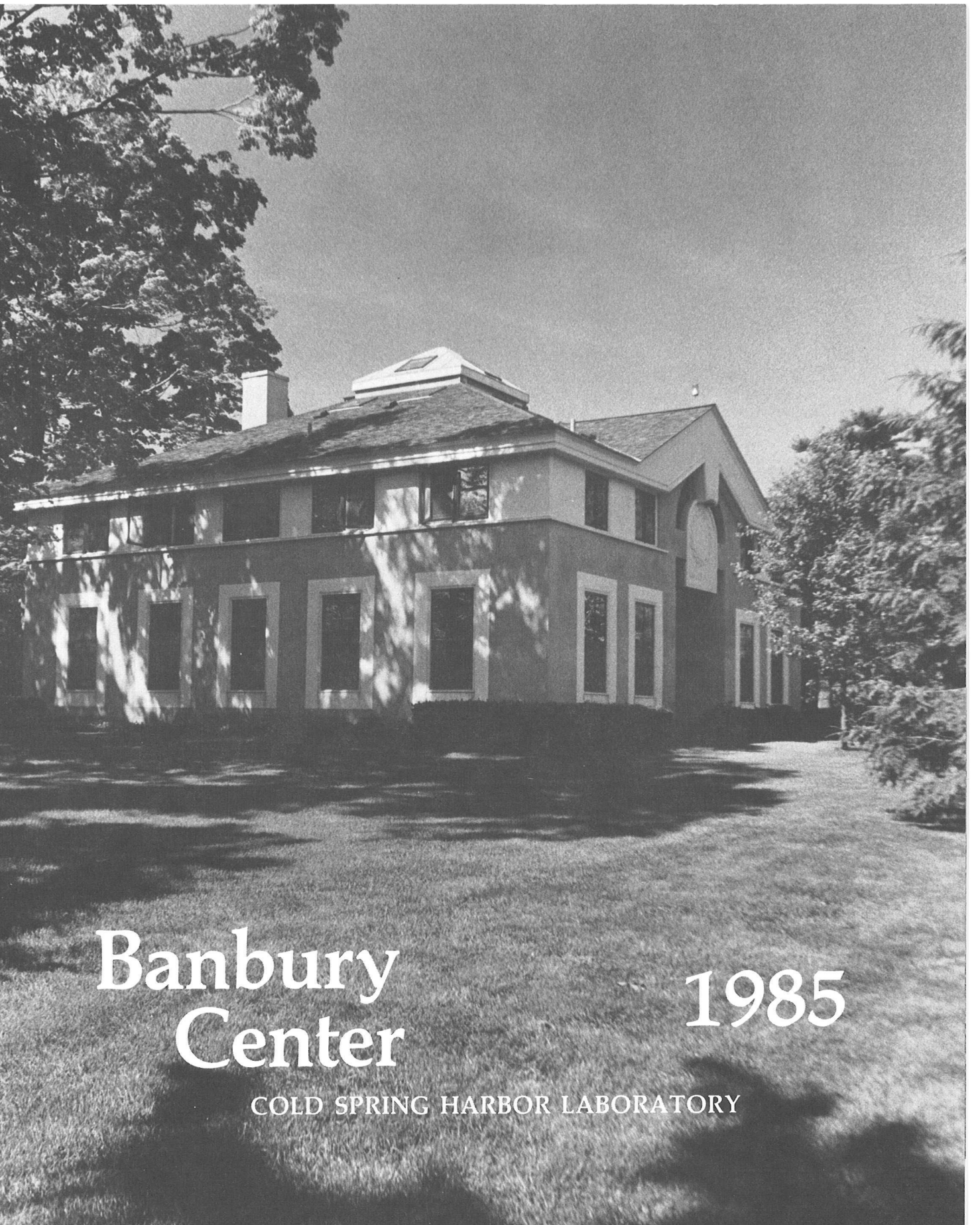


Banbury Center

1985

COLD SPRING HARBOR LABORATORY

BANBURY CENTER

Banbury Center is a 45-acre estate adjoining the waters of Long Island Sound on the north shore of Long Island, barely 40 miles east of downtown Manhattan and located just across the harbor from Cold Spring Harbor Laboratory. The estate was donated to the laboratory in 1976 by Charles Sammis Robertson together with funds for necessary architectural conversions and an endowment to cover upkeep of the grounds and of the original estate structures. With the laboratory's long history and international research reputation and its own renowned ongoing programs of courses and conferences, the magnificent Banbury grounds and buildings presented an ideal site for a complementary program of smaller conferences concentrating on aspects of the biological sciences which also bore significant social implications. Banbury's primary concerns remain in areas of environmental and occupational risk assessment and social and public policy-bearing developments in the biological and health sciences.

Banbury conferences, kept small to maximize spontaneous uninhibited exchanges between participants, achieve wider dissemination through the Center's other primary function as a small publishing center. What was once the estate's original seven-car garage is now administrative and publication offices, a small library, and—at its center—an opulently appointed yet intimate and informal conference room. Replete with extensive, unobtrusive sound and projection facilities as well as wall-to-wall blackboard space, the room can accommodate as many as fifty participants while remaining equally conducive to either formal presentations or informal give-and-take. The original Robertson neo-Georgian manor house, situated on the final promontory before the grounds descend to the shore of the harbor, now serves as center for participant accommodations and dining, while the extensive grounds, swimming pool, tennis court, and beach present ample recreational resources. On-site accommodations have been further supplemented by the opening in 1981 of the Sammis Hall guest house—a modern embodiment of the sixteenth century Palladian villas—designed for the Center by the architectural firm of Moore Grover Harper.

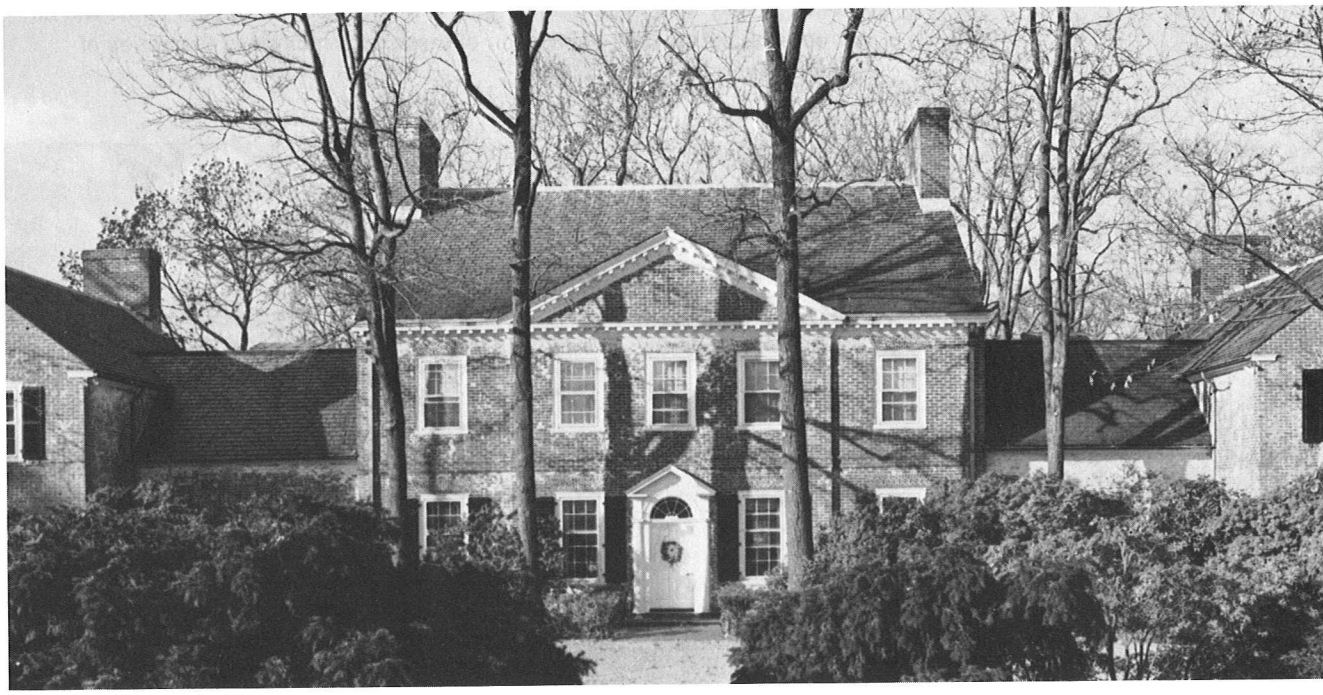
(Above) Architectural drawing of 1979 design of Sammis Hall.
(Cover) Sammis Hall, completed, with modifications, in 1981.

BANBURY CENTER DIRECTOR'S REPORT

The Banbury Center program of scientific conferences and publications focusing on recent biological advances that have particular relevance to environmental, regulatory, public policy, and cancer risk issues was initiated 8 years ago. Looking back over that period, a pattern of increasing program consolidation and stabilization is discernible.

The Center's first long-term commitment was received from the Alfred P. Sloan Foundation and was activated in 1980. This grant continues to support workshops in the biological sciences for either science journalists or congressional staff. Consolidation of targeted private sector support took place in 1984 with the establishment of the Corporate Sponsor Program of Cold Spring Harbor Laboratory. This enables several small meetings to be held at the Center each year in areas pertinent to gene regulation, gene expression, and developing approaches in biotechnology. With ongoing general support from corporate contributors, as listed separately at the end of this report, and grants for specific projects from both federal sources and private agencies, the Banbury Center has also been able to carry on a varied and increasingly well-recognized series of conferences and publications. Until 1985, however, this central program of conferences and publications addressing the scientific underpinnings of a variety of public health, public policy, and environmental health issues remained without a stable base of support. Thus, the awarding in 1985 of a 3-year grant in support of this core program by the James S. McDonnell Foundation must be considered the year's single most significant event with regard to the Center's present performance and future development. In addition to several future programs already being organized under this grant,

Robertson House provides housing and dining accommodations at Banbury Center

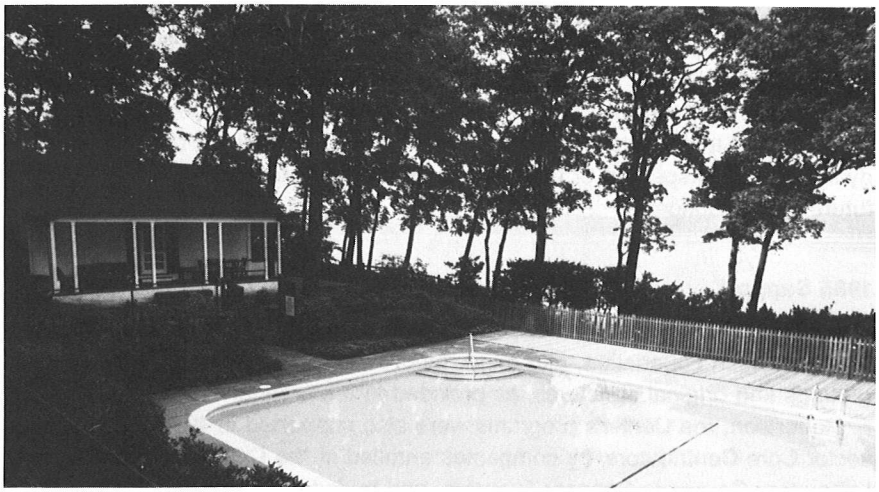


McDonnell Foundation support is facilitating the successful completion of two major present projects.

The first of these projects concerns publication of the proceedings from the April 1985 conference entitled Origins of Female Genital Cancer. Cervical cancer remains a major neoplastic cause of death among women worldwide. Identification of its cause would thereby present a major step toward understanding and potentially controlling this important neoplastic disease. Recent advances in molecular virology, in combination with ongoing epidemiological approaches, now seem to make this goal highly feasible. It was thus felt that bringing together the virological, epidemiological, and clinical communities concerned could be particularly useful in expediting this process. The planning for this conference with Professor Harald zur Hausen of the German Cancer Research Center in Heidelberg and Richard Peto of Oxford University began early in 1984. A subsequent federal grant application review confirmed the importance of such a project. Funding limitations, however, permitted only a small portion of meeting costs and no publication costs at all to be covered. Given the importance of the subject and the role that such a conference and subsequent publication could play, the decision was made to proceed with the project with the hope that funding to cover it would be found at a subsequent date. McDonnell Foundation support will be of tremendous assistance in the completion of this project.

Another program begun in 1985, which will also be receiving McDonnell Foundation support, is that on New Aspects of Tobacco Carcinogenesis. A September 1985 conference on this topic was organized through the joint efforts of Dr. Dietrich Hoffmann of the American Health Foundation and Dr. Curtis Harris of the National Cancer Institute. Representative research areas in epidemiology as well as laboratory studies in tobacco carcinogenesis were brought together with molecular and biochemical approaches concerned with mechanisms and assays of carcinogen-DNA interactions, cytogenetic lesions, and host factors that may influence susceptibility. Again, excellent grant reviews resulted in only very limited funding, and McDonnell Foundation funds will be instrumental in the 1986 publication of these proceedings in the series of Banbury Reports.

Meeting House, rear view



Robertson House pool

In 1985, the number of volumes in the Banbury Reports series was brought to 21 with the addition of three new titles. Two of these, *Risk Quantitation and Regulatory Policy* and *Genetic Manipulation of the Early Mammalian Embryo*, resulted from Banbury Center conferences held in 1984. The third book, *Genetically Altered Viruses and the Environment*, emanated from a late April, 1985 meeting that was developed as a cooperative agreement between the U.S. Environmental Protection Agency and the Banbury Center. Representatives from the fields of ecological virology, clinical virology, and molecular biology, were brought together to provide a broad perspective on the nature of this topic as well as to delineate key research concerns for the consideration of participants from the regulatory community.

In addition to full Banbury programs with publication in the Banbury Reports series, four workshops were also held at the Center in 1985 as part of the Corporate Sponsor Program. The first of these, held in March, concerned the role of *cis*- and *trans*-acting genetic elements in the initiation of transcription in eukaryotic cells. A related meeting in the Sponsor series was held in November, this one addressing current research in both prokaryotes and eukaryotes on the regulation of protein synthesis at the translational level. An earlier October Sponsor's meeting addressed the genetics of cell-cell interactions in plants, including the genetics of interactions with pathogens, self-incompatibility, fungal mating types, and problems in the genetics of plant sterility. The final meeting of the year in this series was held in December and was probably the most visually exciting meeting to be held at the Center—its subject being the design and use of computer graphics systems in the study of the structure and function of biological macromolecules.

Robertson House hall

The complement of regular Banbury programs in 1985 was completed with two workshops held under the Alfred P. Sloan Foundation grant described above. The first of these, held in October for congressional staff, considered scientific bases and ongoing research in the area of clinical intervention in problems of reproduction and infertility. The topic presented for journalists under the Sloan Foundation program concerned newly emerging approaches to an understanding of, and intervention in, the central nervous system and its degenerative disorders. This topic was inspired to a large extent as a result of the utilization of the Banbury Center over the past several years as a site for the regularly held high-level Cold Spring Harbor Laboratory summer courses in

neurobiology. The Center was also the site, in March of 1985, of an international workshop on the immune recognition of protein antigens and in October of a small workshop, held in conjunction with Pioneer Hi-Bred International, Inc., on the genetics of higher plants with emphasis on maize. Such programs, held at the Center in addition to Banbury-originated programs, help to broaden the dynamic and perspective of the Center, often contributing to the development of future project concepts.

1985 Support

In addition to the James S. McDonnell Foundation grant, support from the Alfred P. Sloan Foundation, and endowment funds for upkeep of the estate grounds and original structures, as provided in the original donation of Charles S. Robertson, the Center's programs were also supported in 1985 by private sector Core Contributors, by companies enrolled in the Cold Spring Harbor Laboratory Corporate Sponsor Program, and by federal grants.

The following contributed toward the general running of the Center as Core Supporters in 1985: the Bristol-Myers Fund, the Chevron Fund, the Dow Chemical Company, the Exxon Corporation, the Grace Foundation Inc., International Business Machines, Procter and Gamble, the Rockwell International Corporation Trust, and the Texaco Philanthropic Foundation Inc.

Cold Spring Harbor Laboratory Corporate Sponsors, whose funds supported four workshops at the Center in 1985, included Agrigenetics Corporation, American Cyanamid Company Amersham International plc, Becton Dickinson & Company, Biogen S.A., Cetus Corporation. Ciba-Geigy Corporation, CPC International, Inc., E.I. du Pont de Nemours & Company, Genentech, Inc., Genetics Institute, Hoffmann-La Roche Inc., Johnson & Johnson, Eli Lilly and Company, Mitsui Toatsu Chemicals, Inc., Monsanto Company, Pall Corporation, Pfizer Inc., Schering-Plough Corporation, Smith Kline & French Laboratories, and the Upjohn Company.

The 1985 conference on the Origins of Female Genital Cancer was supported in part by a grant from the National Cancer Institute with assistance from a contribution made by Merck, Sharp, and Dohme Research Laboratories. The National Cancer Institute also helped to support the conference on New Aspects of Tobacco Carcinogenesis, together with funding from the American Cancer Society and additional support from the Office on Smoking and Health. The U.S. Environmental Protection Agency joined in a cooperative agreement with the Banbury Center in the organization and funding of the conference on Genetically Altered Viruses and the Environment.

Michael Shodell

MEETINGS

The Immune Recognition of Protein Antigens

March 3–March 6

ARRANGED BY

W. G. Laver, John Curtin School of Medical Research, Canberra, Australia
G. M. Air, University of Alabama, Birmingham

SESSION 1

Chairperson: G. M. Air, University of Alabama, Birmingham

J. Skekel, National Institute for Medical Research, London, England: Characterization of antigenic domains on influenza virus hemagglutinin.

W. Gerhard, Wistar Institute, Philadelphia, Pennsylvania: B- and T-cell determinants on the hemagglutinin molecule of influenza virus PR8.

SESSION 2

Chairperson: J. Skekel, National Institute for Medical Research, London, England

I. A. Wilson, Research Institute of the Scripps Clinic, La Jolla, California: Probing the structure and antigenic determinants of influenza virus hemagglutinin using antipeptide monoclonal antibodies.

M.-J. Gething, Cold Spring Harbor Laboratory, New York: Analysis of mutant and wild-type versions of influenza virus hemagglutinin produced in different eukaryotic systems.

SESSION 3

Chairperson: J. Sambrook, Cold Spring Harbor Laboratory, New York

A. Caton, Wistar Institute, Philadelphia, Pennsylvania: Sequences of monoclonal antibodies to influenza virus hemagglutinin.

M. Weigert, Institute for Cancer Research, Philadelphia, Pennsylvania: Antibody diversity in the immune response to influenza virus hemagglutinin.

M. D. Scharff, Albert Einstein College of Medicine, Bronx, New York: Somatic mutations in mouse myeloma cells.

SESSION 4

Chairperson: T. J. Braciale, Washington University School of Medicine, St. Louis, Missouri

C. Hackett, Wistar Institute, Philadelphia, Pennsylvania: Fine specificity of antigen recognition by influenza hemagglutinin-specific helper T cells.

J. R. Lamb, Hammersmith Hospital, London, England: Human T-cell recognition of influenza virus antigens.

SESSION 5

Chairperson: M. Weigert, Institute for Cancer Research, Philadelphia, Pennsylvania

S. Smith-Gill, National Cancer Institute, Bethesda, Maryland: Structure-function relationships in antibodies specific for hen egg-white lysozyme.

T. LaVoie, National Cancer Institute, Bethesda, Maryland: V-region expression of antibodies specific for hen egg-white lysozyme.

SESSION 6

Chairperson: P. M. Colman, CSIRO Division of Protein Chemistry, Parkville, Victoria, Australia

P. M. Colman, CSIRO Division of Protein Chemistry, Parkville, Victoria, Australia: Three-dimensional structure of an anti-neuraminidase Fab fragment.

D. Davies, National Institutes of Health, Bethesda, Maryland: Crystallographic studies of antibody-antigen complexes.

R. J. Poljak, Institut Pasteur, Paris, France: Three-dimensional structure of antigen-antibody complex.

SESSION 7

Chairperson: E. Sercarz, University of California, Los Angeles

Y. Paterson, Scripps Clinic and Research Foundation, La Jolla, California: Constraints in the recognition of horse cytochrome *c* by monoclonal antibodies.

D. C. Benjamin, University of Virginia, Charlottesville: Antigenic structure of a complex protein—Serum albumin.

E. Wimmer, State University of New York, Stony Brook: Neutralization antigenic sites, antibody binding, and peptide induction of neutralizing antibodies of poliovirus.

SESSION 8

Chairperson: R. G. Webster, St. Jude's Children's Hospital, Memphis, Tennessee

T. J. Braciale, Washington University School of Medicine, St. Louis, Missouri: Viral antigen recognition by cytolytic T lymphocytes of different subsets.

A. Townsend, John Radcliffe Hospital, Oxford, England: CTL recognition of the influenza virus nucleoprotein molecule.

C. S. Reiss, Dana-Farber Cancer Institute, Boston, Massachusetts: Localization of restricting elements on class I MHC molecules using antiviral CTLS.

E. Huber-Katz, Wistar Institute, Philadelphia, Pennsylvania: T-cell responses to glycoprotein D of herpes simplex virus.

SESSION 9

Chairperson: P. Colman, CSIRO Division of Protein Chemistry, Parkville, Victoria, Australia

G. M. Air, University of Alabama, Birmingham: Antigenic structure of influenza virus neuraminidase.

W. G. Laver, John Curtin School of Medical Research, Canberra, Australia: Preparation of crystalline influenza virus neuraminidase-antibody complexes.

P. Tulloch, CSIRO Division of Protein Chemistry, Parkville, Victoria, Australia: Electron diffraction and imaging of influenza virus neuraminidase antibody complexes.

SESSION 10

Chairperson: D. Davies, National Institutes of Health, Bethesda, Maryland

J. A. Berzofsky, National Cancer Institute, Bethesda, Maryland: Structural and conformation requirements for myoglobin epitope recognition by T-cell clones—A contrast with monoclonal antibodies.

J. Rothbard, Stanford University, Palo Alto, California: Anti-idiotypic antibodies—Comparison of those elicited by peptides corresponding to V_H regions with those generated by the intact immunoglobulin.

J. E. Johnson, Purdue University, West Lafayette, Indiana: Antibody binding to cowpea mosaic virus in the crystalline state.

SESSION 11

Chairperson: I. A. Wilson, Research Institute of the Scripps Clinic, La Jolla, California

A. C. Bloomer, MRC Laboratory of Molecular Biology, Cambridge, England: Segmental mobility correlates with the location of epitopes in proteins.

M. H. V. van Rogenmortel, Institut de biologie moleculaire et cellulaire CNRS, Strasbourg, France: Segmental mobility in proteins and the epitopes of tobacco mosaic virus.

D. Jackson, University of Melbourne, Australia: B- and T-lymphocyte responses to influenza viruses, protein, and peptides.

R. F. Anders, Royal Melbourne Hospital, Australia: Immune recognition of tandemly repeated sequences in asexual blood-stage antigens of *Plasmodium falciparum*.

The Role of *cis*- and *trans*-acting Elements in the Initiation of Eukaryotic Transcription

March 24–March 27

ARRANGED BY

Y. Gluzman, Cold Spring Harbor Laboratory, New York

SESSION 1 VIRAL ENHANCERS

G. Khoury, National Cancer Institute, Bethesda, Maryland: Viruses as models for eukaryotic gene regulation.
P. Hearing, Rockefeller University, New York, New York: Adenovirus enhancer elements.
M. Botchan, University of California, Berkeley: BPV enhancer and interaction with different promoters.
J. A. Hassell, McGill University, Montreal, Canada: Dual role of the Py virus enhancer in transcription and DNA replication.
W. Herr, Cold Spring Harbor Laboratory, New York: Sequence duplications that restore activity to mutated SV40 enhancers.
A. Wildeman, Institut de Chimie Biologique, Strasbourg, France: SV40 enhancer mutants.
P. Johnson, Carnegie Institution of Washington, Baltimore, Maryland: Interactions between cellular components and viral enhancers.

SESSION 2 CELLULAR PROMOTERS I

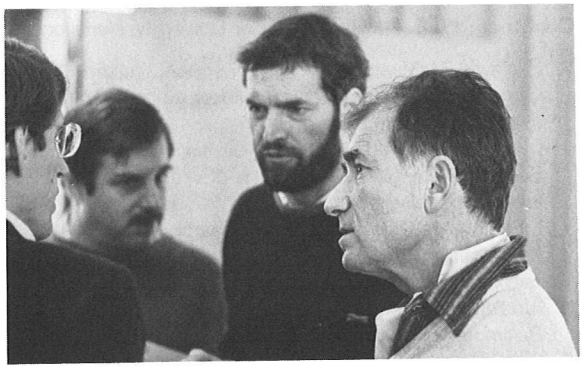
W. Schaffner, University of Zurich, Switzerland: Constitutive and inducible enhancer elements.
R. Palmiter, Howard Hughes Medical Institute, Seattle, Washington: Metal regulatory elements of mouse metallothionein gene.
P. Chambon, Institut de Chimie Biologique, Strasbourg, France: Control of transcription by steroid hormones.
D. DeFranco, University of California, San Francisco: Regulation of transcription by the glucocorticoid receptor.
M. Walker, University of California, San Francisco: Cell-specific expression of insulin and pancreatic acinar cell genes.
M. Fried, Imperial Cancer Research Fund Laboratories, London, England: Use of expression selection for the isolation of enhancer sequences.

SESSION 3 TRANSGENIC ORGANISMS

K. Arndt, Whitehead Institute for Biomedical Research, Cambridge, Massachusetts: *Cis*- and *trans*-acting elements in *His4* gene expression in yeast.
L. Guarente, Massachusetts Institute of Technology, Cambridge: Regulation of yeast cytochrome genes.
M. Ptashne, Harvard University, Cambridge, Massachusetts: Regulation of the *gal* promoter by specific binding of *gal-4* protein, bacterial *lex* protein, and a *lex-gal-4* fusion protein.
J. Hicks, Cold Spring Harbor Laboratory, New York: Reverse enhancer controls silent mating-type cassettes.
K. Nasmyth, MRC Laboratory of Molecular Biology, Cambridge, England: The control of HO transcription in yeast.
E. Meyerowitz, California Institute of Technology, Pasadena: *Cis*- and *trans*-acting factors in expression of the *Drosophila* 68C glue genes.
T. Maniatis, Harvard University, Cambridge, Massachusetts: Identification of DNA sequences required for the development and tissue-specific regulation of *Drosophila* ADH gene expression.

SESSION 4 IN VITRO SYSTEMS

K. Jones, University of California, Berkeley: Gene-specific RNA polymerase II transcription factors.
A. Berk, University of California, Berkeley: E1a protein activation of transcription factor IIC.
A. Ephrussi, Massachusetts Institute of Technology, Cambridge: Footprints of the immunoglobulin enhancer in living cells and in nuclei.
R. Sen, Whitehead Institute for Biomedical Research, Cambridge, Massachusetts: DNA elements affecting immunoglobulin gene transcription in vitro.
P. Gruss, University of Heidelberg, Federal Republic of Germany: In vitro systems to study cell-specific enhancers.



T. Maniatis, E. Ziff, W. Schaffner, P. Chambon

SESSION 5 CELLULAR PROMOTERS II

K. Zinn, Harvard University, Cambridge, Massachusetts: Human β-interferon gene expression is regulated by an inducible enhancer element.
S. McKnight, Carnegie Institution of Washington, Baltimore, Maryland: Properties of the herpes virus Tk promoter.
M. Yaniv, Institut Pasteur, Paris: Identification of proteins that bind to enhancers and upstream activation sites.
N. Heintz, Rockefeller University, New York, New York: Human histone gene regulation.
R. Treisman, MRC Laboratory of Molecular Biology, Cambridge, England: Regulation of the human c-*fos* gene.
E. Ziff, New York University Medical School, New York, New York: Growth factor control of gene expression.

Origins of Female Genital Cancer: Virological and Epidemiological Aspects

April 14–April 17

ARRANGED BY

H. zur Hausen, German Cancer Research Center, Heidelberg, FRG, **R. Peto,** University of Oxford, England

SESSION 1 DESCRIPTIVE AND ANALYTIC EPIDEMIOLOGY OF CERVICAL CARCINOMA

Chairperson: L. A. Brinton, National Cancer Institute, Bethesda, Maryland

R. Peto, University of Oxford, England: Descriptive epidemiology: Geographic correlates and major trends.
I. I. Kessler, University of Maryland School of Medicine, Baltimore: Social and sexual correlates.
M. P. Vessey, University of Oxford, England: Hormonal factors, tobacco, and occupation.
M. Hakama, Finnish Cancer Registry, Helsinki, Finland: Efficacy of screening for cervical cancer.
L. A. Brinton, National Cancer Institute, Bethesda, Maryland: Current epidemiological studies: Emerging hypotheses.

SESSION 2 DYSPLASTIC AND PRENEOPLASTIC LESIONS

Chairperson: L. G. Koss, Montefiore Medical Center, Bronx, New York

E. Brughardt, Geburtshilflich-gynakologische Universitatsklinik, Graz, Austria: Classification and natural history of cervical lesions.
R. Reid, Sinai Hospital of Detroit, Michigan: Is there a morphological spectrum linking condylomas to cancer?
A. Meisels, Saint-Sacrement Hospital, Sainte-Foy, Quebec, Canada: Cytology in the assessment of natural history of cervical lesions.
W. W. Franke, German Cancer Research Center, Heidelberg, Federal Republic of Germany: Intermediate filaments.
G. Gross, University of Freiburg, Federal Republic of Germany: Bovenoid papillosis: A venereally transmitted disease as reservoir for HPV16.
K. Syrjanen, Finnish Cancer Society, Kuopio, Finland: Prospective follow-up in assessment of the biological behavior of cervical HPV-associated dysplastic lesions.
S. Franceschi, Mario Negri Institute for Pharmacological Research, Milan, Italy: Correlations of cervical neoplasia with sexual factors, including specific venereal diseases.

SESSION 3 EVIDENCE CONNECTING SPECIFIC VIRUSES TO GENITAL CANCER

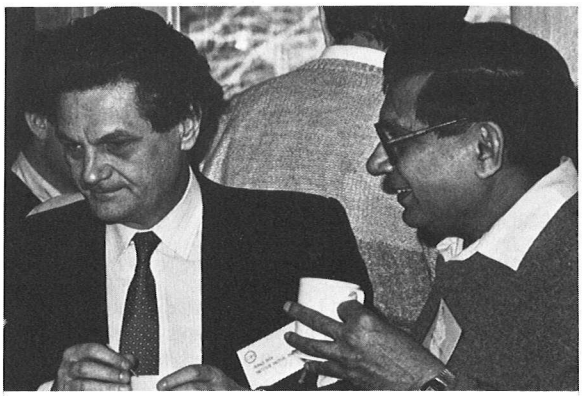
Chairman: W. E. Rawls, McMaster University, Hamilton, Ontario, Canada

W. E. Rawls, McMaster University, Hamilton, Ontario, Canada: Seroepidemiological evidence about HSV involvement.
J. K. McDougall, Fred Hutchinson Cancer Research Center, Seattle, Washington: The enigma of viral nucleic acids in cervical neoplasia.
J. R. Schlehofer, German Cancer Research Center, Heidelberg, Federal Republic of Germany: Interactions of herpes simplex virus infections with host cell DNA.
L. Aurelian, University of Maryland School of Medicine, Baltimore: General discussion.
G. Orth, Institut Pasteur, Paris, France: Plurality of human papilloma viruses, and their involvement in skin cancer.
L. Gissmann, German Cancer Research Center, Heidelberg, Federal Republic of Germany: HPV DNA in preneoplastic and neoplastic genital lesions.
D. J. McCance, Guy's Hospital Medical School, London Bridge, England; A. Lorincz, Bethesda Research Laboratories, Inc., Gaithersburg, Maryland: General discussion.
E.-I. Grussendorf-Conen, Technischen Hochschule, Aachen, Federal Republic of Germany: In situ hybridization with papilloma virus DNA in genital lesions.
R. S. Ostrow, University of Minnesota Medical School, Minneapolis: General discussion.

SESSION 4 MOLECULAR MECHANISMS OF HUMAN PAPILLOMA VIRUS INTERACTIONS WITH HOST CELLS

Chairperson: P. M. Howley, National Cancer Institute, Bethesda, Maryland

P. M. Howley, National Cancer Institute, Bethesda, Maryland: Molecular cloning of papilloma virus DNA.
M. Duerst, German Cancer Research Center, Heidelberg, Federal Republic of Germany: Integration and persistence of HPV DNA.
E. Schwarz, German Cancer Research Center, Heidelberg, Federal Republic of Germany: Expression of HPV DNA in cervical cancer biopsies and in tissue culture.
G. H. Sato, W. Alton Jones Cell Science Center, Inc., Lake Placid, New York: Immune response to specific cervical carcinoma antigens.
K. V. Shah, Johns Hopkins University, Baltimore, Maryland: Detection of papilloma virus antigen and DNA in cells and tissues.
T. Broker, University of Rochester, New York: Genetic organization and expression of human papilloma viruses.



G. Orth, K. Shah

SESSION 5 PAPILLOMAVIRUS ASSOCIATIONS AND EPIDEMIOLOGICAL PERSPECTIVE

Chairperson: J. Cairns, Harvard University School of Public Health, Boston, Massachusetts

Y. S. Fu, UCLA Center for the Health Sciences, Los Angeles, California: Stemline evolution in preneoplastic and neoplastic genital lesions.
N. B. Atkin, Mount Vernon Hospital, Northwood, Middlesex, England: Chromosome changes in preneoplastic and neoplastic genital lesions.
R. Doll, Imperial Cancer Research Fund, Oxford, England: Implications of epidemiological evidence for future progress.
J. Cairns, Harvard University School of Public Health, Boston, Massachusetts: How many important causes of cervical cancer might we expect?
H. zur Hausen, German Cancer Research Center, Heidelberg, Federal Republic of Germany: Review of what is presently established and what remains speculative in the role of viruses in human genital cancer: Prospects for progress.

Genetically Altered Viruses and the Environment

April 28–May 1

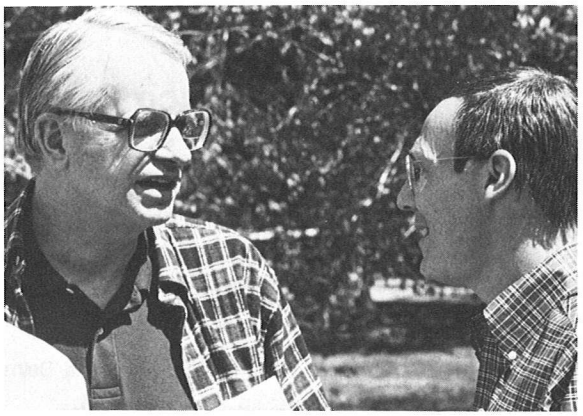
ARRANGED BY

D. Kamely, U.S. Environmental Protection Agency, Washington, D.C.
B. N. Fields, Harvard Medical School, Boston, Massachusetts
M. A. Martin, National Institute of Allergy and Infectious Diseases, Bethesda, Maryland

SESSION 1 LEGISLATIVE & REGULATORY FRAMEWORK

Chairperson: A. H. Teich, American Association for the Advancement of Science, Washington, D.C.

P. B. Hutt, Covington & Burling, Washington, D.C.: Existing regulatory authority to control the products of biotechnology.
J. G. Perpich, Meloy Laboratories, Inc., Springfield, Virginia: The biotechnology industry: Federal regulation of product development.
E. L. Anderson, Environmental Protection Agency, Washington, D.C.: Risk assessment/risk management of environmental agents.
S. Schatzow, Environmental Protection Agency, Washington, D.C.: The role of the Environmental Protection Agency.



R. Chanock, G. Khoury

SESSION 2 ENVIRONMENTAL VIROLOGY

Chairperson: R. L. Dixon, Environmental Protection Agency, Washington, D.C.

R. E. Shope, Yale University, New Haven, Connecticut: Viral spread between hosts.
V. Knight, Baylor College of Medicine, Houston, Texas: Airborne transmission of viral infections.
T. G. Metcalf, Baylor College of Medicine, Houston, Texas: Distribution of viruses in the water environment.
E. D. Kilbourne, Mt. Sinai School of Medicine, New York, New York: Epidemiology of viruses genetically altered by man: Predictive principles.
A. P. Kendal, Centers for Disease Control, Atlanta, Georgia: The effects of influenza virus genetic alteration on disease in man and animals.

SESSION 3 TROPISMS

Chairperson: M. A. Martin, National Institute of Allergy and Infectious Diseases, Bethesda, Maryland

R. L. Crowell, Hahnemann University, Philadelphia, Pennsylvania: Cellular receptors as determinants of viral tropism.
B. Fields, Harvard Medical School, Boston, Massachusetts: Effect of genetic manipulation on viral-receptor interactions.
G. Khoury, National Cancer Institute, Bethesda, Maryland: Enhancers and tissue specificity.
N. Hopkins, Massachusetts Institute of Technology, Cambridge, Massachusetts: Tropism and pathogenicity of retroviruses.
A. Helenius, Yale University School of Medicine, New Haven, Connecticut: Membrane proteins in viral tropism and pathogenicity.

SESSION 4 HOST INTERACTIONS

Chairperson: T. C. Merigan, Stanford University School of Medicine, California

T. C. Merigan, Stanford University School of Medicine, California: Variation in viral disease manifestation in humans related to host defenses.
R. Ahmed, University of California School of Medicine, Los Angeles: Viral persistence—Role of viral variants and T-cell responses.
R. C. Gallo, National Cancer Institute, Bethesda, Maryland: Human T-lymphotropic retroviruses.
B. Roizman, University of Chicago, Illinois: Genetic engineering of herpes simplex virus genomes—Virulence and latency.
R. M. Chanock, National Institutes of Health, Bethesda, Maryland: Human host responses to genetically altered viruses.

SESSION 5 VIRAL VECTORS

Chairperson: B. Fields, Harvard Medical School, Boston, Massachusetts

B. Moss, National Institute of Allergy and Infectious Diseases, Bethesda, Maryland: Vaccinia virus vectors.
R. C. Mulligan, Massachusetts Institute of Technology, Cambridge: Introduction of genes into cultured cells and whole animals using retroviral vectors.
P. M. Howley, National Cancer Institute, Bethesda, Maryland: Functions controlling papilloma virus gene expression.
J. Logan, Princeton University, New Jersey: The use of adenovirus recombinants to study the regulation of viral gene expression.
M. D. Summers, Texas A&M University, College Station, Texas: The polyhedrin gene and baculovirus expression vectors.

New Aspects of Tobacco Carcinogenesis

September 8–September 11

ARRANGED BY

D. Hoffmann, American Health Foundation, Valhalla, New York
C. C. Harris, National Cancer Institute, Bethesda, Maryland

SESSION 1 LABORATORY-EPIDEMIOLOGY STUDIES (A)

Chairperson: C. C. Harris, National Cancer Institute, Bethesda, Maryland

N. J. Haley, American Health Foundation, Valhalla, New York: Uptake of smoke components.
A. H. Conney, Hoffmann-La Roche Inc., Nutley, New Jersey: Studies on the urinary excretion of nitrosamines.

G. Becher, National Institute of Public Health, Oslo, Norway: Determination of exposure to PAH by analysis of urine samples.
H. Bartsch, International Agency for Research on Cancer, Lyon, France: Modifiers of endogenous carcinogen formation: Studies on in vivo nitrosation in tobacco users.
S. R. Tannenbaum, Massachusetts Institute of Technology, Cambridge: Detection of carcinogen-protein adducts.

SESSION 2 LABORATORY-EPIDEMIOLOGY STUDIES (B)

Chairperson: D. Hoffmann, American Health Foundation, Valhalla, New York

K. Randerath, Baylor College of Medicine, Houston, Texas: Detection of carcinogen-DNA adducts.
M. P. Rosin (for H. F. Stich), University of British Columbia, Vancouver, Canada: Micronucleus test—Application to tobacco uses.
P. Correa, Louisiana State University Medical Center, New Orleans: Validation of smoke exposure with the micronuclei test.
E. J. LaVoie, American Health Foundation, Valhalla, New York: Mutagens in the urine of cigarette smokers.
G. Scherer. Forschungsgesellschaft Rauchen und Gesundheit MBH, Hamburg, Federal Republic of Germany: Endogenous formation of *N*-nitrosoproline in smokers and nonsmokers.

SESSION 3 NEW ASPECTS OF TOBACCO CARCINOGENESIS

Chairperson: P. N. Magee, Temple University School of Medicine, Philadelphia, Pennsylvania

M. B. Wise, Oak Ridge National Laboratory, Tennessee: Chemical analysis of the major constituents in clove cigarette smoke.
C. R. Enzell, Swedish Tobacco Company, Stockholm: Isoprenoid flavor components of tobacco and their formation.
H. Tjalve, Swedish University of Agricultural Sciences, Uppsala: Perinatal metabolism and activation of tobacco carcinogens.
K. D. Brunnemann, American Health Foundation, Valhalla, New York: Laboratory studies on oral cancer and smokeless tobacco.
H. Heck, Chemical Industry Institute of Toxicology, Research Triangle Park, North Carolina: The formation of DNA-protein cross-links by aldehyde present in tobacco smoke.

SESSION 4 NEW ASSOCIATIONS OF TOBACCO USE AND CANCER RISK

Chairperson: W. Winkelstein, Jr., University of California, Berkeley

W. Winkelstein, Jr., University of California, Berkeley: Cigarette smoking and cancer of the uterine cervix.
P. Correa, Louisiana State University Medical Center, New Orleans: The passive smoking-cancer controversy.
D. M. Winn, National Cancer Institute, Bethesda, Maryland: Snuff dipping and cancer.
S. D. Stellman, American Cancer Society, New York, New York: Interactions of tobacco with occupational and dietary risk factors.

SESSION 5 BIOCHEMICAL, CELLULAR, AND MOLECULAR STUDIES ON HUMAN TISSUES AND CELLS

Chairperson: A. H. Conney, Hoffmann-La Roche Inc., Nutley, New Jersey

I. Parsa, Downstate Medical Center, Brooklyn, New York: Transformation of human cells by *N*-nitroso compounds.
S. S. Hecht, American Health Foundation, Valhalla, New York: Carcinogenic nitrosamines—Recent studies on metabolic activation of tobacco-specific nitrosamines—Prospects for dosimetry in humans.
H. N. Autrup, University of Copenhagen, Denmark: Carcinogenic PAH—Metabolism and DNA binding.
R. Grafstrom, Karolinska Institute, Stockholm, Sweden: Effects of tobacco-smoke-related aldehydes on DNA, DNA repair, and *N*-nitroso compound-induced mutagenesis.
C. C. Harris, National Cancer Institute: Role of oncogenes in human respiratory carcinogenesis.
A. E. Pegg, Pennsylvania State University: Factors influencing activity of O^6-alkylguanine-DNA alkyltransferase.
F. A. Beland, National Center for Toxicological Research: Aromatic amines and tobacco carcinogenesis.

The Genetics of Plant Cell/Cell Interactions

October 1–October 4

ARRANGED BY

R. L. Malmberg, University of Georgia, Athens

SESSION 1 SELF-INCOMPATIBILITY

M. L. Crouch, Indiana University, Bloomington: Introduction.
D. J. Ockendon, National Vegetable Research Station, Warwick, England: Genetics and physiology of self-incompatibility in *Brassica*.
H. G. Dickinson, University of Reading, England: The cytophysiological basis of the sporophytically controlled cell-incompatibility mechanism operating in *Brassica*.
S. Brown, Indiana University, Bloomington: Self-incompatibility in the evening primrose, *Oenothera organensis*.
D. Mulcahy, University of Massachusetts, Amherst: Pollen-style interaction.
J. Mascarenhas, National Science Foundation, Washington, D.C.: Genes expressed during pollen development.
M. Anderson, University of Melbourne, Australia: Molecular cloning cDNA for a stylar glycoprotein associated with expression of self-incompatibility in *Nicotiana alata*.
J. B. Nasrallah, Cornell University, Ithaca, New York: S-gene expression in pollen and stigma of *Brassica*.

SESSION 2 MATING TYPES

R. L. Malmberg, University of Georgia, Athens: Introduction.
P. Collin-Osdoby, Washington University, St. Louis, Missouri: *Chlamydomonas reinhardi* mating-type-specific agglutinins.
R. C. Ullrich, University of Vermont, Burlington: Mating type in the basidiomycete *Schizophyllum commune*.

M. Anderson, A.E. Clarke, R. Malmberg

SESSION 3 CELL INTERACTIONS AND DEVELOPMENT

I. Sussex, Yale University, New Haven, Connecticut: Graft chimeras and the analysis of positional differentiation in plants.
D. Walker, University of California, Los Angeles: The control of positional cell differentiation.

SESSION 4 HOST/PARASITE INTERACTIONS

A. H. Ellingboe, University of Wisconsin, Madison: Introduction to genetic patterns in host-parasite interactions.
A. P. Roelfs, University of Minnesota, St. Paul: The *Puccina graminis-Triticum* sp. pathogen host interaction.
N. Panopoulos, University of California, Berkeley: Clustering and conservation of genes controlling the interactions of *Pseudomonas syringae* pathovars with plants.
M. J. Daniels, John Innes Institute, Norwich, England: Molecular genetical analysis of the pathogenicity of *Xanthomonas campestris*.
W. R. Bushnell, University of Minnesota, St. Paul: The role of the haustorium-host interface in host-parasite recognition.
V. M. Morales, University of Wisconsin, Madison: Genetics of avirulence in *Pseudomonas solanacearum*.
D. Mills, Oregon State University, Corvallis: Cloning and characterization of pathogenicity determinants from phytopathogenic pseudomonads.
D. W. Gabriel, University of Florida, Gainesville: Specific avirulence genes from *Xanthomonas malvacearum*.
B. Staskawicz, University of California, Berkeley: Molecular genetics of race-specific avirulence genes in *Pseudomonas syringae* pv. *glycinea*.
A. Kerr, University of Adelaide, Australia: A possible method to clone a plant gene for disease resistance.
T. T. Egelhoff, Stanford University, California: *Rhizobium* modulation gene products and gene regulation.
M. P. Gordon, University of Washington, Seattle: Control of expression of foreign genes in plants.
O. C. Yoder, Cornell University, Ithaca, New York: Molecular technology for studying fungus/plant interactions.
N. T. Keen, University of California, Riverside: Pectic enzymes, a role in specificity?
M. Essenberg, Oklahoma State University, Stillwater: Sesquiterpenoid phytoalexins and response of cotton to *Xanthomonas campestris* pv. *malvacearum*.
R. Rohringer, Agriculture Canada Research Station, Winnipeg: Surface macromolecules in the intercellular space of stem rust-infected wheat leaves.

Congressional Workshop on 'New Reproductive Technologies'

October 9–October 11

ARRANGED BY

M. Shodell, Banbury Center, Cold Spring Harbor Laboratory, New York

SESSION 1

F. Naftolin, Yale University School of Medicine, New Haven, Connecticut: Overview of reproductive physiology and development.

A. DeCherney, Yale University School of Medicine, New Haven, Connecticut: In vitro fertilization.

SESSION 2

J. E. Buster, L. A. Country Harbor/UCLA Medical Center, Torrance, California: Embryo transfer.

C. T. Caskey, Baylor College of Medicine, Houston, Texas: Antenatal monitoring.

SESSION 3

G. D. Hodgen, Eastern Virginia Medical School, Norfolk: Research approaches.

K. J. Ryan, Brigham and Women's Hospital, Boston, Massachusetts: Research goals.

Translational Control

November 3–November 6

ARRANGED BY

M. B. Mathews, Cold Spring Harbor Laboratory, New York

SESSION 1 INITIATION FACTORS

Chairperson: W. C. Merrick, Case Western Reserve University, Cleveland, Ohio

W. C. Merrick, Case Western Reserve University, Cleveland, Ohio: Binding of initiation factors to mRNA.

M. J. Clemens, St. George's Hospital Medical School, London, England: The role of phosphorylation of eIF-2α in translational regulation in nonerythroid cells.

R. L. Matts, Massachusetts Institute of Technology, Cambridge, Massachusetts: The phosphorylation of eIF-2α and the role of the 60S subunit in translational control.

R. Kaempfer, Hebrew University-Hadassah Medical School, Jerusalem: Energy metabolism and eIF-2 activity.

R. Panniers, University of Rochester Cancer Center, New York: Regulation of translation through modulation of energy charge, intracellular calcium level, eIF-2 phosphorylation, and eIF-4F activity.

J. W. B. Hershey, University of California, Davis: The role of initiation factor covalent modifications in translational control—Variable phosphorylation of eIF-2, eIF-4B, and eIF-4F.

SESSION 2 METABOLIC EFFECTS

Chairperson: J. W. B. Hershey, University of California, Davis

R. J. Jackson, University of Cambridge, England: Heat shock and hypertonic shock of L cells—Properties of the cell-free systems, and rescue by reticulocyte lysate components.

C. Baglioni, State University of New York, Albany: Heat-shock proteins and interferon.

S. Lindquist, University of Chicago, Illinois: Translational control in the heat-shock response.

A. Colman, University of Warwick, Coventry, England: Translational control of heat-shock expression in *Xenopus* oocytes—Factors influencing the translation of synthetic mRNAs in *Xenopus* oocytes.

J. D. Richter, Worcester Foundation for Experimental Biology, Shrewsbury, Massachusetts: RNA binding proteins in *Xenopus* oocytes.

R. E. Thach, Washington University, St. Louis, Missouri: Effect of secondary structure on the translation of eukaryotic mRNA and its unwinding by initiation factors.

SESSION 3 RNA EFFECTS

Chairperson: A. J. Shatkin, Roche Institute of Molecular Biology, Nutley, New Jersey

M. Kozak, University of Pittsburgh, Pennsylvania: Selection of translational start sites in eukaryotic mRNAs.

F. Sherman, University of Rochester School of Medicine and Dentistry, New York: Rules of translation in yeast—Studies with mutant forms of the *CYC1* gene.

H. DeBoer, Genentech, Inc., South San Francisco, California: Manipulating the ribosome and its mRNA binding site in *E. coli*—Redirecting ribosomes to a single mRNA species.

P. Green, Rockefeller University, New York, New York: Use of artificial micRNA for regulating a specific gene.

S. Sarkar, Boston Biomedical Research Institute, Massachusetts: A novel cytoplasmic translation inhibitory RNA of chick embryonic muscle—Possible role in myogenesis as antimessenger RNA.

P. Walter, University of California, San Francisco: Elongation control by signal recognition particle.

SESSION 4 VIRAL SYSTEMS

Chairperson: M. B. Mathews, Cold Spring Harbor Laboratory, New York

J. Siekierka, Merck, Sharp & Dohme Research Laboratories, Rahway, New Jersey: Translational control by adenovirus—VA RNA_I prevents activation of host double-stranded RNA activated protein kinase during viral infection.

R. J. Schneider, New York University Medical Center, New York: Function of adenovirus VA RNAs.

R. M. Krug, Memorial Sloan-Kettering Cancer Center, New York, New York: Translational control by influenza virus.

E. Ehrenfeld, University of Utah School of Medicine, Salt Lake City: Control of protein synthesis in poliovirus-infected cells.

N. Sonenberg, Whitehead Institute, Cambridge, Massachusetts: Involvement of eukaryotic cap binding protein complex in translational control in uninfected cells and cells infected with poliovirus.

J. M. Lucas-Lenard, University of Connecticut, Storrs: Control of protein synthesis in virus-infected cells.

SESSION 5 COMPLEX AND DEVELOPMENTAL SYSTEMS

Chairperson: T. Hunt, University of Cambridge, England

T. Hunt, University of Cambridge, England: Control of protein synthesis at fertilization of marine invertebrate eggs and oocytes.

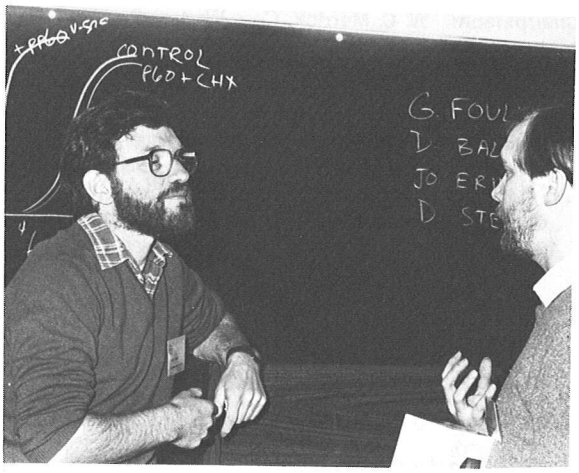
M. Nomura, University of California, Irvine: Translational control of ribosomal protein synthesis in *Escherichia coli*.

A. G. Hinnebusch, National Institute of Child Health and Human Development, Bethesda, Maryland: Translational control of the positive regulator of amino acid biosynthetic genes in yeast.

J. L. Maller, University of Colorado School of Medicine, Denver: Regulation of phosphorylation of ribosomal protein S6.

D. F. Klessig, Rutgers University, Piscataway, New Jersey: Translational regulation of light-induced ribulose bisphosphate carboxylase gene expression in amaranth.

D. L. Kirk, Washington University, St. Louis, Missouri: Translational regulation of protein synthesis and the onset of cytodifferentiation in *Volvox*.



M. Mathews, R. Matts

Journalists' Workshop on Research and Clinical Perspectives in the Central Nervous System

December 5–December 7

ARRANGED BY

M. Shodell, Banbury Center, Cold Spring Harbor Laboratory, New York

SESSION 1

I. Black, Cornell University Medical College, New York, New York: An introduction to the nervous system and its diseases.

SESSION 2

L. Olson, Karolinska Institute, Stockholm, Sweden: Transplantation of brain tissue.

A. J. Aguayo, Montreal General Hospital, Canada: The regenerative powers of the nervous system.

SESSION 3

M. Mishkin, National Institutes of Health, Bethesda, Maryland: Experimental approaches to the biological bases of thought and memory.

Roundtable Discussion: Clinical pressures and research perspectives in brain function.

Computer Graphics and Molecular Modelling

December 10–December 13

ARRANGED BY

M. Zoller, Cold Spring Harbor Laboratory, New York
R. Fletterick, University of California, San Francisco, School of Medicine

SESSION 1

R. Fletterick, University of California, San Francisco, School of Medicine: Opening remarks.

J. Greer, Abbott Laboratories, Abbott Park, Illinois: Comparative modeling of blood complement proteins.

C. Chothia, MRC Laboratory of Molecular Biology, Cambridge, England: The use of sequence homologies to predict protein structures.

B. W. Erickson, Rockefeller University, New York, New York: Betabellin—An engineered protein.

J. E. Anderson, Harvard University, Cambridge, Massachusetts: Fitting 434 repressor-operator complex with FRODO.

SESSION 2

R. Langridge, University of California, San Francisco: The future of computer graphics.

T. Ferrin, University of California, San Francisco: Hardware and software status report from the UCSF Computer Graphics Laboratory.

R. E. Hubbard, University of York, England: Hydra—Current and future development.

M. E. Pique, University of North Carolina, Chapel Hill: Technical trends in molecular graphics.

SESSION 3

C.-I. Branden, University of Uppsala Biomedical Center, Sweden: Structural principles of active sites in protein domains.

D. Eisenberg, University of California, Los Angeles: Hydrophobic moments and solvation energy in protein folding.

P. Argos, European Molecular Biology Laboratory, Heidelberg, Federal Republic of Germany: Searching for weak sequence homologies and testing for their significance.

W. F. DeGrado, E. I. du Pont de Nemours & Company, Wilmington, Delaware: The molecular basis for the fusogenic activity of influenza hemagglutinin.

SESSION 4

D. Tronrud, University of Oregon, Eugene: Computer graphics and its application to the structure and function of biological macromolecules.

R. J. Feldmann, National Institutes of Health: Thoughts on the use of parallel computers in molecular graphics.

H. Dayringer, Monsanto Company, St. Louis, Missouri: Proteus—Graphics software for proteins.

W. Taylor, Birkbeck College, London, England: Prediction of protein structure from amino acid sequence using computer graphics and data bases.

T. A. Jones, University of Uppsala Biomedical Center, Sweden: On making use of known protein structures in macromolecular modeling.

M. Zoller, C.-I. Branden, J. Anderson

SESSION 5

P. S. Stern, Weizmann Institute of Science, Rehovot, Israel: Normal-mode dynamics—Energy calculations, interactive graphics, and movies.

M. Karplus, Harvard University, Cambridge, Massachusetts: Dynamics of macromolecules.

A. Hagler, Agouron Institute, La Jolla, California: Conformationally based design of gonadotropin-releasing hormone and antagonists.

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Gene Therapy/Fact and Fiction in Biology's New Approaches to Disease by Theodore Friedmann, M.D.

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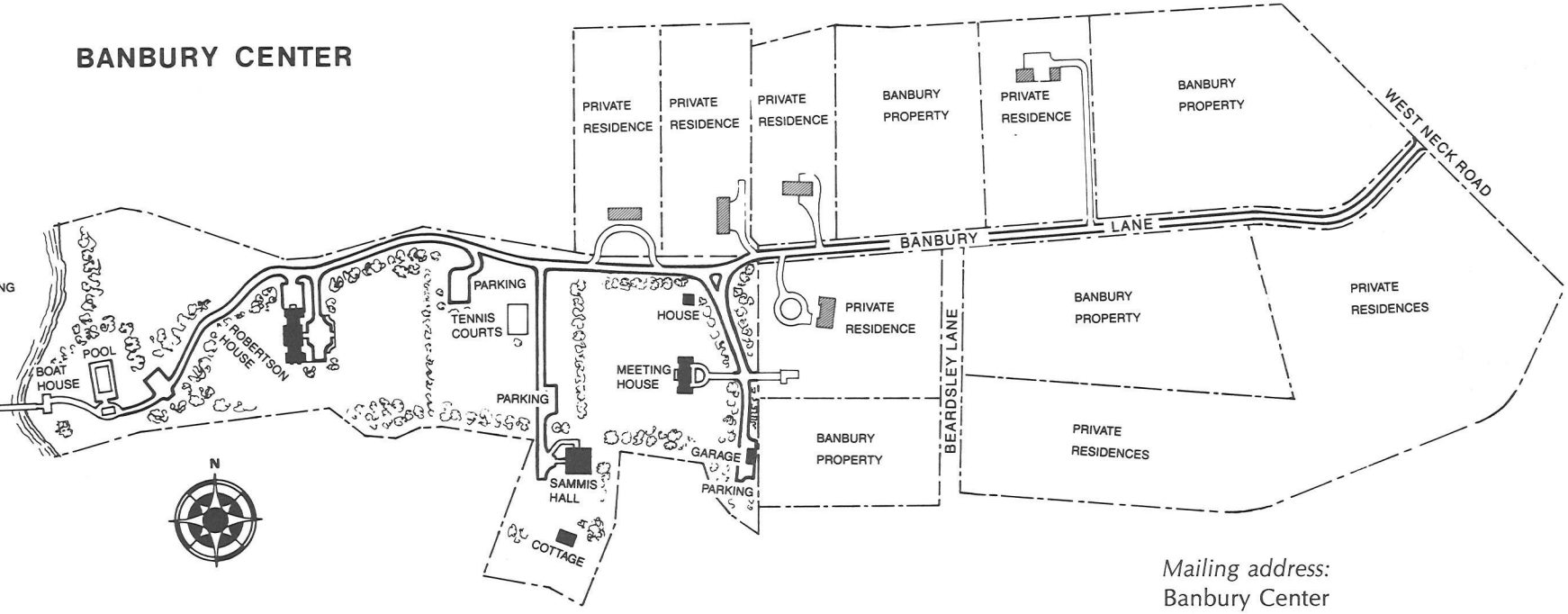

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