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In 1980, FASEB began planning a new program for scientific communication to be at the cutting edge of research in a format entirely different from the annual meeting. The initiation of the FASEB Summer Research Conferences in 1982 spawned a continuing series of inter-disciplinary exchanges that have become recognized as a valuable complement to the highly successful but very large FASEB Annual Meeting. The conferences are divided into small groups of experimental biologists who meet intimately and without distractions to explore new approaches to those research areas undergoing rapid scientific change.

Conferences are currently convened at the Vermont Academy in Saxtons River, Vermont, Copper Mountain, Colorado and Snowmass Village, Colorado during the months of June, July and August. The topics for the conferences are approved by a scientific advisory committee. All conferences are scheduled at least two years in advance.

We invite you to submit a proposal for the 1997 Summer Research Conferences. To obtain a copy of the guidelines for submitting a proposal, please complete the information requested below and return to the FASEB Summer Research Conferences office.

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Human Gene Therapy

A FASEB Journal Theme Issue

July 1997

Coordinated by W. French Anderson

Research Communications on Human Gene Therapy will also appear in this issue.

Deadline for submission of communications is February 1, 1997.

WELLCOME VISITING PROFESSORSHIPS IN THE BASIC MEDICAL SCIENCES 1996-97

The Federation of American Societies for Experimental Biology invites nominations from U.S. medical schools, universities and other nonprofit scientific research institutions for WELLCOME VISITING PROFESSORSHIPS IN THE BASIC MEDICAL SCIENCES.

Sponsored by The Burroughs Wellcome Fund

For application procedures and information, contact Rose P. Grimm, Executive Office, Federation of American Societies for Experimental Biology, 9650 Rockville Pike, Bethesda, MD 20814-3998.

Phone: (301) 530-7090 Fax: (301) 530-7049
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DEADLINE FOR LETTERS OF APPLICATION IS MARCH 1, 1996.


Forces contributing to the conformational stability of proteins. C. N. Pace, B. A. Shirley, M. McNutt, and K. Gajiwala.

Stability and folding of ultrastable proteins: eye lens crystallins and thermophiles. R. Jaenicke.

The roles of partly folded intermediates in protein folding. T. E. Creighton, N. J. Darby, and J. Kemmink.

The denatured state (the other half of the folding equation) and its role in protein stability. D. Shortle.

Structural and genetic analysis of the folding and function of T4 lysozyme. B. W. Matthews.

Protein folding by a biased Monte Carlo procedure in the dihedral angle space. B. Lee, N. Kurochkina, and H. S. Kang.


Protein folding in the cell: competing models of chaperonin function. R. J. Ellis and F. U. Hartl.


The molten globule state of α-lactalbumin. K. Kuwajima.


Supervising the fold. Fundamental principles of molecular chaperones. J. Buchner.

Serial Reviews in Press


Introduction: Cytochrome P450. The remarkable P450s—a historical overview of these versatile heme protein catalysts. R. W. Estabrook.


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Cover:

The central lowlands of Thailand are cross-cossed with waterways, many leading to the Chaopraya River, which traverses Bangkok and meanders into the Bay of Siam. The Thai have used these waterways from ancient times both for communication and commerce and in their cultural rituals. The cover depicts a flower vendor at the "floating market" at Bangkok, north of Bangkok, on the Chaopraya River (Courtesy of Phornpibh Phatana Ltd., Bangkok). See Olson and Konisky, pages 154-155, for the introduction to the Carotenoid Serial Reviews.
RESEARCH

Compounds that are possible treatments for inflammatory diseases have been developed by using combinatorial chemistry to increase the potency and selectivity of a small-molecule enzyme inhibitor, valine phosphonate diphenyl ester. [Chemistry & Biology (1995) 2, 741–750]

Researchers have combined the tools of peptide, polymer, and physical chemistry and immunology to probe the structure of an important region of the envelope protein of HIV–1. The multipronged approach reveals that the portion of glycoprotein 120 (gp120), believed to bind to human cells as the first step in AIDS infection, probably exists in the intact protein as an α-helix. [J. Biol. Chem. (1995), 270, 23918–23921]

The molecular control of circadian rhythm might lie in the pairing of two proteins. [Science (1995) 270, 808–810] The findings, derived from fruit fly studies, promise to help better understand human, animal, and plant circadian rhythms, which influence cell and body biochemistry, health, aging, and behavior.

ISSUES

Scientists, teachers, and educators who comprise American Renaissance in Science Education (ARISE) have advocated that the traditional order of high school science courses—biology, chemistry, physics—be reversed and that strong links be established among the disciplines. Teaching ninth graders conceptual physics would lead to a study of tenth grade chemistry, then biology, the group said. Bruce Alberts, president of the National Academy of Sciences (NAS), pointed out during ARISE’s meeting (September 22–24, 1995, Naperville, Ill.) that the revised sequence makes sense in terms of contemporary biology: “Since the discovery of the double helix,... biology has increasingly based upon an understanding of large molecules.”

The group proposed that NAS, the American Association for the Advancement of Science, the National Science Teachers Association, and other scientific organizations jointly begin planning the means to implement ARISE’s project. The National Research Council is expected to release new science education standards this month. The standards present a consensus vision for a new type of science teaching.

Abundant information about grant and research opportunities is on the Internet, and research offices are connecting to World Wide Web pages created by federal agencies and private foundations to announce grant programs and application deadlines. Most on-line services let users see the Federal Register the day after it is published, potentially allowing researchers more time to assemble their grant proposals. WWW addresses for research information include Community of Science: http://cos/gdb.org/ and DIALOG: http://www.dialog.com/dialog/dialog1.html. See The Chronicle of Higher Education, October 27, 1995, A26, for additional sources.

AWARDS

H. Robert Horvitz (ASBMB–A; ASCB) and Carla J. Shatz (ASCB) received the Charles A. Dana Awards for “independent research illuminating the complex molecular and cellular processes in the development of the brain and nervous system; for bringing to light long–mysterious interactions of nature and nurture in shaping our most fundamental capacities; and for charting the relationship between cell life and cell death on the road to healthy development, or to devastating disease.” The Charles A. Dana Awards for Pioneering Achievements in Health and Education, of $50,000 each, are given annually.

The 40th Annual Meeting of the Biophysical Society will be held February 17–21, 1996, at the Baltimore Convention Center. Highlights of that meeting appear below. Additional details on workshops and subgroup meetings and other information regarding the meeting may be obtained by calling the society’s office at 301–530–7114.

SYMPOSIA


WORKSHOPS

Membrane Deformation Energy and Biological Function What Does Electron Cryomicroscopy Provide that X–ray Crystallography and NMR Do Not? Advances in Sedimentation Velocity Analysis Biomembrane Structure and Dynamics: Theory to Experiment Mathematics and Molecular Biophysics New Computer Techniques in Ion Channel Biophysics

An incomplete phone number appeared in the October issue (page 1244) under an item offering free quantities of eicosatetraenoic acid and docosahexaenoic acid ethyl ester capsules. More information may be obtained by calling 301-443-9643.
COMMUNICATIONS CAPSULES

The following are summaries of original research articles that appear in this issue.

VITRONECTIN AND CYTOKINES—MODULATION OF ASTROCYTE MIGRATION

The failure of central nervous system (CNS) axons to regenerate after axonal injury has been attributed, in part, to astrocyte failure to repopulate the injury site. Using an astrocyte wound scratch model, Faber-Elman et al. (pages 1605-1613) stimulated the impeded migration in vitro by treating the cells with tumor necrosis factor α. Vitronectin counteracted this blockage and enhanced the repopulation of the wound area. The results may be relevant to regeneration of CNS axons and indicate that an extracellular component can override a negative effect of a cytokine.

STRAIN REGULATES BONE'S NITRIC OXIDE PRODUCTION

Exposure of bone cells to physiological levels of mechanical strain initiates almost immediate production and release of NO (Pitsillides et al., pages 1614-1622). Isolated osteocytes produce more strain-related NO than osteoblasts. Both cells express a constitutive neuronal isoform (nNOS) and the inducible isoform (iNOS) of NO synthase, but the speed of NO release suggests nNOS activation. It is suggested that such modulation of NO production coordinates bone's strain-related functionally adaptive response to load-bearing.

TRANSGENIC RABBITS EXPRESSING 15-LIPOXYGENASE

15-Lipoxygenase is expressed in macrophages of atherosclerotic lesions and has been implicated in the oxidative modification of low density lipoproteins. Shen et al. (pages 1623-1631) have developed transgenic rabbits that overexpress human 15-lipoxygenase. Transgenic macrophages, but not other tissues, express high levels of the mRNA and immunoreactive protein. The transgene-specific enzyme possesses both 15-lipoxygenase and 12-lipoxygenase activities. These transgenic rabbits should prove useful for further mechanistic studies on the potential role of 15-lipoxygenase in atherosclerosis development in vivo.

INDUCIBLE NO SYNTHASE IN BRAIN DEVELOPMENT

In normal adult brain, the calcium-independent, inducible form of NO synthase (iNOS) is not expressed, but during pathologies including ischemia, viral infection, and demyelinating diseases, activation of iNOS gene expression can lead to NO production and contribute to cellular damage. Galea et al. (pages 1632-1637) find that iNOS is normally expressed in brain during late embryonic and early postnatal ages. During these times, iNOS protein is localized to brain microvessels, suggesting a role for NO in angiogenesis, vascular permeability, or control of cerebral blood flow. Understanding the signals that regulate perinatal iNOS expression will provide insight into those that reinitiate expression in the adult.

mtDNA MUTATION IN BHE/CDB RATS

The mtDNA for FpATPase subunits 6 and 8 in the NIDDM-prone BHE/cdb rats and Sprague-Dawley rats was sequenced (Mathews et al., pages 1638-1642). Four single base differences were detected when these sequences were aligned. Only one of these affects the coding sequence. The codon change yields an asparagine for aspartic acid in a critical location of subunit 6. The difference in primary protein structure may explain the decrease in ATP synthesis efficiency in BHE/cdb rats versus control strains.

CHROMIUM(III) PICOLINATE PRODUCES CHROMOSOME DAMAGE

Chromium(III) complexes currently sold as dietary supplements were tested by Stearns et al. (pages 1643-1648) for their ability to cause chromosomal aberrations in Chinese hamster ovary cells. Chromium picolinate produced chromosome damage up to 18-fold above control levels after 24-h treatment. Chromium nicotinate, nicotinic acid, and chromium(III) chloride hexahydrate did not produce chromosome damage at equivalent doses. Damage was inferred to be ligand-mediated because picolinic acid in the absence of chromium was also clastogenic. The data are evaluated in terms of their relevance to human exposure based on literature evidence for toxicity of picolinic acid, and tissue accumulation of chromium.
Thank You

The Editorial Board appreciates the help of all who have worked for The FASEB Journal during the last year. Below are the names of those who reviewed manuscripts submitted for publication. The work of such referees is indispensable in helping maintain the journal's publication standards and ensuring clear and accurate reporting. Our sincere thanks to all of you. In turn, the Federation is grateful to the members of the Editorial Board who have served and whose names are recorded on the second page of the Table of Contents in each issue.

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