summer Conferences, 9650 Rockville Pike, Bethesda, MD 20814, USA.

17–22 Molecular Biology of Infectious and Parasitic Diseases, FASEB Summer Research Conferences, Copper Mountain, Colorado, USA. Dr. Robert W. Krauss, Executive Director, FASEB Summer Conferences, 9650 Rockville Pike, Bethesda, MD 20814, USA.

17–23 8th International Congress of Endocrinology, Kyoto, Japan. The Secretary, 8th International Congress of Endocrinology, Travel Planners-Kyoto Congress, Suite 150, GPM Bldg., San Antonio, TX 78216, USA.

24–29 Biotechnological Aspects of Protein Production by Cultured Cells, Prague, Czechoslovakia, Satellite Meeting of the IUB. 14th International Congress of Biochemistry, 166 50 Prague 6, Czechoslovakia.

24–29 Structure and Function of Cell Membranes, FASEB Summer Research Conferences, Saxtons River, Vermont, USA. Dr. Robert W. Krauss, Executive Director, FASEB Summer Conferences, 9650 Rockville Pike, Bethesda, MD 20814, USA.

20–22 Annual General Meeting, Nottingham, UK. Meetings Officer, The Biochemical Society, 7 Warwick Court, London WC1R 5DF, UK.

20–23 International Symposium on Tachykynins, University of Graz, Graz, Austria. Dr. F. Lemberk, Tachykynin Symposium, Dept. of Pharmacology, University of Graz, Universitätspalz 4, A-8010 Graz, Austria.

24–27 The Mammalian Myocardium—Biochemical and Physiological Mechanisms Underlying the Heartbeat, Leeds, UK. Dr. C. Orchard, Dept. of Physiology, The Worsley Medical and Dental Bldg., The University, Leeds LS2 9NN, UK.

FJ CALENDAR

65
7-12 Receptors, FASEB Summer Research Conferences, Saxtons River, Vermont, USA. Dr. Robert W. Krauss, Executive Director, FASEB Summer Conferences, 9650 Rockville Pike, Bethesda, MD 20814, USA.

7-12 Endothelium and Cardiovascular Function, FASEB Summer Research Conferences, Copper Mountain, Colorado, USA. Dr. Robert W. Krauss, Executive Director, FASEB Summer Conferences, 9650 Rockville Pike, Bethesda, MD 20814, USA.

7-13 14th International Congress on Yeast Genetics and Molecular Biology, Espoo, Finland. Tarja Koistinen, Research Labs. Alko Ltd., POB 350, SF 00101, Helsinki, Finland.

8-11 Xlith Meeting of the International Society of Oxygen Transport to Tissue, Ottawa, Canada. K. Rakusan, Dept. of Physiology, Sch. of Medicine, Univ. of Ottawa, 451 Smyth Rd., Ottawa, Ontario, Canada K1N 8M5.

8-12 Fifth International Magnesium Symposium, Kyoto International Conference Hall, Kyoto, Japan. Professor Yoshinori Itokawa, Dept. of Hygiene, Faculty of Medicine, Kyoto Univ., Kyoto 606, Japan.

8-12 International Conference on Human Lactation, Melbourne University, Melbourne, Australia. Nursing Mothers’ Association of Australia, P.O. Box 231, Nunawading, Victoria 3131, Australia.

14-19 Electrophysiological Mechanisms of Propagation in, and Activation of Cardiac and Smooth Muscle, FASEB Summer Research Conferences, Saxtons River, Vermont, USA. Dr. Robert W. Krauss, Executive Director, FASEB Summer Conferences, 9650 Rockville Pike, Bethesda, MD 20814, USA.

14-19 Neoplastic Transformation of Liver Cells, FASEB Summer Research Conferences, Copper Mountain, Colorado, USA. Dr. Robert W. Krauss, Executive Director, FASEB Summer Conferences, 9650 Rockville Pike, Bethesda, MD 20814, USA.


16-19 Groupe Polyphenols International Conference, Ontario, Canada. Dr. T. Fuleki, Horticultural Research Inst. of Ontario, Vineland Station, Ontario, Canada LOR 2E0.

17-20 29th Annual Drosophila Conference, University of Toronto, Toronto, Ontario, Canada. Dr. Ellen Larsen, Dept. of Zoology, Univ. of Toronto, 25 Harbord St., Toronto, Ontario, Canada M5S 1A1.


21-24 Bioavailability 88—Chemical and Biological Aspects of Nutrient Availability, University of East Anglia, Norwich, UK. G. R. Fenwick, AFRC Inst. of Food Research, Norwich Lab., Colney Ln., Norwich, Norfolk NR4 7UA, UK.
21–25 Key Issues in Mental Retardation Research, 8th International Congress of the International Association for the Scientific Study of Mental Deficiency, Dublin, Ireland. Mr. John O’Gorman, Congress Chairperson, 8th World Congress, IASSMD, 12, Pembroke Park, Dublin 4, Ireland; or Dr. Michael Mulcahy, Stewarts Hospital, Palmerstown, Dublin 20, Ireland.

22–26 The Pharmacology of Thermoregulation, 7th International Symposium, The University of Odense, Odense, Denmark. Dr. Peter Lomax, Dept. of Pharmacology, UCLA Sch. of Medicine, Los Angeles, CA 90024, USA.


23–26 7th International Symposium on Mass Spectrometry in Life Sciences, State University of Ghent, Ghent, Belgium. Dr. A. De Leenheer, Lab. for Medische Biochemie en voor Klinische Analyse, Harelbekestraat 72, B-9000 Ghent, Belgium.


29 Aug. 102nd Annual International Meeting and Exhibition, Association of Official Analytical Chemists, Palm Beach, Florida, USA. Margaret Ridgell, AOAC, IIII N. 19th St., Suite 210, Arlington, VA 22209, USA.


4–8 8th International Congress of Eye Research, Hyatt Regency Hotel, San Francisco, California, USA. 8th ICER Secretariat, Stanford Univ. Medical Center, Rm. S-030, Stanford, CA 94305, USA.

4–9 XVIII World's Poultry Congress and Exhibition, Nagoya, Japan. XVIII World's Poultry Congress and Exhibition, c/o International Congress Service, Kasso Bldg., 2-14-9 Nihombashi Chuo-Ku, Tokyo, Japan 103.

7–9 Prenatal Abuse of Licit and Illicit Drugs, Hyatt Regency Hotel, Bethesda, Maryland, USA. Conference Dept., The New York Academy of Sciences, 2 E. 63rd St., New York, NY 10021, USA.

12–13 2nd International Symposium on Lipid Metabolism in the Normoxic and Ischemic Heart, Maastricht, The Netherlands. Dr. G. J. van der Vusse, Dept. of Physiology, Univ. of Limburg, P.O. Box 616, 6200 MD Maastricht, The Netherlands.

13–15 International Conference on Computers in Clinical Medicine-Medical Informatics 88, Nottingham, UK. Conference Division, British Medical Informatics Society, 87 Gower St., London WC1E 6AA, UK.

13–16 Fourth International Conference of the International Organization of Psychophysiology, Prague, Czechoslovakia. Prof. Tomas Radil, Czechoslovak Academy of Sciences, Inst. of Physiology, 142 20 Praha 4-KRC Videnka 1083, Czechoslovakia.

13–17 Ninth European Immunology Meeting, Rome, Italy. Organizing Secretariat, MGA Via P. Cossa, 41 00193, Rome, Italy.

14–16 Meeting of the British Electrophoresis Society, Glasgow, Scotland. Dr. J. A. Beeley, Oral Biology Group, Glasgow Dental Hospital and School, 378 Sauchiehall St., Glasgow, UK.


19–22 29th International Conference on the Biochemistry of Lipids, Tokyo, Japan. Prof. Y. Seyama, Dept. of Physiological Chemistry and Nutrition, Univ. of Tokyo, Bunkyo-ku, Tokyo 113, Japan.

21–23 Galway Meeting, University College, Galway, Ireland. Meetings Officer, The Biochemical Society, 7 Warwick Court, London WC1R 5DP, UK.

25–30 American Chemical Society, Los Angeles, California, USA. ACS Meetings Dept., 1155 16th St. NW, Washington, DC 20036, USA.

26–29 11th International CODATA Conference, Karlsruhe Congress and Exhibition Centre, Karlsruhe, FRG. DEHEMA, Attn. CODATA Conference, P.O. Box 97 01 46, D-6000 Frankfurt/M.97, FRG.

OCTOBER 1988

9–13 8th International Symposium on Atherosclerosis, Rome, Italy. Dr. G. Crepaldi, Symposium Chairperson, c/o Organizing Secretariat, Centro Italiano Congressi-C.I.C., Via L. Spallanzani, 11, 00161, Rome, Italy.

9–14 Annual Fall Meeting of The American Physiological Society/American Society for Pharmacology and Experimental Therapeutics, Montreal, Quebec, Canada. FASEB Office of Scientific Meetings, 9650 Rockville Pike, Bethesda, MD 20814, USA.


16–21 XIII International Congress of Allergology and Clinical Immunology, Montreux, Switzerland. Congress Secretariat, XIII ICACI, 611 E. Wells St., Milwaukee, WI 53202, USA.
FEBRUARY 1989

5-9 Royal Australian Chemical Institute Symposium on Advances in Biomedical Polymers, Observation City, Perth, Western Australia. The Secretary, W. A. Polymer Group, Royal Australian Chemical Inst., 125 Hay St., Perth WA 6000, Australia.


MARCH 1989

19-24 73rd Annual Meeting of the Federation of American Societies for Experimental Biology, New Orleans, Louisiana, USA. FASEB Office of Scientific Meetings, 9560 Rockville Pike, Bethesda, MD 20814, USA.

APRIL 1989

4-7 Society for General Microbiology Easter Meeting, University of Cambridge, UK. Dr. C. S. Dow, Dept. of Biological Sciences, Univ. of Warwick, Coventry CV4 7AL, UK.

9-14 American Chemical Society, Dallas, Texas, USA. ACS Meetings Dept., 1555 16th St. NW, Washington, DC 20036, USA.

12-14 Aberystwyth Meeting of The Biochemical Society, Aberystwyth, Wales. Meetings Officer, The Biochemical Society, 7 Warwick Court, London WC1R 5DP, UK.

JANUARY 1989

5-6 Society for General Microbiology Irish Branch Meeting, Maynooth College, Dublin, Ireland. Dr. C. S. Dow, Dept. of Biological Sciences, Univ. of Warwick, Coventry, CV4 7AL, UK.

JULY 1989

9-15 XXXIst International Congress of Physiological Sciences, Helsinki, Finland. Prof. Osma Hanninen, Secretary General, P.O. Box 722, 00101 Helsinki, Finland.

11-14 Guildford Meeting of The Biochemical Society, Guildford, UK. Meetings Officer, The Biochemical Society, 7 Warwick Court, London WC1R 5DP, UK.

23-28 4th World Conference on Clinical Pharmacology and Therapeutics, Mannheim-Heidelberg, FRG. Contact CPT 89, c/o GKV, Congress and Conventions, P.O. Box 100619, D-6050 Offenbach 1, FRG.

AUGUST 1989

7-11 Conference on the Biochemistry and Genetics of Ribosomes, East Glacier, Montana, USA. Professor Walter E. Hill, Dept. of Chemistry, Univ. of Montana, Missoula, MT 59812, USA.

SEPTEMBER 1989

7-9 10th European Section Meeting, International Society for Heart Research, Rotterdam, The Netherlands. Dr. J. W. de Jong, Cardiochemical Lab./Thoraxcenter, Erasmus Univ. Rotterdam, P.O. Box 1738, 3000 DR Rotterdam, The Netherlands.

10-15 American Chemical Society, Miami Beach, Florida, USA. ACS Meetings Dept., 1555 16th St. NW, Washington, DC 20036, USA.
APRIL 1990
3-6 Bath Meeting of the Biochemical Society, Bath, UK. Meetings Officer, The Biochemical Society, 7 Warwick Court, London WC1R 5DP, UK.

22-27 American Chemical Society, Boston, Massachusetts, USA. ACS Meetings Dept., 1155 16th St. NW, Washington, DC 20036, USA.

MAY 1990
23-26 Eighty-First Annual Meeting of the American Association for Cancer Research, Washington, DC, USA. Margaret Foti, Executive Director, AACR, Temple Univ. School of Medicine, West Bldg., Rm. 301, Broad and Tioga Sts., Philadelphia, PA 19140, USA.

OCTOBER 1990
28 Oct. Annual Meeting of the Society for Neuroscience, St. Louis, Missouri, USA. Nancy Bean, Executive Director, Society for Neuroscience, 11 Dupont Circle, Suite 500, Washington, DC 20036, USA.

DECEMBER 1990
18-20 Birmingham Meeting of the Biochemical Society, Birmingham, UK. Meetings Officer, The Biochemical Society, 7 Warwick Court, London WC1R 5DP, UK.

APRIL 1991
10-12 Reading Meeting of the Biochemical Society, Reading, UK. Meetings Officer, The Biochemical Society, 7 Warwick Court, London WC1R 5DP, UK.

AUGUST 1993
22-27 XVth International Congress of Nutrition, Adelaide, Australia. Dr. R. M. Smith, General Secretary, CSIRO Division of Human Nutrition, Kintore Ave., Adelaide, South Australia 5000.

Reviewed by Diana M. Lopez, Department of Microbiology and Immunology, University of Miami School of Medicine, Miami, Florida 33101, USA

The rapid advances in recombinant gene technology and molecular biology have provided new insights into the relationship of human oncogenic viruses and their host cells and their association with malignancy. This multiauthored book attempts to review the available basic information about these viruses and integrate it with their biological and clinical manifestations to provide a reference point for both scientists and clinicians.


Reviewed by Antonio Scarpa, Department of Physiology and Biophysics, School of Medicine, Case Western Reserve University, Cleveland, Ohio 44106, USA

Long gone are the days when biological scientists used the word lecithin indiscriminately and considered lipids little more than a biological grease. The study of the physical laws governing lipid structure and function and the study of lipid metabolism have become important subspecialties of biological research, as evidenced by the impressive body of publications and the establishment of good quality, specialized journals publishing exclusively on lipids.

This is an interesting and useful book that summarizes and outlines the impressive progress made during the last 30 years on the theoretical principles and experimental evidence that form the basis for our understanding of the physical properties of phospholipid bilayers. It contains 14 chapters, each with its own compact bibliography characterized by a good mix of original experimental articles, some of them as recent as last year, and pertinent reviews. After a brief and concise introduction to the properties of lipid bilayers, there is a good treatment of lipid self-assembly that outlines the hydrophobic effect, the thermodynamics of lipid aggregation, and minimal micelle concentration and size. The following three chapters illustrate in detail and quantitatively lipid hydration, surface electrostatic charges, and the hydrated surface characteristics in ionic solutions of both planar and spherical lipid bilayers. This treatment is followed by a detailed explanation of solute bilayer interaction, ion binding, and transport. The remaining chapters are devoted to the description of phospholipid bilayer properties that are most relevant as models for biological membranes, such as interbilayer forces responsible for aggregation and fusion, phase transitions, thermodynamic aspects of chain rotation, fluid phase elasticity, and lateral phase separation.

In spite of the relatively high level of sophistication in treating some of the models, derivations, and experimental approaches, this book attempts, albeit with only limited success, to introduce the physicochemistry of lipids in a way accessible to those with little background in this area. Thus, after a good and simple introduction to lipids in the first chapter, each successive chapter has a brief but useful introduction that outlines basic principles, models, and key experiments. The content of each chapter varies in detail and sophistication depending on the importance given by the authors to the topic described.

Overall this is a very useful book with several salient features: it is written by two authors and therefore does not suffer the usual uneven treatment so common in multi-authored contributions; it is concise, well-written, and organized so as to be useful to readers with different backgrounds and levels of knowledge; it displays a healthy balance of theoretical models and experimental data, firmly established principles and unproven hypotheses, and past and very recent evidence. Despite its positive aspects, this is not a book to be recommended indiscriminately to most readers of The FASEB Journal. Although understanding the physicochemistry of a lipid bilayer is the key to comprehending molecular events in biological membranes and cells, this volume confines itself to the physical properties of simple phospholipid bilayers. Areas such as lipid-protein interaction, lipid arrangements and dynamics in naturally occurring lipid membranes, and the use of lipid membranes as a model for membrane phenomena studies, all of which may be regarded as being more directly relevant to most biological scientists, are purposefully excluded. On the other hand, this book should be on the reading list (not necessarily on the buying list, considering the price) of serious students and researchers looking for an updated, exhaustive, well-written, and organized treatment of physical principles and concepts regulating assembly, interaction, and the overall properties of phospholipid bilayers.

Reviewed by Nenad Fregin, Department of Anatomy and Cell Biology, University of Miami School of Medicine, Miami, Florida 33101, USA

I found the title of this book to be somewhat deceptive. I expected to be reviewing a textbook filled with details and drawings comparing and contrasting the embryonic membranes of many different animals appropriate for comparative embryology class. However, the book turned out to have much more to offer. Professor Mossman has taken the results of his lifetime study and, together with numerous other studies, some dating as far back as 1897, compiled them into a monograph that addresses questions about evolution and developmental biology as well as comparative vertebrate anatomy.

The first three parts of the book contain the descriptive anatomy of the vertebrate fetal membranes, as promised by the title. The vertebrates are classified by the nature and type of fetal membranes they possess, then further subdivided into the phylogenetic classes and orders that exemplify these groups. Intermingled with the descriptions and comparisons of the various types of embryonic membranes are discussions of how changes in these membranes are related to the changes in life-styles that have taken place in vertebrate evolution. These concepts establish the major theme of the book and are expanded on in the fourth part of the book. In this section, Professor Mossman expands on the implications of the data obtained from morphological and comparative studies of the fetal membranes on related biological issues such as phylogeny, evolution, and developmental physiology. I found this to be the most exciting section of the book.

The final portion of the book consists of a collection of tables and diagrams of data on the fetal membranes of specific placental mammals. This compilation is intended to assist in the further description of membrane data, but it should also serve as an excellent reference for others researching mammalian embryology. There is also an ample glossary and extensive bibliography.

Professor Mossman has written an excellent review of the state of the art of fetal membrane research. I would recommend this book to anyone doing research in the area as well as those interested in evolution and phylogeny. However, the high price would make it difficult for students to afford so I cannot recommend it for use as a textbook.


Reviewed by Daniel Wiarda, Department of Pharmacology and Toxicology, West Virginia University, Morgantown, West Virginia 26506, USA

This book is a concise collection of topics that provides an overview of the problems and experimental strategies associated with the delivery of therapeutics to specific tissues. It is a multiauthored book (29 contributors) composed of nine chapters. This book is based on a symposium held in 1986 and, as with many books that cover multidisciplinary research, there is a tendency for the chapters to be loosely integrated. However, the editors have successfully assembled chapters that address the principle theme of site-specific drug delivery systems.

The first chapter is an introduction into the aims of site-specific drug delivery and discusses why such therapy is clinically important. Chapter 2 reviews the process of endocytic vesiculation and intracellular processing of macromolecules that bind to cell membranes. Chapter 3 details experiments that demonstrate how chemically modified lipoproteins are selectively taken up by either Kupffer cells or parenchymal cells in the liver. Chapters 4 and 5 review the use of antibody-toxin conjugates for treatment of B lymphocyte tumors (mouse) and the latter discusses delivery of tumor-specific monoclonal antibodies via the lymphatics to lymph nodes. Chapter 6 reviews the fate of colloids in the body after i.v. administration and covers a range of colloids including microgels, liposomes, and polystyrene microspheres. I thought that this chapter should have been placed at the beginning of the book or incorporated into the first two chapters. However, it is very well written and does introduce the concept of targeting drugs to macrophages, which is the topic of chapter 7. This chapter discusses basic macrophage biology with emphasis on its tumoricidal role and reviews the concept of activating macrophages by the delivery of immunomodulators via liposomes. Chapter 8 explores the observation that certain viruses have affinity for specific cellular receptors. The authors of this chapter stated that an understanding of the molecular basis of tissue tropism of viruses may be exploited for site-specific drug delivery, but did not elaborate on this point other than a brief suggestion that perhaps monoclonal antibodies against these receptors could be raised. The last chapter, on gene therapy: rationale and realization, appears out of place at first glance. However, one of the major obstacles for successful gene therapy is the problem associated with directing genes to selective cells within the body, and this chapter discusses approaches currently being used to study this problem.

Most of the chapters represent overviews of research in selected areas. An exception is the chapter on receptor-dependent targeting of lipoproteins to liver cells, which I found to be very technical. The book is moderately illustrated with black and white figures, and important references are provided at the end of each chapter. Well-written summaries that recapitulate the important points are provided for each chapter. The first two chapters have some typographical errors in the text, and some of the abbreviations used in the second chapter are not defined, but these do not detract or interfere with the concepts being presented.

Absent from the text are chapters dealing with other delivery systems such as peptide hormones, growth factors, or magnetic microspheres. A chapter on the problems associated with the generation of antibodies against these delivery systems would have been an appropriate addition to this book.

In summary, this book is a basic introduction to the field of site-specific delivery systems. Each chapter can be read as a separate review and as such will be useful in providing an initial glimpse into the area of site-specific targeting of therapeutics. Indeed, I was left with the impression that this approach offers great therapeutic potential, but many hurdles must be overcome before site-specific targeting will be routinely feasible.


Escherichia coli and Salmonella typhimurium: Cellular and Molecular Biology, Volumes 1 and 2. Frederick G. Neidhardt, Editor in Chief. Washington, DC: American Society for Microbiology. 1987. 1750 pages. Member: $61.00 (cloth); $51.00 (paper); Nonmember: $85.00 (cloth); $75.00 (paper). ISBN 0-387-91482-9-1.


Protein Tailoring for Food and Medical Uses. Robert E. Feeney and John R. Whitaker. New York: Marcel Dekker, Inc. 1986. 392 pages. $69.75 (U.S. and Canada); $83.50 (all other countries). ISBN 0-8247-7616-X.


"Paranoid" typically describes the dealings of scientists with journalists. However, among the significant things these two professions have in common with each other is that paranoid also describes the typical dealings of journalists with scientists.

Recently two sachems of science journalism sat with the editorial staff of the AAP Newsletter and discussed science and science reporting, and possible ways that practitioners of each might help one another spread the word--tell the stories of science.

"Scientists view the media as lacking knowledge of science," says Marvin Garrett, managing editor of the Richmond Times-Dispatch. In many cases the scientists are no doubt correct, but Garrett knows that the science editor on his paper has, in the course of doing his job, benefitted greatly from almost 30 years of incredible continuing medical education—not to mention astronomy, physics, paleontology....Garrett cites with pride anecdotes of scientists getting at least some of their professional updating from his paper. In fact it can be a loop that feeds on itself when journalists are following up on a story with an "expert" who has just read and learned from the same story.

How do scientists know who in the fourth estate to trust? According to Garrett, it's the same problem for journalists trusting scientists, and can be solved the same way—through peer review, credentials, and reputation. He acknowledges that some reporters are not objective, that they put "spin" on the story. "You've got loose canons all over the place," he says. So how can one find out who's good and who's not? Garrett advises scientists to check bona fides when approached by journalists. He says it is not inappropriate—if it's not a breaking news story—to ask for clippings and the names of other scientists the reporter has dealt with in the past. This is especially important if a reporter is calling from a small paper half-way across the country.

More likely than encountering a bad apple, is the specter of where "some guy interviews you and just gets it screwed up—makes you sound like an idiot before your colleagues." Garrett recommends you attempt to establish ground rules. Technically, "read backs" before publication are against the code of journalism conduct. But if you as the scientist offer to help the reporter by checking that he or she hasn't missed an important point or mixed up some facts, that variation of a read back is acceptable to many reporters and their editors. Especially if you can make clear that you are not trying to put your spin on the story, and you acknowledge that you have no veto power over something you don't like, and if you are able to reassure the reporter that your intent is to be helpful and not to mess with the First Amendment.

He also suggests that you ask to tape the interview, noting that there are no compelling reasons for an honest reporter to object.

Garrett does not advise declining to talk to a reporter. But he does suggest that you titer your "level of candor" until you can establish mutual trust.

Billing itself as Virginia's newspaper, the Richmond Times-Dispatch also serves as the main rhinestone in the crown of the Media General empire. Traditionally, this paper has had a superior track record of
broad science coverage and in dishing up for its readers much more than the usual big-play "news" items dealing with cancer, heart attacks, sex, and aging. According to science editor Beverly Orndorff, many of the paper's "bread-and-butter stories of daily, hometown science reporting are not the big issue ones." Orndorff says, "in recent weeks we have written about special pillows, shaped like teddy bears, for open heart surgery patients (men, mostly) to hold against their chests when they cough, to help reduce the discomfort; on one authoritative group's latest assessment of caffeine; on a medical scientist's efforts to track down the genetic component on schizophrenia." He goes on also to list one of the paper's more well-read stories in recent months: "a blow-by-blow account of what's happening in your body with each ache, pain and misery of the flu."

Garrett points out, however, that many of the big stories "unfortunately, become 'market-driven.'" He says, "it's hard to sit in the back pew, journalistically, when The New York Times, The Washington Post, TIME, and everybody seems to be heralding 'breakthrough' stories." In journalism, he says, this is part of "the tendency to trivialize and rush into print with 'rat studies' and false hopes in medical cases."

When asked how he reaches his readers, who include farmers, watermen, business people, military people, homemakers, academicians, and so on, Orndorff says he just tries to "write as interestingly, clearly and simply as possible, without compromising basic accuracy." He knows that "not everyone will read every science story, just as not everyone reads every sports story, or business story, or political story—if it's interesting and clear, and somehow personally pertinent to readers, they will find it and read it."

Both of these journalists agree that professional societies can play a needed matchmaker role, for example, by conducting seminars to help scientists and journalists communicate better with one another. Some societies already perform these services with success by mixing researchers and reporters. Garrett thinks it would be very helpful for editors and other first-line gatekeepers to get involved as well.

Orndorff's advice to scientists in their dealings with journalists is "talk to the reporters like students—explain things understandable." He suggests "using whatever channels necessary—even making labeled sketches in the reporter's notebook—to get the message across. Be patient, try not to be confusing. Use plain language and explicit examples. Give the bigger picture of your work; place it in context on a map of some sort."

When asked about why Americans, especially young Americans, appear so ill-informed with respect to science, Orndorff responds that, "surveys have repeatedly and consistently indicated that most people [non-scientists] receive their science education after their school years from newspapers, magazines, and television and radio."

Actually, the point is well taken if you think about it, and probably the more successful people are after their school days, the more science they learn. And it may have to do with students' complaints since day-one about the relevance of what they are taught. For example, real chemistry can come later from home winemaking experience more than from memorizing the periodic chart of the elements. Breeding llamas will perhaps convey principles of genetics better than trying not to sneeze while counting sleepy fruit flies. And coastal cruising in the new sailboat will make clearer than classroom exercises the fundamentals of geometry, trigonometry, astronomy, geography, and meteorology.

[ed note: Neither Garrett nor Orndorff asked to tape this interview and neither requested a "read back."]

Harold Waters is the Executive Officer of the American Association of Pathologists. * This article is reprinted from the fall AAP Newsletter.
FASEB PUBLIC SERVICE AWARD

**Purpose:** The Federation is making an annual Public Service Award to recognize individuals who have made outstanding contributions to the cause of biomedical or biological research through their work in government, public affairs, the media, the law, the arts, or related fields. The award is intended to serve as recognition for achievements in areas other than scientific inquiry.

**Number of Awards:** One or more annually depending on achievements.

**Type of Awards:** Nonmonetary.

**Nominations:** May be made by members of FASEB societies including members of the Awards Committee. Nominations must be supported by a detailed letter, original and seven (7) copies, explaining the significance of the nomination and the background of the nominee. *Deadline for submission of nominations will be December 31 each year,* but the deadline may be waived by the chairman of the Awards Committee to assure inclusion of candidates of major significance who may have been overlooked.

**Awards Committee:** FASEB Federal Appointments Nominating Committee whose members are: President of FASEB; past President; Vice President and Executive Director. In certain circumstances the Federation Board may be asked to select the winners.

**Types of Candidates:** President of United States; First Lady; Vice President of United States; U.S. Senators; U.S. Representatives; Secretaries of federal departments; Directors of federal agencies; other federal officials; state officials; scientists; writers including playwrights; journalists; attorneys; public-spirited individuals, organizations, etc. (Awards may be made posthumously).

**Examples of Actions Which May Merit Awards:**

- Major initiatives or actions by the Federal Administration which would advance the cause of biomedical/biological research;
- Especially significant congressional leadership in the field;
- Especially timely and significant actions by federal officials to bring federal research efforts to bear on acute or emergency problems of disease;
- Especially penetrating lay articles, essays or reports which explain or illuminate biomedical/biological research or aspects of research;
- Major news articles which reveal significant problems or developments in the biomedical/biological research field;
- Actions in the field of law which make a major contribution to biomedical or biological research;
- Actions of public-spirited citizens whose special efforts and/or unusual financial contributions advance the cause of biomedical/biological research;
- Artistic achievement which heightens public understanding of a medical research issue.

**Method of Operation:** The award’s rules and regulations will appear in the FASEB Public Affairs Newsletter and in *The FASEB Journal* in January. Members are encouraged to make nominations, but must support the nominations with adequate backup material such as copies of speeches, statements, articles, documents or other pertinent and verifiable references. The work to be considered generally would have occurred in the year preceding the year in which the award is presented, but the award may reflect achievement over a period of years.

All nominations from members will be received by the FASEB Office of Public Affairs (send to: Director, Office of Public Affairs, FASEB, 9650 Rockville Pike, Bethesda, MD 20814), screened for completeness and submitted to the Awards Committee members for their consideration. The committee will meet in 1988 to select winners for 1987. The decision of the committee or the Federation Board is final.
The Federation of American Societies for Experimental Biology invites nominations for the twelfth series of WELCOME VISITING PROFESSORSHIPS in the Basic Medical Sciences, sponsored by The Burroughs Wellcome Fund. Administered by the Federation, the Professorships are offered annually to medical schools, universities, and other scientific research institutions within the United States.

The purpose of the Visiting Professorships is to stimulate interest in the basic sciences and to enhance communication with scientists in Physiology, Biochemistry, Molecular Biology, Pharmacology, Pathology, Nutrition, Immunology and Cell Biology.

Selected U.S. institutions will receive distinguished scientists from within the United States or abroad whose interests relate to the above disciplines. Twenty-one awards will be made annually, of which up to four awards will be made to non-U.S. Visiting Professors. Each scientist will serve as a Wellcome Visiting Professor and spend two to five days at the institution engaged in teaching and discussion with students and faculty.

During the visit, each Visiting Professor will deliver a Wellcome Lecture on a subject pertinent to his/her discipline. An announcement of the Wellcome Lecture in the basic medical sciences will be prepared and publicized in advance by the institution.

APPLICATIONS FOR 1988/89 AWARD

Application for a Visiting Professorship for the 1988/89 academic year should be by letter from a university or scientific institution in the U.S. wishing to receive a Visiting Professor. No special forms are required. The application should not be made by an individual wishing to visit an institution.

Applications should include the following:

1) Co-signature of an appropriate official of the institution, e.g., Dean, Chancellor, Vice President.

2) Curriculum vitae of the invited scientist which should include a complete mailing address.

3) Selected bibliography of no more than 20 publications.

4) Statement indicating how the applying institution would benefit from the nominee’s visit, together with a tentative plan for achieving this benefit. Please specify the scientific discipline in which the nominee would be expected to serve as Visiting Professor.

5) All documents must be submitted in duplicate.

To avoid a situation in which the same eminent scientist is nominated by more than one institution, a prospective host institution should ascertain the nominee’s interest and availability before submitting an application.

An institution having previously received a Wellcome Visiting Professor within the past three years should submit an application in a discipline other than that in which the previous award was made.

Letters of application should be addressed to: The Wellcome Visiting Professorship Program, Executive Office, Federation of American Societies for Experimental Biology, 9650 Rockville Pike, Bethesda, MD 20814.

Phone: (301) 530-7090.

The deadline for receipt of applications is May 1, 1988.

AWARDS AND EXPENSES

The Burroughs Wellcome Fund will provide an award of $1,500 and a plaque to the host institution for presentation to the Visiting Professor at the time of the Wellcome Lecture. In order to assist with some of the attendant expenses, The Fund will provide $350 to each host institution. Local expenses (meals, lodging, etc.) will be borne by the host institution.

After the visit, a statement of travel expenses will be submitted by the Visiting Professor to the host institution for payment. Upon receipt of appropriate documentation, The Burroughs Wellcome Fund will reimburse the institution for travel expenses (equivalent to economy air fare). Travel expenses for an accompanying spouse will also be reimbursed by The Fund at the same level.

SELECTION

Applications are reviewed by committees of the member societies of the Federation, and final selections are made by the Federation Executive Committee.

It is intended that there be at least three Professorships in each of the seven disciplines represented by the constituent Societies of the Federation.

Each year more applications are received than can be awarded. Selections will be based on the needs of the applying institution, the credentials of the nominee, the scope of the proposed program, and the expected benefits.

In a given year, only one Professorship will be awarded to an institution, and a person may serve as a Visiting Professor at only one institution.

Awards will be announced by August 1, 1988.

SPONSOR

The Burroughs Wellcome Fund is a private nonprofit foundation located at 3030 Cornwallis Road, Research Triangle Park, North Carolina 27709. It was organized in 1955 with funding from Burroughs Wellcome Co. to provide financial aid for the advancement of medical knowledge by research, or for other scientific, scholarly and educational purposes within the United States.

Prepared by the FASEB Office of Public Affairs

January 1988

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All six FASEB Societies will meet together at the 1988 Annual Meeting in Las Vegas: Physiology (APS), Biochemistry and Molecular Biology (ASBMB), Pharmacology (ASPET), Pathology (AAP), Nutrition (AIN), and Immunology (AAI), with the AAI celebrating the 75th anniversary of its founding. Three other organizations will be participating as Guest Societies, with their programs coordinated by APS: the Biomedical Engineering Society (BMES), the Society for Experimental Biology and Medicine (SEBM), and the Society for Mathematical Biology (SMB). Members of the American Society for Cell Biology (ASCB), an affiliate FASEB Society, may also register for the Annual Meeting. March issues of The FASEB Journal will contain the nearly 9100 abstracts received for programming.

Four major interdisciplinary themes will comprise one component of the meeting: Cardiovascular Disease and Ischemic Injury, Immunopharmacology and Immunotoxicology, Metabolic Regulation, and Receptors and Growth Factors. Thematic sessions will be as usual cross Society lines to promote scientific interchange. The scientific program will also include Society symposia, minisymposia, lectures, slide and poster sessions, and instrumentation/methodology tutorials organized by exhibiting companies. The Learning Resources Center, located near the poster sessions area, will be available for display of new curricula, media, or techniques, through poster presentations, table exhibits, computer demonstrations, and audiovisual facilities.

For the first time, all scientific sessions will be scheduled in only two locations: the Las Vegas Convention Center and the Las Vegas Hilton Hotel. Headquarters, business office, registration, information, Placement Service, and exhibits will be located in the Las Vegas Convention Center. The following are headquarters hotels for the Societies:

- APS, BMES, SMB, SEBM, ASBMB
- AAP, AAI: Las Vegas Hilton; ASPET, AIN: Riviera Hotel.

The exhibits will be open 8:30 AM–4:30 PM, Monday–Thursday, May 2–5, in the Las Vegas Convention Center.

The FASEB Placement Service will be located in the Las Vegas Convention Center. Registration is Sunday, May 1, 2:00–8:00 PM; Monday–Tuesday, May 2–3, 8:30 AM–4:30 PM; and Wednesday, May 4, 8:30 AM–1:30 PM. Advance registration (deadline April 15, 1988) of candidates and employers is strongly recommended. Employers and candidates using the interviewing facilities must register for both the meeting and the Placement Service.

Abstracts will appear in the March 15, 20, and 25 issues of The FASEB Journal, which will be mailed simultaneously in March. Programs will be mailed to preregistrants by the end of March. Please remember: postal delays may occur.

In the following pages, we offer you the most up-to-date information on plans for thematic and Society programs.

### FASEB 3M LIFE SCIENCES AWARD

The FASEB 3M Life Sciences Award will be presented on Wednesday, May 4, 1988, at 11:30 AM to William E. Paul.

### DEADLINE DATES

- Advance Registration: March 2, 1988
- Housing Application: April 4, 1988
- Placement Service Advance Registration: April 15, 1988
- Airline Reservation: As soon as possible

### FJ AT THE ANNUAL MEETING

The FJ staff will again be available to meet with you at the 1988 FASEB Annual Meeting. Please come to the Federation Lounge during exhibit hours to see us—we’re eager to hear what’s good (and what’s not) about the New FJ.

### INTERSOCIETY THEMATIC SESSIONS

Four intersociety themes have been approved for the Las Vegas meeting: Cardiovascular Disease and Ischemic Injury, Immunopharmacology and Immunotoxicology, Metabolic Regulation, and Receptors and Growth Factors. Theme symposia, minisymposia, and slide and poster sessions will cross Society lines to promote scientific interchange. From abstracts submitted on topics related to the themes, a special committee will construct a program of sessions to complement the symposia. An abstract that cannot be accommodated in a thematic session will be programmed in a slide or poster session. Below are the theme symposia and minisymposia.

#### Cardiovascular Disease and Ischemic Injury

(coordinated by APS & AAP)

**Organizers:** J. M. Downey and M. A. Gimbrone, Jr.

Initiating mechanisms in vascular disease. Chair: Michael A. Gimbrone, Jr.

Dynamics of thrombosis and thrombolysis. Chair: Charles T. Esmon

Coronary vasospasm: new insights. Chair: Paul M. Vanhoutte and Motoomi Nakamura

Molecular and cellular mechanisms of tissue repair. Chair: Russell Ross and Michael Sporn

Cellular mechanisms of ischemic injury. Chair: Keith Reimer and Bruce Freeman

Leukocyte-mediated injury in ischemia. Chair: G. W. Schmidt-Schönbein

Protection of ischemic heart. Chair: James M. Downey

Electrophysiology of ischemic heart. Chair: David J. Hearse
Immunopharmacology and Immunotoxicology
(coordinated by ASPET & AAI)
Organizers: S. Gaylen Bradley and Albert E. Munson
Mediators of hypersensitivity reactions in the lung. Chair: Jean F. Regal
Immunomodulation in cancer therapy. Chair: Scott E. Loveless and Robert J. North
Receptors in immune regulation and modulation. Chair: Kendall A. Smith
Mechanism of action of immunomodulatory drugs. Chair: Jack H. Dean and Federico Sprenafico
Approaches to treatment of inflammation. Chair: Shaun Ruddy and Lawrence B. Schwartz
Mechanisms of immunotoxicology. Chair: Michael P. Holsapple and Richard A. Carchman
Immunotoxins. Chair: Ellen S. Vitetta
Therapeutics used in the treatment of AIDS. Chair: Michael I. Luster and Samuel Broder

Metabolic Regulation
(coordinated by AIN & ASBMB)
Organizer: N. W. Cornell
Regulation of metabolism by intracellular signaling. Chair: J. H. Exton
Molecular biological studies of metabolic regulation. Chair: A. G. Goodridge
Role of posttranslational modifications in metabolic regulation. Chair: R. B. Rucker and F. Wold
Omega-3 fatty acid effects on lipid metabolism. Chair: R. B. Shireman
Organizational aspects of metabolic regulation. Chair: P. A. Srere
Nutrients and natural materials as regulators of cytochrome P-450. Chair: E. S. Vesell

Receptors and Growth Factors
(coordinated by AAI & ASPET)
Organizer: J. J. Oppenheim
Receptors and growth factors for mesenchymal cells. Chair: R. Ross and M. B. Sporn
Neuroendocrine receptors and growth factors. Chair: M. P. Czech and H. Rozengurt
Receptors and growth factors for myeloid cells. Chair: D. Metcalf and M. Dexter
Receptors and growth factors for lymphoid cells. Chair: T. A. Waldmann and M. Howard
Receptors and growth factors in development and neoplasia. Chair: H. L. Moses and C. D. Stiles
Growth factor–receptor signal transduction. Chair: O. M. Rosen and S. Cohen

SOCIETY SYMPOSIA AND MINISYMPOSIA

APS
The American Physiological Society will schedule symposia and slide and poster sessions, and a plenary session during which G. K. Radda will present the Physiology in Perspective, Walter B. Cannon Lecture. BMES, SEBM, SMB, and SGP (Society of General Physiologists) sympoisa are also noted below.

Oxygen radicals: a target and source of oxidant injury. Chair: Una S. Ryan
Biology of the pulmonary intracapillary macrophages. Chair: Norman C. Staub
Regulation of blood flow in endocrine glands. Chair: Claude Desjardins
Pathogenesis and impact of insulin resistance in non-insulin-dependent diabetes mellitus. Chair: John E. Gerich
Atrial natriuretic peptide: actions in animal models of hypertension and heart failure. Chair: Ronald H. Freeman
Hormonal regulation of fluid and electrolytes: environmental effects. Chair: John R. Claybaugh and Charles E. Wade
Control of the pharyngeal airway. Chair: David P. White
Mechanisms of epithelial ion transport across the frog skin. Chair: Stanley D. Hillyard
Renal physiology: people and ideas. Chair: Carl W. Gottschalk
Excitation-contraction coupling in striated muscle. Chair: Alex Fabiato
Taxonomy of plasma membrane anion exchange. Chair: Peter Aronson
Molecular aspects of epithelial and photoreceptor cell polarity. Chair: Enrique Rodriguez-Bolan
Regulation of renal ionic channels. Chair: Lawrence G. Palmer
The cellular and molecular biology of renal hypertrophy. Chair: Marc R. Hammerman
Physiology and pathophysiology of reactive oxygen metabolites in the digestive system. Chair: N. D. Granger and M. B. Grisham
Neural control of the intestinal epithelium. Chair: Helen J. Cooke
Regulation of cerebral blood flow. Chair: Donald D. Heistad
Regulation and role of vascular capacitance. Chair: Carl F. Rothe
Cardiovascular actions of epoxysicosatrienic acids: novel metabolites of arachidonic acid produced by a cytochrome P-450 monooxygenase. Chair: Kenneth G. Proctor
Myocardial ischemia in the hypertrophied heart. Chair: Robert J. Bache
Impedance techniques in biological systems. Chair: Hun H. Sun and Joseph M. Van DeWater. Sponsored by BMES
Measurement of convection and diffusion in biological systems. Chair: Rakesh K. Jain and Fitz-Roy E. Curry. Sponsored by BMES
Osteoporosis: basis and treatment. Chair: Hector F. DeLuca. Sponsored by SEBM
Newly discovered actions of 1,25-(OH)2D3. Chair: Hector F. DeLuca. Sponsored by SEBM
The dynamics of excitable media. Chair: Simon A. Levin. Sponsored by SMB
Reconstitution motility in vitro. Chair: J. A. Spudich and Y. E. Goldman. Sponsored by SGP.

ASBMB
The American Society for Biochemistry and Molecular Biology plans plenary lectures, opening lectures, and morning and afternoon symposia, as well as slide and poster sessions.

Plenary Session Lectures
From enzymes to abzymes. Speaker: Stephen J. Benkovic
Structural basis of light energy and electron transfer in protein pigment complexes. Speaker: Robert Huber
"Zinc fingers": a novel class of protein fold for interaction with nucleic acids. Speaker: Aaron Klug
Specifying tertiary structure: some geometrical aspects of protein folding. Speaker: Frederic M. Richards

Opening Lectures
Protein transport in the Golgi. Speaker: James E. Rothman
G proteins and transmembrane signaling. Speaker: Alfred G. Gilman
Factors and mechanism involved in the transcriptional control of eukaryotic genes. Chair: Robert G. Roeder
The biochemistry and biology of RNA splicing. Speaker: Phillip A. Sharp
Dynamics of microtubules. Speaker: Marc Kirschner
The molecular genetics of cancer. Speaker: Michael J. Bishop

ASBMB-Mercer Award Lecture.
William C. Rose Award in Biochemistry Lecture.
The Herbert A. Sober Memorial Lectureship.

Major Symposia
The structural basis of receptor function and regulation. Chair: Robert J. Lefkowitz
Regulatory proteins that control gene expression in mammalian cells. Chair: Steven McKnight
Molecular dynamics of the cytoskeleton. Chair: Thomas D. Pollard
Phosphatidylinositol-derived signal pathways. Chair: Phillip W. Majerus
Protein/DNA complexes: structures and transformations. Chair: Stephen C. Harrison
Genetic approaches to gene regulation in yeast. Chair: Gerald Fink
The molecular biology of development. Chair: Spyridon Artavanis-Tsakonas

Afternoon Symposia
Intercellular signaling/chemotaxis. Chair: Peter Devreotes
Mechanisms of intracellular protein breakdown. Chair: Avram Hershko
Anchoring membrane proteins by glycosylphosphatidylinositol. Chair: Martin Low
Folding and stability of mutant proteins. Chair: David R. Shortle
Mechanism and regulation of fatty acid synthesis. Chair: Salih J. Wakil
Glucose transport proteins: structure, function and regulation. Chair: Harvey F. Lodish
Mechanisms of gene rearrangement reactions. Chair: Kiyoshi Mizuuchi
Protein engineering: three case studies. Chair: Greg Petsko
RNA enzymes. Chair: Sidney Altman
mRNA splicing in yeast. Chair: John Abelson
Oxy and peroxy radicals in P-450-catalyzed reactions. Chair: Minor J. Coon
Transcription of plant organellar and nuclear genes. Chair: Virginia Walbot
Phospholipases. Chair: Edward A. Dennis
Mechanisms of enzymes. Chair: Debra Dunaway-Mariano
Differentiation-induced gene expression. Chair: Charles Emerson
Protein kinases. Chair: J. D. Corbin
Glycoprotein biosynthesis. Chair: Rosalind H. Kornfeld
Heat-shock response. Chair: Susan Lindquist
Protease inhibitors. Chair: David J. Loskutoff
Enzyme-DNA interactions, metalloproteins: structure and mechanisms. Chair: Albert S. Mildvan
NMR studies of metabolism in vivo. Chair: Robert G. Shulman
Biochemistry and functions of the ether-linked lipids. Chair: Robert L. Wykle
Role of lipids in signal transduction. Chair: R. H. Christian Raetz
Developmental molecular biology. Chair: To be announced.

ASPE
The program for the American Society for Pharmacology and Experimental Therapeutics will consist of symposia, minisymposia, and slide and poster sessions. The tentative list of symposia follows.

Novel cellular mechanisms of vasodilation. Chair: S. P. Duckles and M. L. Cohen
Renal a2 adrenoceptors: the state of the art. Chair: W. A. Pettinger
Gastrointestinal drug receptors. Chair: F. Porreca
Neutral endopeptidase 24.11 (NEP; enkephalinase): structure, actions, and inhibitors. Chair: E. G. Erdos
Asthma: role of airways epithelium in bronchial hyperreactivity. Chair: J. S. Fedan
EDRF: identification, properties, and metabolism. Chair: L. J. Ignarro
Benzomorphin pharmacodynamics update. Chair: N. Khazan
Foreign compound metabolism and toxicology studies with human liver. Chair: G. Powis and I. G. Sipeo
Stress and the developing organism. Chair: T. A. Slotkin
Developmental changes in the P-450 genes responsible for steroidogenesis. Chair: D. W. Nebert
Regulation of cell proliferation by neuroptides: a new function of clinical importance. Chair: A. Schonbrunn
Metabolism of therapeutic proteins: basic and applied aspects. Chair: R. E. Billings
Metabolism of endogenous substrates by cytochrome P-450. Chair: D. Kupfer and J. B. Schenkmman
New approaches to studying ligand-receptor interactions: from the test tube to the PET scanner. Chair: R. B. Rothman and P. B. Molinoff
Stereospecific drug disposition. Chair: D. C. Brater

AAP
The American Association of Pathologists will program abstracts in some 15 minisymposia and five poster discussion sessions in addition to the usual poster sessions. Six symposia and two workshops are also being offered, as noted below.

President's Symposium: DNA polymerases: structure-function relationships of human and viral replicative enzymes. Chair: David Korn
Inflammation and mediator interactions. Chair: Peter Henson
Chromosomal approaches to oncogenes and oncogenesis. Chair: Peter C. Nowell
Acquired immunodeficiency syndrome (AIDS). Chair: Flossie Wong-Stahl
Molecular aspects of Alzheimer's disease. Chair: Pierluigi Gambetti
Stromal-target cell interactions in hemopoietic differentiation. Chair: Irving Weissman and Gerald Crabtree

Workshops
Application of molecular biology to pathology. Chair: Robert Friedman
Computerized image analysis in pathology. Chair: Stephen M. Schwartz

AIN
Six symposia, two conferences, and poster and oral sessions will constitute the scientific program of the American Institute of Nutrition. Additional minisymposia may be programmed if sufficient abstracts are received for a topic category from the Unified Societal Topic Category List. The symposia and conferences are given below.
Chemical senses and nutrition. Chair: M. I. Friedman and M. R. Kare
Compartmental analysis: a mathematical modeling approach to experimental nutrition. Chair: M. H. Green
Metabolic efficiency and weight regulation in human and animal models. Chair: M. R. C. Greenwood and E. S. Horton
Nutrient supplementation: risk/benefit analysis. Chair: John N. Hathcock
Biological actions of carotenoids. Chair: J. A. Olson and A. Bendich
History of Nutrition Symposium: Nutritional advances from military experience and research. Chair: K. J. Carpenter and W. J. Darby
29th Annual Ruminant Nutrition Conference: Recent developments in trace element metabolism and function. Chair: J. W. Spears

AAI

The American Association of Immunologists, commemorating their 75th anniversary and honoring Michael Heidelberger on his 100th birthday, has arranged a special celebratory symposium on immunology in perspective. There will also be another in the ongoing series of AAI-NIAID symposia: a special symposium on biotechnology; 44 minisymposia; four poster workshops/discussions; and 44 poster sessions. Each day will end with a plenary lecture as usual. Details of the symposia, lectures, and block topics and minisymposium titles follow.

75th Anniversary Celebratory Symposium: Immunology in Perspective
Honorary Chair: Michael Heidelberger
Co-Chair: Donald C. Shreffler
Distinguished Speakers: Baruj Benacerraf, Elvin A. Kabat, Sir G. J. V. Nossal, David W. Talmage

Plenary Lectures
1988 Presidential Address. Speaker: D. C. Shreffler
Immunopathogenic mechanisms in HIV infection. Speaker: A. S. Fauci
Characteristics of antigenic peptides that are required for interaction with Ia and recognition by T cells. Speaker: H. M. Grey

The T cell repertoire. Speaker: Philippa Marrack
AAI-NIAID Symposium: Contemporary topics in immunology. Chair: B. W. Janicki and J. F. Albright
AAI Special Symposium: Molecular and genetic immuno-probes for biotechnology. Chair: Everly Conway De Macario

Topics and Speakers:
- Immunoassays for antigen detection using monoclonal antibodies. Speaker: J. M. Davie
- Cell and gene-cloned products for immunoprophylaxis: malarial vaccine. Speaker: V. Nussenzweig
- Interleukines and growth factors. Speaker: C. S. Henney
- International joint projects between universities and industries. Speaker: I. C. Gunsalus

1. B lymphocyte development, activation, and regulation. Chaired by K. Bottomly
   Immunoglobulins: gene and protein structure
   B cell development
   Mechanisms of B cell activation
   Regulation of B cell growth and differentiation
   Expression of immunoglobulin genes

   T cell receptor 1 (γ:δ): structure and function
   T cell receptor 2 (α:β): structure and function
   T cell development
   T cell activation
   T cell surface molecules
   T cell interactions
   T cell regulation of the immune response

3. Regional immunology. Chaired by J. W. Streilein
   Regional specialization in antigen presentation
   Lymphocyte migration pathways
   Regionally distinct effector function

4. The major histocompatibility complex and antigen presentation. Chaired by Laurie H. Glinscher
   Cell biology and protein chemistry of MHC molecules
   Antigen processing and antigen presentation
   Regulation of HMC genes

5. Lymphokines and cytokines. Chaired by J. Oppenheim
   T and B cell activation factors
   Receptors and postreceptor intracellular events
   Cytokines: genes and protein structure
   In vivo effects of cytokines

6. Lymphocyte and macrophage effector function. Chaired by P. Henkart
   Lymphocyte-mediated cytolysis: pathway and mechanisms
   NK cells and other natural effector cells
   Macrophage immunobiology
   Second messengers in lymphocyte function

7. Inflammation. Chaired by C. Cochrane
   Leukocyte stimulation: receptor, membrane and metabolic events: part I
   Leukocyte stimulation: receptor, membrane and metabolic events: part II
   Interactions between leukocytes and other cells

8. Tumor immunology. Chaired by P. Greenberg
   Oncogenes and tumor-associated antigens
   Immune response to tumors
   Effects of lymphokines, antibodies, and immunotherapy
   Effector cells in antitumor immunity

9. Immediate hypersensitivity. Chaired by M. Kaliner
   Mechanisms and modulation of mediator release
   IgE: IgE receptors and IgE production

10. Complement. Chaired by M. M. Frank
    Complement proteins in control of cellular functions
    Immunocomplex and molecular biology of complement proteins

11. Microbial immunity and parasitology. Chaired by M. Oldstone
    Autoimmunity and infection
    Immune suppression and infection
    Molecular approaches to vaccination
    Microbial-immune response interactions

12. Clinical and preclinical immunology. Chaired by M. Cooper
    Human T cells
    Human bone marrow transplantation
    Pathogenesis of autoimmune disease
    Fc receptors on human blood cells
    Immune deficiency states
    Human B cell repertoire
WINNING LAS VEGAS*

Las Vegas is unique both in its history and in its modern attractions. Las Vegas got its name from Spanish explorers in 1829. They called it “the Meadows” because of the lush meadows they found that were fed by a natural water reserve in the midst of the desert. In 1843, Captain John C. Fremont, having heard rumors of a great river, entered the Great Basin to conduct the first official mapping of the area that would become Nevada. “A great part of it,” he wrote in his journal, “is absolutely new to geographical, botanical and geological science.” Many of the plants indigenous to Nevada are rare and cannot be found anywhere else in the world. Fremont named one of his discoveries Pyramid Lake because of the large rock he claimed presented “an exact outline of the Great Pyramid of Cheops.” This lake later became the equivalent of the Sea of Galilee for Hollywood’s biblical productions.

In the mid-1800's Mormons, who had replaced the original Spanish colonists, also disappeared. In 1902 Las Vegas again picked up the thread of history. Senator William Clark planned to build a railroad between Los Angeles and Salt Lake City, and he needed the artesian springs of Las Vegas to do this. In 1905 he auctioned his land parcel for this purpose. Twenty-five years later the federal government began to build Hoover Dam. An engineering marvel, this concrete dam, whose 726.4-foot-high wall and 660-foot-thick base can store 2 years’ average flow from the Colorado River, helped pull Las Vegas out of the Great Depression. It took 5000 men more than 5 years to build the structure.

In 1931 the state legislature voted to establish legalized casino gambling. On sites auctioned by Clark to investors for up to $500 stand many of today’s hotels and casinos. In addition to the casinos and famous entertainment, Las Vegas offers various interesting sights and activities: crystal blue Lake Mead (with Hoover Dam); one of the largest dinosaur fossil collections in the world at Las Vegas Museum of Natural History; helicopter and glider rides over the desert; horseback riding in Red Rock Canyon at the Bonnie Springs Ranch; Liberace Museum; Ethel M. Chocolate factory where Forrest Mars' liquor-filled chocolates are made; and a botanical gardens noted for its cacti. Don't miss enjoying some of these attractions of this fascinating city!

*Information courtesy of the Las Vegas Convention and Visitors Authority and J. W. J. Enterprises Inc.
Meeting Previews
American Institute of Nutrition
1988 FASEB Annual Meeting

Metabolic Efficiency and Weight Regulation in Human and Animal Models

Chairs: M. R. C. Greenwood and Edward S. Horton
Discussants: G. A. Bray and M. DiGirolamo

The mechanism (or mechanisms) whereby many mammals regulate their body weight and body composition in response to a variety of external stimuli has been the subject of considerable scientific inquiry for many decades. Although many organisms are able to maintain a rather constant adult body weight, there appears to be an increasing incidence of excess adiposity in developed countries. The reason for this increase remains unclear, but efforts to successfully reduce the obese individual have been woefully inadequate and suggest that new theoretical approaches are needed. Questions have been raised about the contributions of diet per se, repeated cycles of weight loss and regain, and the impact of genetics on this increasing putative dysregulation. Recent evidence suggests that the repeated dieting behavior, sometimes called yo-yo dieting, may have health consequences independent of the weight change alone. This symposium will address the role of repeated dieting on energy metabolism, the importance of reproductive hormones on the distribution and metabolism of adipose tissue, and the contributions to altered energy metabolism associated with weight change in both animals and humans.

Biological Actions of Carotenoids

Chairs: James A. Olson and Adrienne Bendich
Speakers: R. Parker, J. A. Olson, G. Burton, A. Bendich, R. G. Ziegler, N. I. Krinsky, and R. C. Moon

Apart from their important nutritional role as precursors of vitamin A, carotenoids possess some unique chemical properties and show a variety of fascinating physiological and pharmacological actions. The presence of carotenoids in blood and tissues of animals will first be reviewed, followed by consideration of the provitamin A activity of various carotenoids. Quite apart from those biochemically and nutritionally important reactions, carotenoids also have marked effects on the immune system by a yet undetermined mechanism. Among various chemical characteristics, carotenoids serve as excellent antioxidant and singlet oxygen-quenching agents under certain conditions. In the last several years, the possible actions of carotenoids as protective agents against some types of cancer have elicited much interest. In this regard, epidemiological and experimental animal data will be carefully reviewed, and the relative protective effects of carotenoids and retinoids on various cancer models will be compared. The overall objective of the symposium is to review available information and to summarize current concepts by which carotenoids might act in animal systems.

Chemical Senses and Nutrition

Chairs: Mark I. Friedman and Morley R. Kare
Speakers: G. K. Beauchamp, M. Naim, M. Feldman, C. Murphy, and R. D. Mattes

Despite the fact that taste and smell guide the selection of food, motivate intake, and affect the digestion and metabolism of nutrients, the chemical senses are usually not considered within the context of nutrition. This symposium will provide an update and sampling of current research on the role of the chemical senses on nutritional status and practices. Studies of the preference for excess salt in humans will be reviewed with an emphasis on early development and the effect of diet. The role of diet flavor and palatability vs. diet composition in the development of obesity will be addressed with an emphasis on animal models. The effects of taste on digestive reflexes, and gastric function in particular, will be presented in relation to the influence of the chemical senses on the normal processing of nutrients. Studies of the impact of changing chemosensory function on nutrition and food selection in the elderly will be described. Finally, within the context of clinical nutrition, the development and management of food flavor aversions during cancer therapy will be discussed.

History of Nutrition Symposium: Nutritional Advances from Military Experience and Research

Chairs: Kenneth J. Carpenter and William J. Darby
Speakers: W. J. Darby, J. E. Canham, and A. E. Schaefer

There will first be a short review of some early disasters in army and navy expeditions as a result of nutritional deficiencies in their provisions. In World War II the imperatives of military logistics, the maintenance of civilian food supplies, and the needs of the sick and wounded repeatedly stimulated new scientific developments in nutrition and food technology. Examples will be discussed and related to subsequent peace-time applications. Since World War II, nutritional research has continued at defense laboratories, the major focus being on the effects of stress and extremes of environment on nutritional requirements. Finally, there will be a review of the aims and influence of the major nutritional surveys carried out by the Interdepartmental Committee on Nutrition for National Defense in many different countries beginning in the 1950's.
29th Annual Ruminant Nutrition Conference: Recent Developments in Trace Element Metabolism and Function

Chair: Jerry W. Spears
Speakers: N. F. Suttle, R. F. Burk, and M. P. Richards

Progress toward a basic understanding of trace element metabolism and function has occurred at a rapid pace in recent years. This symposium will review recent developments in selected areas of trace element research. Topics to be covered include 1) trace elements in disease resistance and immune responsiveness in ruminants; 2) newer roles for selenium; 3) role of metallothionein in copper and zinc metabolism; and 4) copper-sulfur-molybdenum interactions in ruminants.

53rd Annual Poultry Nutrition Conference: Nutrient Control of Gene Expression in Avian Cells

Chair: Charles C. McCormick

The development of techniques in molecular biology now permits closer scrutiny of processes (factors) that affect the regulation of genomic expression. The impact of nutrition and nutritional status on the expression of specific genes is the major focus of this symposium. To better understand the application of these techniques to nutritional problems, we will provide an overview of the methodology, with a specific discussion of the regulation of the gene for phosphoenolpyruvate carboxykinase in the chicken. The second topic will be the etiology of cholesterol-induced atherosclerosis in genetically selected quail: herpes viral genes have been detected in quail that are susceptible to atherosclerosis induced by diet but not in those that are genetically resistant. The gene in chickens that codes for metallothionein, a unique metal-binding protein found in many organisms, will be characterized, as will factors that affect its expression. The nutritional regulation of two important enzymes in fat synthesis, malic enzyme and fatty acid synthase, will then be discussed, with a focus on the expression of genes for these enzymes.

Compartamental Analysis: A Mathematical Modeling Approach to Experimental Nutrition

Chair: Michael H. Green
Speakers: M. H. Green, L. A. Zech, D. M. Foster, and M. E. Wastney

The major objective of this symposium is to describe the approach and usefulness of model-based compartmental analysis to research in experimental nutrition. Although many nutritionists currently use isotopes to monitor nutrient dynamics, few exploit this form of kinetic analysis to generate and quantify mechanistic compartmental models of physiological or biochemical systems, and/or to aid in designing experiments. Presentations will include 1) a brief overview of the theories and applications of compartmental analysis. Kinetic parameters of particular interest to nutritionists will be highlighted and, to introduce the approach, recent research on the dynamics of vitamin A metabolism in rats will be presented. 2) Two computer programs, simulation, analysis, and modeling (SAAM) and its conversational version (CONSAM), which were designed for analyzing biological data, will be described. The philosophy behind the development of these programs, as well as an introduction to some of their basic and advanced concepts, will be presented. 3) The steps used in developing and testing a model will be discussed. The topics of parameter identification and sensitivity, and the usefulness of simulation in data analysis and experimental design, will be addressed. 4) The application of model-based compartmental analysis to the study of zinc metabolism in humans will be discussed to show how this approach has recently identified three new sites of zinc regulation in normal subjects and abnormalities in zinc metabolism in patients with various disorders.

Nutrient Supplementation: Risk/Benefit Analysis

Chair: John N. Hathcock
Speakers: J. N. Hathcock, M. A. Dubick, P. J. Garry, and S. A. Miller

An approach of decreasing probability of inadequacy and increasing probability of harm from excess with increasing intake will be presented and evaluated relative to nutrient supplements. The influence of person-to-person variability or requirements and intakes on the probability of inadequacy and the influence of factors that enhance sensitivity to excess nutrients, including high dietary intakes, will be addressed. A framework of risk/benefit analysis involving relative strength of evidence for benefit and for hazard will be related to the probabilities of harm from using or not using supplements of various potencies. Evidence of nutrient supplement toxicity and benefits will be presented, evaluated, and categorized according to their conclusiveness. The likelihood of these toxicities and benefits, based on common supplementary practices, will be addressed in relation to reported benefits and risks from these levels of supplementation. The public policy implications and uses for risk evaluation, benefit evaluation, and risk/benefit analysis will be related to federal regulations, prudent advice on nutritional practices, and the scientific information available to support these activities.

AIN/ASCN Public Information Committee Symposium: Nutrient Safety and Toxicity

Chair: Harold H. Sandstead and Gary J. Fosmire

This symposium will include short presentations on pyridoxine, vitamin A, ω3 fatty acids, folic acid, selenium, zinc, and dietary fiber, and will provide information that is highly relevant for human health.
Scientific Exchanges: National Academy of Sciences (NAS) Scientific Exchange Program with the U.S.S.R. and Eastern Europe. The NAS invites applications from U.S. scientists who wish to make visits beginning during the period January 1, 1989, through December 31, 1989, to the U.S.S.R., Bulgaria, Czechoslovakia, the German Democratic Republic, Hungary, Poland, Romania, and Yugoslavia. Long-term research visits of 3–12 months are encouraged, particularly if contact with colleagues in the other country has already been established. The minimum length of visits is 1 month in one country. Applicants must be U.S. citizens and have a doctoral degree or its equivalent by June 1988 in physics; chemistry; mathematics and computer sciences; earth, atmospheric, and oceanographic sciences; agricultural, forestry, fishery, and plant sciences; biological sciences; environmental sciences; engineering; archaeology and anthropology; geography; or psychology. Also included are science and technology policy and those aspects of the economic and social sciences that involve quantitative analysis as a primary consideration. Other scientific disciplines not explicitly mentioned will be considered on a case-by-case basis. Necessary expenses will be met by the NAS and the foreign academy, including reimbursement for long-term visitors for salary lost up to a predetermined maximum and expenses for accompanying family members for visits exceeding 5 months. Requests for applications should reach the NAS not later than February 15, 1988. Applications must be postmarked by February 29, 1988. Address application requests to National Academy of Sciences, Office of International Affairs, Soviet and East European Affairs (GF-166), 2101 Constitution Avenue, NW, Washington, DC 20418, USA; telephone 202-334-2644.

Are You Interested in Space Biology? The advent of the Shuttle Program has produced a new era for space biology that offers exceptional opportunities for research. NASA is offering several research associate awards for scientists to work in laboratories capable of providing scientific advice and facilities relevant to space biology. The awards vary from $18,000 to $22,000 based on experience. They are for a 12-month period with the possibility of renewal. Proposals are due February 1, 1988. The funding will begin anytime from June 1 to October 1, 1988. Eligible are postdoctoral U.S. citizens. For information contact Dr. X. J. Musacchia, Chairperson, NASA Award Committee, Graduate Programs and Research, University of Louisville, Louisville, KY 40292, USA, or Dr. Thora W. Halstead, Research Associates Program, Life Sciences Division, NASA Headquarters, Washington, DC 20546, USA. For application forms contact Dr. Musacchia at the address above.

The Life Sciences Research Office (LSRO) of FASEB has been selected to undertake preparation of the Second Report on Nutrition Monitoring in the United States by the Department of Health and Human Services (DHHS) and the U.S. Department of Agriculture (USDA). The report will provide a scientific review of the current nutritional and dietary status of Americans, as well as the factors that determine status, based mainly on data collected through the National Nutrition Monitoring System. In addition, detailed consideration will be given to the contributions of these data to the understanding of two special topics: low dietary iron intake in certain population groups, and the role of nutritional and dietary factors in cardiovascular disease. The report to be prepared under this project will serve as the scientific basis of a joint DHHS/USDA report on nutritional status to the U.S. Congress in 1989. An Expert Panel on National Nutrition Monitoring, consisting of C. Wayne Callaway, Oral Capps, Jr., Catherine Cowell, Peter R. Dallman, Ronald N. Forthofer, Mildred Kaufman, Milton Z. Nichman, A. Catharine Ross, and Howard G. Schutz, will assist in the preparation of the report. Opportunity will be provided for public input at various stages of the project. Further information on the project is available from Dr. Kenneth D. Fisher or Dr. Susan M. Pilch at the Life Sciences Research Office, FASEB, 301-530-7030.

International Research on Etiology of the Toxic Oil Syndrome, Call for Research Proposals. In 1981, the disease that came to be known as the toxic oil syndrome (TOS) struck swiftly and suddenly in Spain. To date, some 20,000 people have been affected, with about 400 deaths. The Social Security Health Research Fund (FIS) of Spain and the Regional Office for Europe of the World Health Organization (WHO) announce a coordinated international research program on the etiology of TOS. Research projects will be considered in the following areas: 1) search for anomalous compounds in oils possibly related with the pathogenesis of TOS; 2) animal toxicity studies of TOS; 3) pharmacokinetic studies of proposed etiological compounds; 4) biochemical studies related to TOS; 5) clinical and in vitro studies of immunological abnormalities related to TOS; and 6) clinicepidemiological studies of the long-term evolution of TOS. To obtain further information on the proposed lines of research and how to apply for a research grant, please write to Director, Social Security Health Research Fund (FIS), c/ Antonio Grilo 10, E-28015 Madrid, Spain, or to Director, Environmental Health Service, WHO Regional Office for Europe, Scherfigsvej 8, DK-2100 Copenhagen, Denmark.

Minority Research Centers of Excellence. The National Science Foundation (NSF) announced two grants to establish its first research centers to enhance the participation of leading minority institutions and researchers in areas of vital scientific and engineering importance. Howard University in Washington, DC, and Meharry Medical College in Nashville, Tennessee, will each receive $5 million over 5 years through NSF’s Minority Research Centers of Excellence (MRCE) program, initiated last year to address the continuing shortage of minority scientists and engineers needed to maintain U.S. preeminence in fundamental research. In addition to supporting qualified scientists, the MRCE program seeks to attract talented minority students to careers in science and engineering through center outreach efforts, scholarships, and opportunities to par-
participate in research. In funding the first MRCEs, NSF continues its support of center-based research in rapidly advancing areas of critical national interest. Of particular interest to biological science, Meharry Medical College will establish a Cellular and Molecular Biology Research Center. Initial projects will focus on three areas: 1) studies of DNA replication; 2) biophysical studies on how cytochrome b5 moves within the membranes surrounding cells; and 3) upgrading of a neurobiology research laboratory. The Meharry MRCE will also stimulate high school teacher and student interest in science through enhanced interactions in the design and modification of teaching and training materials, and through increased recruitment efforts.

NIH Consensus Panel Issues Report: Consensus Development Conference on Neurofibromatosis. A National Institutes of Health (NIH) consensus development statement on neurofibromatosis may be obtained from the NIH Office of Medical Applications of Research. The report was prepared by a panel of experts that considered scientific evidence presented at a Consensus Development Conference at NIH. It contains recommendations and conclusions concerning neurofibromatosis. At NIH, consensus conferences bring together researchers, practicing physicians, representatives of public interest groups, consumers, and others to carry out scientific assessments of drugs, devices, and procedures in an effort to evaluate their safety and effectiveness. Free, single copies of the consensus statement on neurofibromatosis are available from Michael J. Bernstein, Office of Medical Applications of Research, National Institutes of Health, Building 1, Room 216, Bethesda, MD 20892, USA.

NIH Consensus Panel Issues Report: 1988-1989 Fulbright Grants in Biological Sciences Still Available. The Council for International Exchange of Scholars (CIES) has announced that a number of 1988-1989 Fulbright Grants remain available to U.S. faculty in the field of biological sciences. There are specific openings in Australia, Austria, Bulgaria, Cameroon, Cote d'Ivoire, Czechoslovakia, Egypt, Hungary, Iraq, Ireland, Jordan, Kenya, Malaysia, Morocco, Papua New Guinea, Qatar, Sri Lanka, Thailand, Turkey, U.S.S.R., West Bank, Yugoslavia, and Zambia. In addition, other countries are open to applications in any discipline and biological sciences is among their preferred fields. Scholars in all academic ranks, including emeritus, are eligible to apply, and it is expected that applicants will have a Ph.D., college or university teaching experience, and evidence of scholarly productivity. U.S. citizenship is required. In a few countries (of Central and South America and Francophone Africa), knowledge of the host country language is required. Interested scholars are urged to inquire as soon as possible. For information, call or write CIES, 11 Dupont Circle NW, Suite 300, Washington, DC 20036, USA. Telephone 202-939-5401. When inquiring, indicate countries of interest.
The FASEB Journal
Information for Authors*

Purpose and Scope

The FASEB Journal (FJ) is the official publication of the Federation of American Societies for Experimental Biology (FASEB). FJ publishes two types of articles: 1) brief, definitive, and essentially final research communications of broad interest that are considered to warrant prompt publication; and 2) state-of-the-art reviews, drawn, as far as possible, from the topics of the FASEB symposia.

Manuscripts containing original communications, or proposals for reviews, should be sent to the Editor-in-Chief, Dr. W. J. Whelan, The FASEB Journal, P.O. Box 016129, Miami, FL 33101-9990, USA.

Original Research Communications

FJ devotes a major portion of its pages (outside the meeting abstracts) to the publication of brief, definitive, original, and essentially final research communications that are considered to warrant prompt publication.

The aim of FJ is to illustrate the unity of biology and the interdependence of its constituent disciplines. Therefore, in keeping with this policy, and to qualify for acceptance, an original communication must not only be of outstanding scientific quality but must also be of broad interest.

The subject coverage of FJ is illustrated by the following disciplinary areas: biochemistry, biophysics, cell biology, developmental biology, genetics, immunology, neurobiology, nutrition, pathology, pharmacology, and physiology.

Papers should begin with an abstract written for the general reader and be free from jargon. They should continue with an introduction followed by the results and discussion; they should conclude with a succinct bibliography. Methods may be included within the figure legends and tables or as a separate section. Papers may not occupy more than four printed pages (equivalent of 4000 words and inclusive of illustrations and diagrams) and will be returned as unacceptable if they exceed this limitation.

Papers (an original and four copies) should be sent to the Editor-in-Chief. Prompt publication of acceptable papers will be ensured by careful conformity to the instructions to contributors and the expeditious return of proofs.

State-of-the-Art Reviews

FJ also presents research reviews. Heretofore these have been in the form of extended reports emanating from symposia or mini-symposia presented at FASEB meetings. To provide such research summaries in a more compact form and thereby to allow, within space limitations, a more comprehensive and representative survey of the acquisition of new biological knowledge, FJ publishes state-of-the-art reviews that emphasize interdisciplinary aspects of the growing points of research.

These reviews will serve as a window on topics addressed at Society-sponsored symposia or plenary lectures. Therefore, review authors are sought from among those engaged in organizing the symposia. At the same time, volunteered reviews are welcomed that embody the principles of timeliness, topicality, and broad interest.

A proposal for such a review, not a completed review, should be sent to the Editor-in-Chief, who will advise on its acceptability.

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FJ is copyrighted for the protection of authors and FASEB. Requests for permission for any reproduction of this copyrighted material should be made in writing to the Executive Editor at 9650 Rockville Pike, Bethesda, MD 20814, USA, and should include an explicit statement of intended use and detailed specification of the material to be reproduced.

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Authors will be asked to certify that an original communication has not been published elsewhere than as an abstract and is not being considered for publication elsewhere, and that the paper will not be submitted for publication elsewhere until its acceptability for FJ has been decided. Authors of reviews will be asked to certify that the review has not been published, is not being considered elsewhere, and will not be submitted elsewhere until its acceptability for FJ has been decided.

Style of Manuscript

General Instructions

1) Manuscripts should be typewritten, with double spacing and 1-inch margins, on 8 1/2 x 11 inch bond paper. Computer printouts of manuscripts must be readable; a dot-matrix printer is generally unacceptable. Metric units should be used. An original and four copies, with figures and tables, should be submitted to the Editor-in-Chief. Pages should be arranged and numbered consecutively in the following order: title page, footnotes, abstract of up to 200 words and indexing key words (maximum of five), text, references, figure legends, tables, and illustrations.

2) The title page should show: title of article; author(s); laboratory or institution of origin with city and state or country; complete address for mailing proofs and telephone number for corresponding author; and shortened title (maximum of 50 characters and spaces) for the running foot.

3) The title should be brief (no more than 90 characters, including spaces, spaces, and punctuation) and informative. Do not use phrases in which more than three words modify another word (use "Renal hemodynamic effects of atrial natriuretic factor" rather than "Atrial natriuretic factor renal hemodynamic effects"). Serial titles, such as "Interferon, IX," are not permitted, except as a footnote.

4) The abstract, a paragraph of no more than 200 words, should be written for the general reader and be free from jargon. It should be self-explanatory and suitable for use by abstracting services without rewriting. It should state the purpose and major findings and conclusions of the study. Citation of references should be avoided; if used, include bibliographic information.

5) Footnotes, double-spaced, should be assembled on one or more separate sheets; they should be numbered consecutively throughout.

6) The text should be readable, clear, and concise. Any corrections should be neat and legible. Standard nomenclature should be used; unfamiliar or new items should be defined at first mention. (See Abbreviations section below.) Foreign words not in general use in the English language should be underlined for italic type; italics should not be used for emphasis. Latin plurals should not be used if the English equivalent has been accepted, e.g., lamellae, not lamellae. Webster's new collegiate dictionary (1977) should be followed for spelling, compounding, and word separation.

7) Drugs and Trade Names: The chemical or generic name should precede the abbreviation of a drug name the first time it appears. Proprietary (trademarked) names should be capitalized and the spelling carefully checked. Trade names of chemicals or equipment should also be capitalized. Authors should supply an acceptable scientific name in every case as an alternative to the trade name. Trade names should not ordinarily be used in titles. More generally, the use of trade names should conform to the customary standards of good taste in scientific literature.

8) Active voice rather than passive voice should be used whenever possible. Present tense is used for references to existing knowledge or accepted concepts, and for proven conclusions from the present work; past tense is used when describing experimental work on which the paper is based.

Abbreviations, Symbols, and Terminology

Each author must include, as a footnote to the first page of text, a list of any new or special abbreviations used in the paper, with the spelled-out form and definition if necessary for clarity. For information on style in general, authors are referred to the CBE style manual, 5th ed. (1985), prepared by the CBE Style Manual Committee (Bethesda, MD). Chemical and biochemical terms and abbreviations should be in accordance with the recommendations for usage by the International Union of Pure and Applied Chemistry (IUPAC) and its committee on nomenclature [see Biochemical


FJ INFORMATION FOR AUTHORS
nomenclature and related documents}, a compendium of IUPAC-International Union of Biochemistry (IUB) documents, available from The Biochemical Society, PO. Box 32, Commerce Way, Colchester, CO2 8HP, Essex, UK. Isotope specifications should conform to the IUPAC system, with the mass number placed as a superscript preceding the chemical symbol as $^{13}$C. Genotypes are italicized; phenotypes are not. Enzymes should be identified with their EC number and recommended name, in accordance with the recommendations of the IUB; see Enzyme nomenclature: recommendations (1984) of the Nomenclature Committee of the International Union of Biochemistry (Orlando, FL: Academic; 1984). For specialized fields, see “Glossary on respiration and gas exchange” (J. Appl. Physiol. 34: 549–558; 1973); “Glossary of terms for thermal physiology” (J. Appl. Physiol. 35: 941–961; 1973); The ACS study guide: a manual for authors and editors, edited by J. S. Dodd and M. C. Brogan (Washington, DC: American Chemical Society; 1986); A manual for authors of mathematical papers (Providence, RI: American Mathematical Society; 1980); Style manual for guidance in the preparation of papers for journals published by the American Institute of Physics and its member societies, 3rd ed. (New York: American Institute of Physics; 1978).

The following abbreviations or acronyms may be used without explanation; others should be defined at first use in the text.

A = amper; blood group; chromosome group
A = absorban; area
Å = ångström
a = acceleration; activity, relative
AB = blood group
ac = alternating current
a.d. = anni Domini
A-h = amper-hour
AM = adenosine phosphates
AMP, ADP, ATP = adenosine phosphatases
AMPase, ADPase, ATPase = cyclic AMP, cyclic GMP, etc.
BCC = bacile Calmette-Guérin
bp = boiling point
Bq = becquerel
Btu = British thermal unit
C = coulomb
°C = Celsius
c = centi-
ca. = about
cal = calorie
cAMP, cGMP, etc. = cyclic AMP, cyclic GMP, etc.
CD = circular dichroism
cd = candela
cDNA = complementary DNA
cf = compare
Ci = curie
cm, cm², cm³ = centimeters
CMP, CDP, CTP = cytidine phosphates
CoA = coenzyme A
CoASAc = acetyl Coenzyme A
cpm = counts per minute
cps = counts per second
cp = centipoise
c/s = cycles per second
cRNA = complementary RNA
cubic = use exponent 3
° = degree, angle
D = diffusion, coefficient
d = deci-
d = density
d, (+) = dextrorotatory
da = dalton
da = deca-
dB = decibel
dc = direct current
DDT = 1,1,1-trichloro-2,2-bis-(p-chlorophenyl)ethane
DEAE-cellulose = O-(diethlaminoethyl)cellulose
df = degrees of freedom
DNA = deoxyribonucleic acid
DNase = deoxyribonuclease
dpm = disintegrations per minute
dps = disintegrations per second
dTMP, dTDP, dTTP = thymidine phosphates
dyn = dyne
E = electromotive force; exa-
ed. = electrode potential; energy
ed. = effective concentration, 50%
ed. = editor
ED₅₀ = effective dose, 50%
ed. = ethylenediaminetetraacetic acid
e.g. = example
EGTA = ethylene glycol bis(β-aminoethyl ether)-N,N,N',N'-tetraacetic acid
emf = electron paramagnetic resonance
eq., Eq. = equation(s)
et al. = equivalent
eSR = electron spin resonance
etc. = and others
exp = and so forth
eV = electron volt
f = farad; filament generations
°F = Fahrenheit
f = femto-
ed. = flavin adenine dinucleotides
fc = foot-candle
Fig., Figs. = figure(s)
FMN, FMNH = flavin mononucleotides
fp = freezing point
ft = foot
lb = foot-pound
G = gauss; general; giga-
gram = gravitational constant
GMP, GDP, GTP = guanosine phosphates
> = greater than
GSH, GSSG = glutathiones
H = henry
h = hecto-
Hb = hemoglobin
hnRNA = heterogeneous nuclear RNA
hp = horsepower
ht = height
Hz = hertz
IC₅₀ = inhibitory concentration, 50%
ID₅₀ = infective dose, 50%
i.d. = inside diameter
i.e., = that is
Ig = immunoglobin
i.m. = intramuscular
IMP, IDP, ITP = inosine phosphates
in = inch
i.p. = intraperitoneal
IR = infrared
IU = international unit
i.v. = intravenous
J = joule
Jr. = junior, with names
K = kelvin
Kₘ = Michaelis constant
k = kilo-
kal = kilocalorie
kg = kilogram
km = kilometer
l. = levo configuration
lb = pound
lb/in² = pounds per square inch
LC₅₀ = lethal concentration, 50%
LD₅₀ = lethal dose, 50%
< = less than
<table>
<thead>
<tr>
<th>Symbol</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>lumen</td>
<td>lumen</td>
</tr>
<tr>
<td>ln</td>
<td>natural log</td>
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<tr>
<td>log</td>
<td>logarithm</td>
</tr>
<tr>
<td>lx</td>
<td>lux</td>
</tr>
<tr>
<td>M</td>
<td>mega-</td>
</tr>
<tr>
<td>( M_r )</td>
<td>relative molecular mass</td>
</tr>
<tr>
<td>m</td>
<td>molar (moles/liter)</td>
</tr>
<tr>
<td>( m )</td>
<td>meter; milli-</td>
</tr>
<tr>
<td>m(^2), m(^3)</td>
<td>square and cubic meters</td>
</tr>
<tr>
<td>mA</td>
<td>milliamperc</td>
</tr>
<tr>
<td>max</td>
<td>maximum</td>
</tr>
<tr>
<td>meq</td>
<td>milliequivalent</td>
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<tr>
<td>mg</td>
<td>milligram</td>
</tr>
<tr>
<td>ml</td>
<td>milliliter</td>
</tr>
<tr>
<td>m/h</td>
<td>miles per hour</td>
</tr>
<tr>
<td>ml/min</td>
<td>milliliters per minute</td>
</tr>
<tr>
<td>mm, mm(^2), mm(^3)</td>
<td>millimeters; millimeters of mercury</td>
</tr>
<tr>
<td>mol</td>
<td>mole</td>
</tr>
<tr>
<td>mol wt</td>
<td>molecular weight</td>
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<tr>
<td>mosmol</td>
<td>milliosmole</td>
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<tr>
<td>mp</td>
<td>melting point</td>
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<tr>
<td>m/s</td>
<td>meters per second</td>
</tr>
<tr>
<td>mRNA</td>
<td>messenger RNA</td>
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<tr>
<td>ms</td>
<td>millisecond</td>
</tr>
<tr>
<td>mtDNA</td>
<td>mitochondrial DNA</td>
</tr>
<tr>
<td>mtRNA</td>
<td>mitochondrial RNA</td>
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<tr>
<td>( \mu )</td>
<td>micro-</td>
</tr>
<tr>
<td>( \mu g )</td>
<td>microgram</td>
</tr>
<tr>
<td>( \mu l )</td>
<td>microliter</td>
</tr>
<tr>
<td>( \mu m )</td>
<td>micrometer</td>
</tr>
<tr>
<td>( \mu mol )</td>
<td>micromole</td>
</tr>
<tr>
<td>MW-h</td>
<td>megawatt-hour</td>
</tr>
<tr>
<td>( \times 500 )</td>
<td>magnification</td>
</tr>
<tr>
<td>N</td>
<td>newton</td>
</tr>
<tr>
<td>( N )</td>
<td>normal (concentration); number (statistics)</td>
</tr>
<tr>
<td>n</td>
<td>nano-; neutron</td>
</tr>
<tr>
<td>( n )</td>
<td>number (statistics); normal (chemical name)</td>
</tr>
<tr>
<td>nA</td>
<td>nanomole</td>
</tr>
<tr>
<td>NAD, NAD(^+)</td>
<td>nicotinamide adenine dinucleotides and phosphates</td>
</tr>
<tr>
<td>NADH, NAD(^+), NADP(^-), NADPH</td>
<td></td>
</tr>
<tr>
<td>nDNA</td>
<td>nuclear DNA</td>
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<tr>
<td>nRNA</td>
<td>nuclear RNA</td>
</tr>
<tr>
<td>nm</td>
<td>nanometer</td>
</tr>
<tr>
<td>NMN</td>
<td>nicotinamide mononucleotide</td>
</tr>
<tr>
<td>NMR</td>
<td>nuclear magnetic resonance</td>
</tr>
<tr>
<td>no.</td>
<td>number</td>
</tr>
<tr>
<td>N/m(^2)</td>
<td>newton per square meter</td>
</tr>
<tr>
<td>( \Omega )</td>
<td>ohm</td>
</tr>
<tr>
<td>o</td>
<td>ortho-, in chemical name</td>
</tr>
<tr>
<td>o.d.</td>
<td>outside diameter</td>
</tr>
<tr>
<td>osmol</td>
<td>osmole</td>
</tr>
<tr>
<td>oz</td>
<td>ounce</td>
</tr>
<tr>
<td>p</td>
<td>peta-; poise; pressure</td>
</tr>
<tr>
<td>( P )</td>
<td>phosphate other than inorganic; probability</td>
</tr>
<tr>
<td>( \rho )</td>
<td>inorganic phosphate</td>
</tr>
<tr>
<td>( \rho_{\text{p}} )</td>
<td>para-, in chemical name</td>
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<tr>
<td>Pa</td>
<td>pascal</td>
</tr>
<tr>
<td>%</td>
<td>percent</td>
</tr>
<tr>
<td>( %o )</td>
<td>per mille</td>
</tr>
<tr>
<td>pH</td>
<td>negative log of hydrogen ion concentration</td>
</tr>
<tr>
<td>pK</td>
<td>negative log of dissociation constant after noon</td>
</tr>
<tr>
<td>pm</td>
<td>picometer</td>
</tr>
<tr>
<td>PP</td>
<td>inorganic pyrophosphate</td>
</tr>
<tr>
<td>ppb</td>
<td>parts per billion</td>
</tr>
<tr>
<td>ppm</td>
<td>parts per million</td>
</tr>
<tr>
<td>Q(_0)</td>
<td>increase in rate of chemical reaction for each 10( ^{\circ} )C increase in temperature</td>
</tr>
<tr>
<td>R</td>
<td>roentgen</td>
</tr>
<tr>
<td>( R )</td>
<td>configuration; gas constant; resistance</td>
</tr>
<tr>
<td>( r )</td>
<td>correlation coefficient</td>
</tr>
<tr>
<td>rad</td>
<td>radian; radiation</td>
</tr>
<tr>
<td>ref</td>
<td>reference</td>
</tr>
<tr>
<td>Rh</td>
<td>ribonucleic acid</td>
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<tr>
<td>( \text{RNase} )</td>
<td>ribonuclease</td>
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<tr>
<td>rpm</td>
<td>revolutions per minute</td>
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<td>rps</td>
<td>revolutions per second</td>
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<tr>
<td>rRNA</td>
<td>ribosomal RNA</td>
</tr>
<tr>
<td>S</td>
<td>siemens; Svedberg unit</td>
</tr>
<tr>
<td>( S )</td>
<td>configuration</td>
</tr>
<tr>
<td>( s )</td>
<td>second</td>
</tr>
<tr>
<td>( s_c )</td>
<td>symmetrical, in chemical name</td>
</tr>
<tr>
<td>( \delta )</td>
<td>subcutaneous</td>
</tr>
<tr>
<td>SD</td>
<td>standard deviation</td>
</tr>
<tr>
<td>( \sigma )</td>
<td>standard error</td>
</tr>
<tr>
<td>( \delta c )</td>
<td>secondary, in chemical name</td>
</tr>
<tr>
<td>sp, spp.</td>
<td>species, with generic name</td>
</tr>
<tr>
<td>sp gr</td>
<td>specific gravity</td>
</tr>
<tr>
<td>square</td>
<td>use exponent 2</td>
</tr>
<tr>
<td>STP</td>
<td>standard temperature and pressure</td>
</tr>
<tr>
<td>Sv</td>
<td>sievert (replaces rem)</td>
</tr>
<tr>
<td>T</td>
<td>tera-; tesla</td>
</tr>
<tr>
<td>( t )</td>
<td>metric ton</td>
</tr>
<tr>
<td>( \mu t )</td>
<td>half-life (half-time)</td>
</tr>
<tr>
<td>tert</td>
<td>tertiary, in chemical name</td>
</tr>
<tr>
<td>Tris, TDP, TTP</td>
<td>ribosylthymine phosphates</td>
</tr>
<tr>
<td>Tris(hydroxymethyl)aminomethane</td>
<td></td>
</tr>
<tr>
<td>tRNA</td>
<td>transfer RNA</td>
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<td>uniformly labeled; unit</td>
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<td>uhf</td>
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<td>UMP, UDP, UTP</td>
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<td>xanthosine phosphates</td>
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Note: standard three-letter or single-letter abbreviations for amino acids may be used in sequences and in tables and figures.

References

References should be cited in the text in numerical order, with the numeral placed in parentheses. References should be typed separately with inclusive pages and titles, double-spaced, with only one reference per number. Authors are completely responsible for the accuracy and completeness of their references; they will not be checked in the Editorial Office.

Citations to unpublished work should not be entered in the list of references unless the paper has been accepted for publication. Include them in the text as "(unpublished observations)," "(personal communications)," or "(manuscript in preparation)," with authors' initials and surnames.

For titles of journals, follow the abbreviations listed in Serial sources for the BIOSIS data base. The form of references to periodicals should be in accordance with the following example. (Titles and inclusive pages must be used.)

Book references should include information in the following order: author(s), title, city of publication, publisher, year, and pages. The title of the book should be underlined for italic type. When one chapter is cited its title and page numbers should be included, and the book's authors or editors should be named.


Illustrations

Illustrations should be identified lightly with pencil on the reverse side with the figure number and author name(s); when necessary, the top should be clearly marked. They should be referred to as figures in the text, and should be numbered with Arabic numerals; each should have a legend.

Inasmuch as good illustrations are possible only from good copy, authors should pay particular attention to the following:

1. Illustrations should be sharp, contrasty, unmounted photographs on glossy paper. Photographs should be the width of one column (3½ inches) or two columns (7½ inches). All drawings for reduction to a given size should be drawn and lettered to the same scale.

2. Lettering should be done in black ink and must be legible after reduction (i.e., at least 1.5 mm high). The smallest elements (subscripts or superscripts) should be readable when reduced.

3. Graphs such as electrocardiograms, kymograms, and oscillograms should be prepared by a skillful photographer so that the dark cross-hatched background is eliminated, the faint portions of the graphs are intensified, and sharp, contrasty prints are obtained. To avoid this processing, use blue-ruled instead of black-ruled recording paper for the original records.

4. When possible, all lettering should be within the framework of the illustration; likewise the key to symbols should be on the face of the chart. When the figure is so filled that it is necessary to explain symbols in the legend, only these standard characters should be used: □ ■ O ● △ ▲ △ □ ▽ ▽ ▽ x.

5. Actual magnification of all photomicrographs should be given. The Editorial Office will make corrections for reduction. An appropriate scale on the photomicrograph itself is, however, preferable and more accurate.

6. Arrangements must be made well in advance with the Editorial Office for the reproduction of any illustrations in color. Authors must have funds available to meet the full cost of color plates and their printing.

7. The approximate position of each figure in the text should be indicated in the margin of the manuscript.

8. Inasmuch as it is the policy of *FJ* to reproduce figures and charts in the smallest size consistent with readability and purpose of the illustration, it is understood that an author will accept the decision of the Editors on the printed size; however, recommendations may be submitted for reduction or enlargement.

9. If illustrations that have been published elsewhere are included, permission must be obtained from the publisher and the author for their use in *FJ*. A copy of the letters granting such permission must be submitted with the manuscript to the Editorial Office.

10. Figure legends should be typed double-spaced, consecutively on one or more sheets of paper. They should contain sufficient information to provide adequate description without reference to text.

Tables

Each should be typed double-spaced, on a separate sheet of paper. Each should have a brief title and should be numbered with Arabic numerals. Explanatory matter should be in footnotes. Table footnotes should be listed in order of their appearance with consecutive superior letters.

Tables should not duplicate material in text or illustrations. They should be prepared for printing either 3½ or 7½ inches wide. Nonsignificant figures in tabular data should be omitted. Short or abbreviated column heads should be used. Statistical measures of variation, $\sigma$, $SE$, etc., should be identified as such.

The approximate position of each table should be indicated in the margin of the text.

Formulas and Equations

Structural chemical formulas, process flow diagrams, and complicated mathematical expressions should be precisely and carefully arranged, but they should be kept to a minimum because in typesetting they are composed by hand and are expensive. Glossy prints of complicated formulas and expressions suitable as line drawings are preferred. All subscripts, superscripts, Greek letters, and unusual characters must be clearly identified.

Acknowledgments

It is customary to acknowledge only persons who have made substantive contributions to the studies reported in the manuscript. Authors will please obtain written permission for everyone acknowledged by name (including references to unpublished work) because readers may infer their endorsement of the paper and its conclusions.

If appropriate, a statement of grant support may be included. Names of grant sources should not be abbreviated.

Experimental Procedures

This journal endorses the principles embodied in the Declaration of Helsinki and expects that all investigations involving humans will have been conducted in conformity with these principles. It is expected that the “Guiding Principles in the Care and Use of Animals” will have been observed in all animal experimentation reported in *FJ*.

Auxiliary Publication

Additional detailed tables, appendixes, descriptions of materials and methods, mathematical derivations, extra figures, and other supplementary matter too costly to be included in the journal article may be submitted for deposition without charge to the author with the American Society for Information Science (ASIS), National Auxiliary Publications Service. Material is deposited by the Editorial Office with the consent of the author, and a footnote is carried in the published article to the effect that photoprints or microfiche copies are available at moderate cost.

Author Charges

Authors are allowed a certain amount of illustrative material free of charge. Normally this will cover the equivalent of one full page of tables, figures, and halftones, or a half page of chemical and mathematical formulas and equations. Authors are charged for material exceeding this allowance. When excess charges are anticipated, authors should make the necessary arrangements at the time a manuscript is submitted (i.e., initiation of an institutional purchase order, obligation of funds under a grant, etc.).

Page Charges

No page charges are made for any material appearing in *FJ*.

Page Proofs

Two sets of page proofs together with the original manuscript are sent to the author. Proofs should be carefully checked without delay and any necessary changes or printer's errors (to be marked in red) should be clearly indicated in the margins. Except for correction of typographic errors, the cost of authors' alterations of subject matter in type will be charged to authors if these changes exceed the journal's allowance. Proofs should be returned promptly to the Editorial Office, *The FASEB Journal*, 9650 Rockville Pike, Bethesda, MD 20814, USA. A delay in returning the proofs will result in a delay in publication.

Reprints

Each author receives with the proofs a reprint order form that must be completed and returned with the proofs to the Editorial Office if reprints are desired. Orders submitted after the journal is printed are subject to considerably increased prices.
RECOMMENDATIONS FROM THE DECLARATION OF HELSINKI

I. Basic Principles

1. Clinical research must conform to the moral and scientific principles that justify medical research and should be based on laboratory and animal experiments or other scientifically established facts.

2. Clinical research should be conducted only by scientifically qualified persons and under the supervision of a qualified medical man.

3. Clinical research cannot legitimately be carried out unless the importance of the objective is in proportion to the inherent risk to the subject.

4. Every clinical research project should be preceded by careful assessment of inherent risks in comparison to foreseeable benefits to the subject or to others.

5. Special caution should be exercised by the doctor in performing clinical research in which the personality of the subject is liable to be altered by drugs or experimental procedure.

II. Clinical Research Combined with Professional Care

1. In the treatment of the sick person, the doctor must be free to use a new therapeutic measure, if in his judgment it offers hope of saving life, reestablishing health, or alleviating suffering.

   If at all possible, consistent with patient psychology, the doctor should obtain the patient's freely given consent after the patient has been given a full explanation. In case of legal incapacity, consent should also be procured from the legal guardian; in case of physical incapacity the permission of the legal guardian replaces that of the patient.

2. The doctor can combine clinical research with professional care, the objective being the acquisition of new medical knowledge, only to the extent that clinical research is justified by its therapeutic value for the patient.

III. Non-Therapeutic Clinical Research

1. In the purely scientific application of clinical research carried out on a human being, it is the duty of the doctor to remain the protector of the life and health of that person on whom clinical research is being carried out.

2. The nature, the purpose and the risk of clinical research must be explained to the subject by the doctor.

3a. Clinical research on a human being cannot be undertaken without his free consent after he has been informed; if he is legally incompetent, the consent of the legal guardian should be procured.

3b. The subject of clinical research should be in such a mental, physical and legal state as to be able to exercise fully his power of choice.

3c. Consent should, as a rule, be obtained in writing. However, the responsibility for clinical research always remains with the research worker; it never falls on the subject even after consent is obtained.

4a. The investigator must respect the right of each individual to safeguard his personal integrity, especially if the subject is in a dependent relationship to the investigator.

4b. At any time during the course of clinical research the subject or his guardian should be free to withdraw permission for research.

   The investigator or the investigating team should discontinue the research if in his or their judgment, it may, if continued, be harmful to the individual.

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GUIDING PRINCIPLES IN THE CARE AND USE OF ANIMALS

Approved by the Federation Board

Animal experiments are to be undertaken only with the purpose of advancing knowledge. Consideration should be given to the appropriateness of experimental procedures, species of animals used, and number of animals required.

Only animals that are lawfully acquired shall be used in the laboratory, and their retention and use shall be in every case in compliance with federal, state and local laws and regulations, and in accordance with the NIH Guide. Animal experiments in the laboratory must receive every consideration for their comfort; they must be properly housed, fed, and their surroundings kept in a sanitary condition. Appropriate anesthetics must be used to eliminate sensibility to pain during all surgical procedures. Where recovery from anesthesia is necessary during the study, acceptable technique to minimize pain must be followed. Muscle relaxants or paralytics are not anesthetics and they should not be used alone for surgical restraint. They may be used for surgery in conjunction with drugs known to produce adequate analgesia. Where use of anesthetics would negate the results of the experiment such procedures should be carried out in strict accordance with the NIH Guide. If the study requires the death of the animal, the animal must be killed in a humane manner at the conclusion of the observations.

The postoperative care of animals shall be such as to minimize discomfort and pain, and in any case shall be equivalent to accepted practices in schools of veterinary medicine. When animals are used by students for their education or the advancement of science, such work shall be under the direct supervision of an experienced teacher or investigator. The rules for the care of such animals must be the same as for animals used for research.

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1 Revised 1980.
POSITIONS AVAILABLE — Classified advertisement rates: $170.00 for first column inch, $150.00 for each additional inch or portion thereof. A column inch consists of eight lines, each 3½ inches long and containing approximately 70 characters (letters, numbers, symbols, punctuation marks, spaces). Display advertisement rates: $570.00 for ¼ page (3½ inches × 5 inches); $850.00 for ½ page (vertical 3½ inches × 10 inches or horizontal 7½ inches × 5 inches); $1150.00 for full page (7½ inches × 10 inches); copy received not camera-ready is subject to additional typesetting fee of approximately 5% of rate. Advertisements will be published in next available issue unless otherwise specified. Payment or purchase order is required with insertion copy. Advertisements are noncommissionable to agents; no cash discounts are allowed. Blind advertisements are not accepted.

POSITIONS DESIRED — Candidates registered with FASEB Placement Service are allowed one advertisement of five lines, each containing approximately 70 characters (letters, numbers, symbols, punctuation marks, spaces). The issue in which advertisement appears will be based on date of receipt of copy. Fee for publication in additional issues: $10.00 per issue.

Primary employers desiring identification and additional details concerning Positions Desired advertisers should write to address below, indicating hyphenated number appearing as last element of advertisement; a one-page application from advertiser(s) will be provided immediately. Advance telephonic determination of current availability of advertisers from earlier-than-current issues is recommended. Employers not currently registered with Placement Service are charged a minimum fee of $30.00 for identification of up to 10 advertisers, plus $3.00 for each above 10, payable in advance to FASEB Placement Service.

Some registered candidates do not prepare Positions Desired advertisements; some advertisements are published at times not coinciding with employer recruitment activities. Primary employers not finding advertisements that appear to match current or projected needs are invited to request a search of all active candidate files. Telephone a description of the desired qualifications; results of search will be discussed telephonically with requesting official, and applications from candidates declared suitable will be forwarded. Employers not currently registered with Placement Service are charged a minimum fee of $30.00 for up to 10 applications, plus $3.00 for each above 10.

In publishing these advertisements FASEB assumes no obligations as to qualifications of prospective employees or responsibility of employers, nor shall FASEB obtain further information concerning positions advertised or those seeking employment. Accuracy and completeness of all listings are the responsibility of the submitting party.

Various U.S. state and national laws against discrimination, including the Federal Civil Rights Act of 1964, prohibit discrimination in employment in the United States because of race, color, religion, national origin, age, sex, or any reason not based on a bona fide occupational qualification. The Federation of American Societies for Experimental Biology endorses these principles and reserves the right to edit all copy and to refuse advertisements not in consonance therewith.

Employment in countries other than the United States may be restricted by government visa and other policies. Moreover, it is suggested that the generally accepted employment practices, the cultural conditions, and the exact provisions of the specific positions being considered be investigated thoroughly. The U.S. Embassies in countries of interest to potential employees should be able to provide up-to-date data concerning internal conditions.

For a description of operation at annual meetings, please refer to the January or February issue or contact the Placement Service.

Address all correspondence to FASEB Placement Service, 9650 Rockville Pike, Bethesda, MD 20814. (301) 530-7020

POSITIONS AVAILABLE

DIRECTOR OF TOXICOLOGICAL SCIENCES, THE JOHNS HOPKINS UNIVERSITY, SCHOOL OF HYGIENE AND PUBLIC HEALTH. The Johns Hopkins University School of Hygiene and Public Health is seeking a director for the faculty in toxicological sciences. Such an individual should have an outstanding record of academic and professional accomplishment in the toxicological sciences. This young, talented, and dynamic faculty has recently been relocated to new research facilities and has pre- and postdoctoral training programs. Currently there are four postdoctoral and 11 predoctoral fellows. The expertise of the eight full-time faculty is in the areas of biochemical, molecular, oxygen radical, and metal toxicity; immunotoxicology; lung toxicology; chemical carcinogenesis. Extensive interaction with units in chemistry, biochemistry, medicine, physiology, and pathology within the university is also ongoing. Direct inquiries including CV should be made to Dr. Robert Fitzgerald, Associate Chairperson, Department of Environmental Health Sciences, School of Hygiene and Public Health, 615 N. Wolfe St., Baltimore, MD 21205. An equal opportunity/affirmative action employer.

FACULTY POSITION IN MOLECULAR PHARMACOLOGY/TOXICOLOGY. The Department of Pharmacology, Northwestern University Medical School, invites applications for a tenure-track position at the assistant or associate professor level. Candidates should have a Ph.D. or M.D. degree or equivalent, have had postdoctoral training, and have demonstrated excellence in research and commitment to teaching. Preference will be given to those who have had experience in application of molecular biology, genetics, cell biology, or immunology to toxicological problems. Send CV, the names of three references, and a brief statement of future research plans to Dr. Toshio Narahashi, Professor and Chairperson, Department of Pharmacology, Northwestern University Medical School, 303 E. Chicago Ave., Chicago, IL 60611. Telephone 312-908-8284. An equal opportunity/affirmative action employer.

ASSISTANT-ASSOCIATE PROFESSOR. Academic endocrinologist with strong background and commitment to laboratory and clinical research and teaching. Experience in diabetes and lipoprotein research desirable. Reply to A. K. Khachadurian, M.D., Department of Medicine, UMDNJ-Robert Wood Johnson Medical School, CN 19, New Brunswick, NJ 08903-0019. Equal opportunity/affirmative action employer, M/F/H/V.
POSTDOCTORAL POSITIONS

Postdoctoral research fellowship positions are available in the Molecular Biology, Cell Biology, Biochemistry, and Immunology Laboratories at the Jerome H. Holland Laboratory for the Biomedical Sciences. The positions are supported by individual investigator awards and by institutional funds. Salaries and benefits are competitive. The investigators and their research interests are:

Wilson H. Burgess: Structure and function of polypeptide growth factors and receptors
William Drohan: Molecular biology of coagulation and fibrinolytic polypeptides
Joan T. Harmon: Molecular and cellular biology of megakaryopoiesis
Leon W. Hoyer: Immunochemical properties of factor VIII inhibitors
Kenneth Ingham: Physical biochemistry of heparin-binding proteins
Graham Jamieson: Structure and function of platelet receptors
Gene Liau: Molecular and cellular biology of the extracellular matrix and atherosclerosis
Thomas Maciag: Molecular and cellular biology of angiogenesis and aging
James Perdue: Molecular and cellular biology of growth factors in development
Dorthea Scandella: Regulation of gene expression
Dudley Strickland: Cellular biochemistry of proteases and inhibitors
Andrea Tenner: Biochemistry and complement receptors
Jeffrey Winkle: Gene expression and the control of vascular cell proliferation

The American Red Cross recently established the Jerome H. Holland Laboratory as part of its commitment to a strong investigator-initiated basic research program. The American Red Cross promotes an open, collegial environment that facilitates scientific interactions. Send CV, names of three references, and an indication of the investigator and area of research interest to Dr. Howard Sandberg, American Red Cross, Research and Development Administration, 15601 Crabbs Branch Way, Rockville, MD 20855, USA.

An equal opportunity/affirmative action employer, M/F/H.

CHAIRPERSON
DEPARTMENT OF BIOMEDICAL ENGINEERING
CASE WESTERN RESERVE UNIVERSITY

Case Western Reserve University is seeking an individual who has a distinguished record of accomplishments in research and scholarly activity, and who demonstrates leadership skills necessary for directing an outstanding department with expanding research and educational activities.

The Biomedical Engineering Department at Case Western Reserve University is one of the oldest and largest biomedical engineering programs in the nation. The department is a single department in both the School of Engineering and the School of Medicine. All regular faculty hold academic appointments in both schools and fully participate in the teaching, research, and decision-making committees of both. Highly visible and competitive degree programs are offered leading to the B.S., M.S., Ph.D., and M.D./Ph.D. in biomedical engineering and the M.S. in clinical engineering.

Interested individuals are invited to submit a CV. Nominations and applications may be sent in confidence to

Dr. Dwight T. Davy, Chairperson
BME Chairperson Search Committee
c/o Department of Biomedical Engineering
Case Western Reserve University
Wickenden Building Room 504
Cleveland, OH 44106
Phone: 216-368-6443

Case Western Reserve University is an affirmative action, equal opportunity employer.

FACULTY POSITIONS AVAILABLE IN DEPARTMENT OF MEDICINE, HYPERTENSION DIVISION, CASE WESTERN RESERVE UNIVERSITY. The Hypertension Division of the Department of Medicine invites applicants with M.D. and/or Ph.D. degree for tenure-track junior and senior positions. Candidates with strong credentials in the area of structure and function of receptors and G proteins are encouraged to apply. This environment provides excellent opportunities to develop independent research programs. Applicants should send a CV, brief summary of present and proposed research, reprints, and the names of three references to Dr. Janice Douglas, Department of Medicine, Case Western Reserve University, 2074 Abington Rd., Cleveland, OH 44106. The university is an equal opportunity/affirmative action employer.

THE DEPARTMENT OF PSYCHIATRY AT THE UNIFORMED SERVICES UNIVERSITY OF THE HEALTH SCIENCES is seeking to hire an assistant/associate professor. This is a tenure-track position with an emphasis on research and teaching. The department is composed of 12 full-time faculty with research interests and activities in the following primary areas: neurobiological and psychosocial consequences of stress, behavioral pharmacology, neurochemical correlates of drugs and behavior, and the neuropsychiatric consequences of HIV infection. Individuals with active research interests that complement or expand on these areas are invited to apply. Send CV, a description of current and anticipated research interests, and the names of three references to Civilian Personnel, Uniformed Services University of the Health Sciences, 4301 Jones Bridge Rd., Bethesda, MD 20814-4799.

POSITION IN BIOMEDICAL ENGINEERING available for basic and clinical research on bone density using QCT, DPA, and bone scintigraphy. Candidate will have the opportunity to collaborate with large bone and mineral metabolism laboratory. Ph.D. in bioengineering or allied field necessary. Experience in bone density desirable. Salary competitive. Potential postdoctoral fellows or research assistant professors are invited to apply. Send CV and two letters of reference to Dr. D. Sauser, Radiology Department, Loma Linda University, Loma Linda, CA 92354.
FACULTY POSITION IN FOOD SCIENCE AND NUTRITION. Assistant professor and extension specialist in the Department of Food Science and Nutrition, University of Minnesota, St. Paul. Tenure track. Start on or after May 1, 1988. Provide statewide leadership in extension educational programming in consumer-related issues in food, nutrition, and health. Serve as resource person to county extension staff. Develop supportive educational materials. Interpret current research findings, identify research needs, indicate such to research faculty, and develop and implement an ongoing research program consistent with perceived needs and interests. Maintain professional competency in an appropriate area of expertise. Must have doctoral degree in nutrition, food science, or related field; strong oral and written communication skills; interest in informal education programs; and demonstrated research abilities. Knowledge and experience required in consumer-related issues in food, nutrition, and health. Competitive salary and attractive benefits, including federal group life and health insurance, Federal Employees Retirement System (FERS), university vacation, sabbatical, and other leave plans. Apply by March 1, 1988, To V. S. Packard, Department of Food Science and Nutrition, University of Minnesota, 1334 Eckles Ave., St. Paul, MN 55108. Include detailed resume with publications list and names and complete addresses of at least three references. The University of Minnesota is an equal opportunity employer and specifically invites and encourages applications from women and minorities.

THE DEPARTMENT OF VETERINARY BIOMEDICAL SCIENCES, UNIVERSITY OF MISSOURI-COLUMBIA, is accepting applications for a tenure-track faculty position at the associate professor level in 1) pharmacology, 2) biochemistry-cell biology, and 3) histology-cell morphology. Qualifications include D.V.M. and/or Ph.D. or equivalent; exceptional potential to develop a strong biomedical research program; and capability to direct/teach professional or graduate level courses in veterinary pharmacology, biochemistry, or microanatomy. Interests of this rapidly growing multidisciplinary department include circulation research encompassing molecular to systems analyses; endocrinology-reproductive biology; toxicology and neurosciences. Preference for one position will be placed on expanding the circulation research focus relative to membrane-molecular approaches to muscle biology, but outstanding applicants in other areas are encouraged to apply. One position is jointly sponsored by the Dalton Research Center and will involve cardiovascular control mechanisms, at the molecular, cellular, or systemic level. Applications should include a CV, names of four references, and a letter stating professional goals. Send correspondence to H. Richard Adams, Department of Veterinary Biomedical Sciences, College of Veterinary Medicine, University of Missouri-Columbia, MO 65211.

ASSISTANT PROFESSOR, CANCER PHARMACOLOGY. The Department of Pharmacology, University of Tennessee-Memphis College of Medicine, currently has available a tenure-track position at the assistant professor level for a basic scientist working in areas related to tumor biology. This position is open to any area of cancer research which is compatible with the needs of outstanding individuals with research interests and experience in the genetic control of resistance or other aspects of tumor resistance having potential therapeutic implication. Special consideration will be given to candidates who can apply modern constructs of molecular biology to their research approaches in these areas. Applicants must have a doctoral degree, have completed at least 2 years of postdoctoral training, and have a demonstrated record of productivity and the ability to conduct independent research. The candidate selected for this position will be expected to develop a strong laboratory program, to participate in departmental teaching activities, and to contribute interactively to the campus-wide Cancer Center program. Excellent laboratory space and start-up funds are available. The closing date for receipt of applications is January 31, 1988. To apply, send CV, a statement of present research accomplishments and future plans, and three letters of recommendation to Dr. Murray Heimberg, Department of Pharmacology, University of Tennessee-Memphis, 874 Union Ave., Memphis, TN 38163. The University of Tennessee is an equal opportunity/affirmative action employer.

ANATOMY—DEPARTMENT CHAIRPERSON, DENTAL SCHOOL, UNIVERSITY OF MARYLAND AT BALTIMORE. Position available July 1, 1988. Applicant must have Ph.D. or Ph.D./D.D.S., extensive administrative and teaching experience, a record of externally funded research, substantial publications, and a record of successful direction of M.S./Ph.D. candidates. EO/AA employer. Submit a letter of application, CV, and three letters of reference by March 1, 1988, to Dr. Charles B. Leonard, Jr., Chairman, Department of Anatomy, Dental School, 666 W. Baltimore St., Baltimore, MD 21201.

CHAIRPERSON, DEPARTMENT OF PHARMACOLOGY, UNIVERSITY OF CONNECTICUT HEALTH CENTER. The University of Connecticut Health Center, Farmington, Connecticut, requests applications for the position of professor and chairperson of its Department of Pharmacology. The department consists of 11 full-time faculty positions and occupies 10,000 square feet of laboratory/office space. The faculty has well-funded research programs in an environment that fosters interaction among basic and clinical scientists. We seek an individual with a Ph.D. or M.D., leadership qualities, and a strong commitment to and credentials for excellence in education and research. Applicants should send a CV and the names and addresses of three references to Dr. Robert E. Cone, Chairperson, Pharmacology Search Committee, Department of Pathology, University of Connecticut Health Center, 200B Farmington, CT 06032. Deadline for applications: February 1, 1988. An affirmative action/equal opportunity M/W/H.

INSTRUCTOR IN PHARMACOLOGY to teach and direct graduate students in the structures and mechanisms of interaction of G proteins and coupled receptors and carry out research in this area. Concentration will be on the mechanism of receptor control of G protein function using molecular genetic, chemical, and enzymologic probes of native and recombinant molecules. Requires Ph.D. in biochemistry or related discipline, 2 years of relevant postdoctoral experience, including experience in purification and microchemistry of these proteins, including experience in purification and microchemistry of these proteins, assay of G protein and receptor regulation, molecular genetics, and protein immunooassay. Apply to Elliott M. Ryp, Professor, Department of Pharmacology, University of Texas Southwestern Medical Center, 5323 Harry Hines Blvd., Dallas, TX 75235-9041. Equal opportunity employer.

CHAIRPERSON, DEPARTMENT OF PHYSIOLOGY. The Uniformed Services University of the Health Sciences is conducting a search for chairperson of the Department of Physiology for the F. Edward Hebert School of Medicine. Candidates should have an earned doctoral degree in physiology or a related field, a distinguished record of research, substantial experience in teaching (preferably in medical school), and demonstrated leadership and administrative ability. The position will be available by July 1, 1988; starting date is negotiable. Salary will be commensurate with qualifications. All applications received by February 1, 1988, will be considered, but the position will remain open and applications will be accepted until an appointment is made. Candidates should submit CV and bibliography, statement of research interests and teaching philosophy, and names of three professional references to Chairperson, Physiology Search Committee, c/o Civilian Personnel Directorate, Uniformed Services University of the Health Sciences, 4301 Jones Bridge Rd., Bethesda, MD 20814. USUHS is an equal opportunity/affirmative action employer.

CHAIR, DEPARTMENT OF PATHOLOGY. Vanderbilt University School of Medicine is searching for candidates for the chair of the Department of Pathology. A candidate should have an exceptional record in research, be dedicated to providing a quality laboratory and clinical service program, a commitment to excellence in the education of medical and graduate students, and strong leadership and administrative ability. Applications from women and members of minority groups are encouraged. Those interested in being considered for the chair should submit a CV and the names of three references to Dr. Lester F. Williams, Jr., Chairperson of the Pathology Search Committee, Department of General Surgery, A-2219 Medical Center North, Vanderbilt University School of Medicine, Nashville, TN 37232. Vanderbilt University is an equal opportunity, affirmative action employer.

RESEARCH INSTRUCTOR POSITION available in the area of human platelet physiology and biochemistry. Applicant will be expected to have expertise in isolation and handling of human platelets and in identifying and establishing the metabolic pathways affected by the potent lipid agonist, platelet-activating factor. Applicant must have a Ph.D. in biochemistry or mammalian physiology, or a comparable degree in related areas and must have a minimum of 3 years of postdoctoral experience. Both teaching and research responsibilities will be required. Send CV to Dr. Donald J. Hanahan, Department of Biochemistry, The University of Texas Health Science Center, San Antonio, TX 78284-7780. An equal opportunity/affirmative action employer.

MAST CELL BIOLOGIST. Junior faculty member willing and able to develop the field of ocular mast cells for our institute. Joint appointment in Departments of Ophthalmology and Harvard Medical School possible. Send CV to Mathes R. Allansmith, M.D., Eye Research Institute, 20 Stanford St., Boston, MA 02114.
POSTDOCTORAL POSITION available July 1988 at Loma Linda University in Southern California for candidate with a Ph.D. in anatomy or pathology with potential for long-term position. A major focus is quantitative histological and histochemical techniques applied to animal and patient studies of bone. Opportunities for collaboration in this multidisciplinary laboratory include such areas as protein purification, cell cycle analysis, cell differentiation, immunocytochemistry, RIA, and membrane receptor studies. No experience in bone is necessary. Competitive salary and benefits. Send CV and three letters of reference to D. J. Baylink, Research Svc. (151), Pettis VA Hospital, Loma Linda, CA 92357. EEO/AA employer.

POSTDOCTORAL RESEARCH POSITION in cellular immunology (cell culture, cell-sorting experience). Candidate should have a Ph.D. degree in immunology. Salary open. Send CV with references to Jordan N. Fink, M.D./Viswanath P. Kurup, Ph.D., Medical College of Wisconsin, Allergy-Immunology Section/151, 5000 W. National Ave., Milwaukee, WI 53295.

POSTDOCTORAL POSITION to work on aspects of the regulation of complex gene expression in the developing mouse CNS. Projects include examination of factors regulating transcription/splicing mechanisms of myelin protein genes and related genes; and translational regulation by glucocorticoids in vitro. Positions available beginning in March 1988. Stipends consistent with NIH salary guidelines. Send CV to Dr. A. T. Campagnoni, MRRC/NPI, UCLA Medical School, 760 Westwood Plaza, Los Angeles, CA 90024.


TWO POSTDOCTORAL POSITIONS: 1) Basic and clinical research on cellular immunity to HIV. Prior experience in molecular virology desirable. 2) Molecular virologist postdoc. level or higher. Experienced working with retroviruses; project directed at interactions between HIV and CMV. Send CV and three letters of reference to Division of Infectious Diseases, The Children's Hospital of Philadelphia, One Children's Center, Philadelphia, PA 19104. The Children's Hospital is an equal opportunity/affirmative action employer.

POSTDOCTORAL POSITION. Starting spring 1988 for research concerning ventricular performance and cardiovascular hemodynamics during cardiac tamponade. Send CV and summary of research interests to Dr. Klopfenstein, The Bowman Gray School of Medicine, 300 S. Hawthorne Rd., Winston-Salem, NC 27103. AA/EOE.

POSTDOCTORAL POSITION available immediately for research and training opportunities in reproduction and developmental biology. The program is oriented toward providing a meaningful experience in elucidating the molecular, cellular, and organismic mechanisms of embryonic development. The training program is conducted by a multidisciplinary research team representing the departments of pediatrics, biochemistry, anatomy, and radiology (Program Director, Robert L. Brent, M.D., Ph.D.). Each trainee will participate in a program that is individually tailored to meet his/her specific needs and interests. Areas of research activity include the tumorigenic and life-shortening action of in utero X-irradiation during embryonic development, mechanism of teratogenesis associated with specific monoclonal antibody treatment, use of the transgenic mouse system in generating experimental models of human disease, use of embryo culture in studying early postimplantation development during normal and abnormal embryonic growth, and the study of normal and abnormal growth and development of bone. Send CV and three references to T. R. Koszalka, Ph.D., Stein Research Center, Thomas Jefferson University, 920 Chancellor St., Philadelphia, PA 19107.

POSTDOCTORAL FELLOWSHIPS (NIH) for training in the departments of biochemistry, pharmacology, and physiology are available for qualified applicants with Ph.D., M.D., D.V.M., or D.O. who desire advanced training in cardiovascular research. For more information contact Dr. J. E. Chimoskey, Department of Physiology, Michigan State University, E. Lansing, MI 48824-1101. MSU is an equal opportunity/affirmative action employer.

POSTDOCTORAL FELLOWSHIP. Three training positions in the Department of Microbiology and Immunology are available immediately for applicants with experience in immunology, microbiology, cell biology, biochemistry, or molecular biology. A federally funded Program Project Award supports projects whose themes are related to disorders of immune regulation. The interactive projects use research strategies that involve the technologies of cellular and molecular biology to study lymphocytes, accessory cells, and target tissues/organisms in the pathogenesis of both human diseases and relevant experimental models. The positions offer an excellent opportunity for a broad learning experience through active collaborations and the daily exchange of scientific ideas. Salary is based on NIH Training Grant levels. The positions available are: characterization of B lymphocytes in Graves' disease (Dr. Bonnie Blomberg); localized expression of class II MHC expression in Graves' disease (Dr. Robert B. Levy); pulmonary immune defenses in Pneumocystis carinii infections (Dr. Joan Stein-Streilein). Applicants should indicate the project in which they are interested and forward their CV, a statement of research experience, and the names of three references to the trainers listed above or J. Wayne Streilein, M.D., Principal Investigator, Program Project on Disorders of Immune Regulation, Department of Microbiology and Immunology (R-138), University of Miami School of Medicine, PO. Box 016960, Miami, FL 33101. Affirmative action/equal opportunity employer.

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POSITIONS DESIRED

Ph.D., 1988 (expected); Monogastic nutrition, poultry management, trace element metabolism; Atomic absorption spectrophotometry, radioisotopes; Available spring 1988; Research and/or production, management, industry, postdoc.; Salary negot. 5-1890

Ph.D., 1984; Immunology and exp. pathology; Experience in monoclonal antibody technology, characterization of human tumor-associated antigens, molecular biology; Starting date and salary negotiable; Prefer NY tristate region; Staff position in academic or industrial research. 6-2505

Ph.D., 1978; Biochemistry, enzymology/protein chemistry; Experience in purification and characterization, M.Sc. medicinal chemistry, international teaching experience in medical college, other languages Arabic and French; Available immediately; Postdoctoral position in academia or industry, or teaching position; Salary open. 2-2506

Ph.D., 1986; Muscle biochemistry, exercise physiology; Experience in studying carbohydrate and energy metabolism in human skeletal muscle in vivo, trained in enzymatic analyses of intermediates, calorimetry, eucligemc clamp; Available summer 1988; Staff position in academia; Salary negot. 1-2507

Ph.D., 1985; Organic and medicinal chemistry; Postdoctoral research in pharmacology, amino acid and peptide synthesis and purification, protein isolation and purification, enzyme kinetics, phosphorylation, chromatography, FT-NMR, ESR, IR, atomic absorption, culture techniques, electrophoresis; May 1988; Postdoctoral position in academia; Salary open. 2-2508

Ph.D., 1985; Chemistry, biochemistry, immunology; Experience in protein purification and characterization, background in cell culture, receptors monocyte and polyclonal antibody preparation; Available immediately for positions in industry or academia; Salary negot. 2-2509

Ph.D., 1986; Nutritional biochemistry, toxicology/carcinogenesis; Cell isolation and culture, cellular transport studies, dietary trials, subcellular fractionation, lipid peroxidation, HPLC, RIA, protein purification, PAGE, enzyme assays; Available August 1988; Staff position in academia, government, or industry; Salary negot. 2-2510
Ph.D., 1980; Nutritional sciences, human and clinical nutrition, trace elements, protein, lipids, endocrinology, enteral nutrition, nutrition therapy, experience with the industry; Available June 1988; Research and/or teaching; Salary negot. 5-2511

Ph.D., 1986; Animal physiology, nutritional biochemistry; Postdoctoral fellowship in clinical nutrition (8/86 to present), experience in stable isotope tracer techniques (GC/MS), radioisotope methods, small-animal surgery (i.v. and i.g. models), indirect calorimetry; Teaching/research position in academia; Salary negot. 5-2512

Ph.D., 1984; Nutritional biochemistry, physiology, biochemistry; Mitochondrial Ca\(^{2+}\) transport, membrane phospholipid deacylation-reacylation, intestinal amino acid transport, acid-base balance; Available immediately; Teaching/research in academia or government; Salary negot. 5-2513

Ph.D., 1981; Biochemistry, protein and lipid chemistry, enzymology; Large-scale purification and characterization, surface chemistry techniques, electrophoresis, chromatography, enzymatic assay development; Spring 1988; Prefer east coast/midwest; Staff position industry, government, academia; Salary negot. 2-2514
PLACEMENT SERVICE

The Federation operates a Placement Service, year-round and at annual meetings. It matches candidates seeking postdoctoral training and permanent positions with recruiting employers from academia, government, industry and elsewhere. Most candidates are at the doctoral level and in disciplines represented by member societies; individuals holding degrees below the doctorate are not excluded. Candidates and employers participating in Placement Service activities at any annual meeting must register for attendance at that meeting. Features of the Placement Service:

CANDIDATES
Registration is in effect for one year from receipt of completed registration materials and $10 registration fee. During that year, the candidate is entitled to:
- Inclusion of application, if received by mid-January, in annual Candidates, published and distributed in February to about 300 registered employers
- Publication of Position Desired advertisement in one issue of The FASEB Journal (resulting in referral of about 1900 applications each year)
- Use of interviewing facilities at annual meeting, including interview scheduling services (about 4300 interviews scheduled per year), review of posted position vacancy descriptions (about 750 posted per year) and distribution of application to each participating employer
- Availability of application for review by employers visiting the FASEB campus and by FASEB staff members conducting searches on behalf of employers (resulting in referral of about 1900 applications per year)

EMPLOYERS
Registration is on a calendar year basis. Fee for 1988 is $450 for commercial organizations, $225 for academic and other nonprofit institutions, with a minimal additional fee for more than two interviewers at annual meeting to the limit of five per employer registration. During the year of registration, the employer is entitled to:
- Receipt of one copy of annual Candidates, published and distributed in February (includes about 450 applications)
- Inclusion of unlimited number of position vacancy descriptions in annual Positions, published and distributed in March (distribution is about 450)
- Posting of unlimited number of position vacancy descriptions in Placement Service area at annual meeting
- Receipt of copy of application of each candidate attending annual meeting
- Use of interviewing facilities at annual meeting including interview scheduling services (about 4300 interviews scheduled per year)

Following services, of principal use to employers not registered and who are charged a modest fee, are also provided at no charge to registered employers:
- Receipt, upon request, of applications from candidates who insert Position Desired advertisement in The FASEB Journal
- Receipt of applications from candidates identified by search of active files, conducted by Placement Service staff based on description of desired qualifications as provided by employers

GENERAL
Position vacancy descriptions received from any principal employer, whether or not otherwise participating in Placement Service operations, will be included without charge in annual Positions, if received by early February. This publication is for sale to candidates for $10. Yearly average positions included: 375.

Registration of candidates and employers by mid-January and early February, respectively, will provide the advantage of publication in Candidates or Positions, as described above. Later advance registration until nine days before the Sunday on which the annual meeting begins, and at-meeting registration are also available. Schedule for Placement Service operations at annual meetings will appear in several issues of The FASEB Journal, as well as in the Program and other materials distributed in advance of the meeting.

For application forms and instructions and other details, please write or call: FASEB Placement Service, 9650 Rockville Pike, Bethesda, Maryland 20814. (301) 530-7020.

PLACEMENT SERVICE SCHEDULE—ANNUAL MEETING—1988

South Hall, Convention Center—Las Vegas, Nevada

REGISTRATION
Sun, May 1
Mon–Tues, May 2–3
Wed, May 4
2:00 pm–8:00 pm
8:30 am–4:30 pm
8:30 am–1:00 pm
INTERVIEW SCHEDULING
Mon–Wed, May 2–4
8:30 am–4:30 pm
INTERVIEWS
Mon, May 2
Tues–Wed, May 3–4
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- Chromosomal Architecture
- Enzymology of Mutation
- Cellular Aspects of Mutation
- DNA Repair

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- Prospects for Gene Therapy
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- Ethical and Social Issues in Genetical Research
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**GENOMES AND ORGANISMS**
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- Organelles I and II

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- 76 organized workshops on specialized topics have been announced in the Registration Bulletin. Additional workshops may be added according to the needs and interests of Congress participants. For further information write to the Congress Secretariat.

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