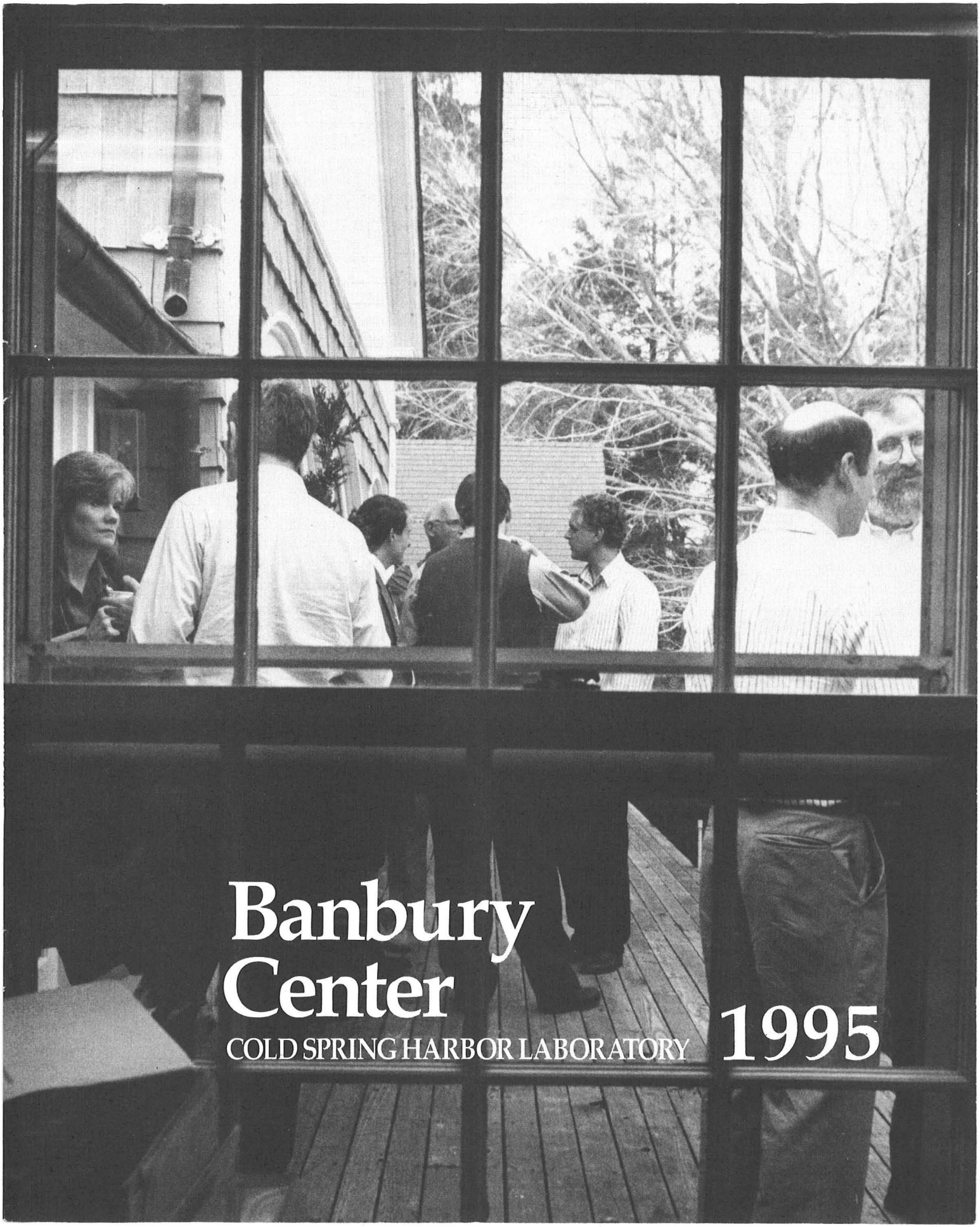


Banbury Center

COLD SPRING HARBOR LABORATORY 1995

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 are in areas of environmental and occupational risk assessment, and molecular biology and genetics, especially as they bear on health, social, and policy issues.

Banbury conferences, kept small to maximize spontaneous uninhibited exchanges between participants, achieve wider dissemination through publications by Cold Spring Harbor Laboratory Press. What was once the estate's original seven-car garage is now administrative 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 the 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.

Mailing address: Banbury Center, P.O. Box 534, Cold Spring Harbor, New York 11724

BANBURY CENTER DIRECTOR'S REPORT

During the 18 years of the Banbury Center's existence, there has been an extraordinary increase in the ways scientists communicate with each other. The number of journals continues to rise without end in sight; there are meetings on every topic; and the Internet and World Wide Web are now providing an instant, global means of exchanging information. Paradoxically, Banbury Center's role—promoting research by providing a quiet haven where small groups of scientists can meet—has become even more important in this period of overwhelming information dissemination.

Meetings and Participants

The year 1995 must have been a record year for the use of Banbury Center. We held no fewer than 19 science-related meetings with a proportionate number of participants—almost 600—who came from all over the world. Almost 100 came from outside the United States, principally from the United Kingdom (42), Germany (16), and France (12). In addition, the Center was used on 11 other occasions and for 5 neurobiology courses during the summer.

Human Genetics

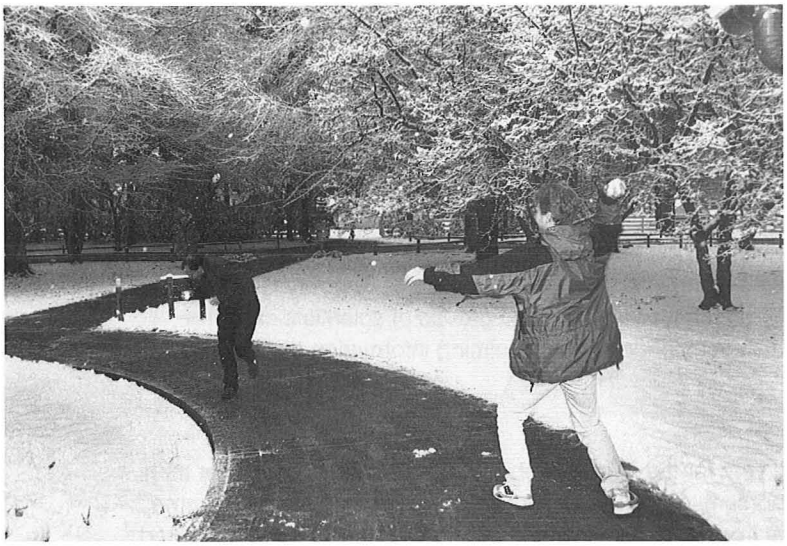
In 1989, Banbury Center was the site of a discussion meeting that was important in the early development of the Human Genome Project. It was exciting that in 1995, the Human Genome Organization (HUGO) came to Banbury, just prior to the main Genome Mapping and Sequencing meeting, for the **Human Gene Map Workshop II.** The workshop presented an up-to-the-minute snapshot of progress in genome centers in the United States and in Europe.

Scientists hunting human disease genes are facing two major hurdles, each of which was the topic of a meeting this year. Localizing genes by means of genetic linkage is now relatively straightforward (although still difficult in practice) for disorders believed to arise from mutations in one gene. What is not clear, however, is the most effective strategy to be followed when dealing with complex disorders in which mutations in several genes contribute to the phenotype. **Looking to the Next Generation of Genetic Analysis** (funded by the Charles A. Dana Foundation) attempted to gaze into the crystal ball to see how technical developments in genetics analysis (mathematical modeling) and genomic technologies (analyzing DNA) are going to affect the ways genes are localized.

Finding Genes: Experimental and Computational Methods was concerned also with genetic analysis strategies, in this case with how to find a gene once genetic linkage methods have localized it to a region of a chromosome. These regions are typically on the order of 2 million base pairs in length and finding a gene within such a region is not trivial. The meeting reviewed experimental strategies (selecting cDNAs, trapping) and computational methods (identifying genes in DNA sequence). It is likely that computational methods will become more important as it becomes easier to sequence large amounts of DNA, and this in turn will lead to more accurate recognition of sequence motifs that characterize genes.

Cancer

Two meetings dealt specifically with cancer. **DNA Repair and Genetic Instability in Cancer** reviewed the exciting findings that human cancers are caused in part by mutations in the enzymes and other proteins involved in the repair of DNA damage and by alterations in sequences, such as trinucleotide repeats, that are unstable. It was a special pleasure to have as participants two indi-



N. Freimer, L. Kruglyak (Genetic Analysis)

viduals who had significant roles in the life of Cold Spring Harbor Laboratory—John Cairns and Joe Sambrook.

Banbury Center held an important meeting on neurofibromatosis in 1990, the NF1 gene having just been cloned and its relationship to the ras pathway recognized. Now, 5 years later, in **Neurofibromatosis: How to Develop Therapies**, we examined what progress has been made in elucidating the causes of neurofibromatosis with a special emphasis on what these new data mean for developing treatments. The focus of the meeting was to determine what needs to be done to translate research findings into therapies. This requires not only continued research, but also, perhaps, new funding strategies to encourage interdisciplinary collaborations. Bruce Stillman played a critical part in the last session, forcing participants to face up to this task.

Protein Degradation

At one time, it was thought that protein degradation occurred by some nonspecific breakdown process, but about 10 years ago, it was realized that careful regulation of protein degradation was just as important as regulation of protein synthesis. In 1988, Banbury Center held a meeting on the ubiquitin system and this year we held a follow-up: **The Targets and Regulation of the Ubiquitin System.** The most notable change has been the realization of ubiquitin's role in key areas of cell function. For example, a session was devoted to the part played by ubiquitin in control of cell cycle control proteins like the cyclins.

Infectious Diseases

Two very different topics come under this heading. In March, we held a meeting in our continuing series on Lyme disease, **Lyme Disease: Molecular and Immunologic Aspects of Detection and Vaccine Development.** Each meeting is a marker of the increasing knowledge that we have of the genetics and immunology of the *Burgdorferi* spirochaete, knowledge that we hope will be used to develop vaccines. This meeting still covered a broad range of topics, but the time has now come to look in detail at just one or two topics.

The subject of our second meeting is still enigmatic. Prions, infectious protein particles devoid of nucleic acid, are believed to be the causative agents of diseases such as Kuru in human beings and scrapie in sheep, and in the outbreak of bovine spongiform encephalopathy in the United

Kingdom. The latter has raised public health concerns about this type of infectious agent on a new and dramatic scale. The **Molecular Biology of Prions and Pathology of Prion Diseases** meeting was held at a most exciting time for the field when data from transgenic models are becoming available and intensive investigations are under way of prion-like proteins in yeast.

Plant Molecular Biology

Banbury Center has held several meetings on plant molecular biology but not enough to reflect the importance and intrinsic interest of plant science. The potential benefits of genetic manipulations of crop plants is enormous, and **Molecular Biology of Disease Resistance Genes in Plants** was an example of that potential. The topic was suggested to me by Richard Michelmore when we met at the International Genetics Conference in Birmingham, United Kingdom, in 1993. Fortuitously, the delay in holding the meeting worked to our advantage as the first of these resistance genes was cloned in the period leading up to the meeting. Beginning in 1996, we shall try to rectify our comparative neglect of plant science. A small group of key companies has contributed to the Plant Corporate Associates Program that will fund at least one meeting each year on plant science.

Meetings in Neurobiology

Within the broad field of "neurobiology," we held two meetings that could hardly have been further apart and yet one, **CREB and Memory**, points the way in which basic research is beginning to tackle topics like that of the second meeting, **Genetics of Human Behavior.** The premise of the latter meeting was that we need to understand the scientific basis of various claims for the role of genetics in influencing, or even determining, human behavior, in order to assess those claims. We brought together behavoral scientists, psychologists, geneticists, and sociologists, both sceptics and supporters of this research.

Another approach to studying the functioning of our brains uses the tools of recombinant DNA to probe molecular systems that may underlie such functions as learning and memory. This approach is developing rapidly. In particular, the CREB transcription appears to have a key role in the development of memory, and this meeting reviewed the data on CREB and learning in a variety of organisms.

Cocktails during CREB and CREM meeting.

Visualizing the Working Body

In vivo imaging is a technique that is becoming increasingly important for scientists wishing to examine the working human brain. It is now possible to see how different areas of the brain change their metabolism as the subject performs some task. However, as our meeting **Advances in Imaging and Their Application** showed, this is only a small part of the imaging picture. These techniques are also used extensively in cancer and cardiovascular studies. Most of the meeting was taken up with discussions of future developments that must take place if imaging is to be used even more widely. In particular, increased resolution and decreased response time are going to be essential if living processes are to be analyzed in real time.

Educational Activities

Breast cancer is a major concern throughout the nation and especially on Long Island, which has one of the nation's higher rates. The 1 in 9 Breast Cancer Group provides support and promotes research on breast cancer, some of which is done at the Laboratory. Because of the intense interest aroused by the cloning and characterization of the *BRCA1* and *BRCA2* genes, Banbury Center and the DNA Learning Center collaborated in holding a 1-day **Workshop on Genetics** for members of the Group.Twenty-three members of 1 in 9 attended, and in addition to learning some of the fundamentals of human genetics, they fingerprinted their own DNA using PCR and heard of the latest research from Elizabeth Claus from Yale.

We could not have held the workshop for 1 in 9 members without the experience we have gained with our series of **Human Molecular Genetics** workshops, supported by the Ethical, Legal, and Social Issues Program of the Department of Energy's Human Genome Project. These workshops have brought information about genetics to people from a remarkable range of backgrounds. Participants have included print and broadcast journalists, Congressional staff, bioethicists, patient groups, lawyers, philosophers, sociologists, high school teachers, and physicians from primary care facilities. Despite the success of the workshops, this, the sixth in the series, was the last to be funded from this grant. For the second time, we concentrated on physicians who come from hospitals and institutions that do not have ready access to the latest advances in genetics, and we went nationwide, with participants coming from as far afield as Louisiana and North Dakota. This is an opportune time to thank all our invited speakers who made these workshops especially memorable.

Science and Policy Meetings

The first Banbury Center meetings on environmental hazards examined the scientific basis of issues that had important policy implications and such hybrid meetings have continued to the present. Four such meetings were held in 1995. Three of these dealt specifically with how the fruits of modern biomedical research are going to be implemented in a health care system that is undergoing a radical restructuring.

The first of these was **HIV and the Pathogenesis of AIDS.** This was a remarkable meeting that set out to analyze the current status of eight areas of research, to propose the key questions that have to be answered in each area, and to suggest the specific experiments that need to be done to provide the answers. The meeting was structured so that only one third of the time was given over to formal presentations, of which there were only two for each topic. The participants included key scientists from Europe as well as North America, but in the end, it was not clear how to implement the radical restructuring and rethinking that the field requires.

There is increasing public interest in the uses of modern human genetics in medicine. In part, this increased awareness is due to the realization that genetic information may be used by HMOs and insurance companies in making decisions about care. The Robert Wood Johnson Foundation, the leading foundation in heath care area, funded two meetings at Banbury Center to examine these issues. The first meeting, held in 1994, concluded that many potential problems could be

avoided or alleviated if the quality of genetics education was improved in medical and nursing schools. The second meeting, **Incorporating Genetics into Medicine and Nursing Education and Practice** held in April, 1995, examined this issue in more detail. We reviewed the current state of genetics education and how it should be improved for both physicians and nurses. It was an outstanding meeting, which included representatives of the main professional organizations which set the curricula in medical and nursing schools.

One genetic topic that has received much public attention is breast cancer. With the cloning and sequencing of two genes (*BRCA1* and *BRCA2*) involved in familial breast cancer, there is a strong movement to applying these findings in diagnostic tests. However, this is highly controversial because of concerns that results are difficult to interpret and treatments are few and ineffective. The **Molecular Diagnosis of Inherited Breast Cancer** meeting held in October covered topics ranging from the mutations in these genes to, once again, how to use this information in health care. It was particularly noteworthy for the strong representation from the United Kingdom where I like to think these issues are dealt with in a particularly rational manner.

Our final meeting in this science-policy group was supported by the Albert B. Sabin Vaccine Foundation. In 1994, Banbury Center held a meeting that reviewed the current status of vaccine production, examining all those factors that determine how a vaccine is developed, produced, and distributed. The 1995 meeting, **Vaccine Development and Delivery in the Era of Managed Care**, faced up to the fact that the rapidly changing nature of health care provision in the United States is having a profound effect on the ways in which long-term, preventative strategies like vaccination are going to be implemented and paid for.

The Executives' Conference

J.P. Morgan honored us by sponsoring **Infectious Diseases: Ancient Plagues, New Epidemics**, the tenth in this series of meetings. It was a particularly timely meeting as evident from the successes of *The Hot Zone* and *The Coming Plague,* and *Outbreak* starring Dustin Hoffman! Our meeting was also of star quality, covering a wide range of topics, from Richard Horton's historical perspective to Don Wiley's X-ray crystallography via Ham Smith's genome sequencing. Pursuing the film theme, Don Ganem was able to weave a scene from *Beverly Hills Cop* into his review of herpesviruses!

Other Meetings

Once again the local community made use of the Center. Of the two Lloyd Harbor Seminars, the Laboratory contributed one of these when Jerry Latter (Director, Computer Center), John Inglis (Executive Director, Cold Spring Harbor Laboratory Press), and I did a presentation on the Internet, including a "live" demonstration of net surfing. In addition, the Lloyd Harbor Conservation Board, Heckscher Museum, Huntington Hospital, the Cold Spring Harbor School District, and West Side School used the facility.

Funding

Support for our 1995 program was strong and drawn from many quarters, demonstrating the wide recognition of Banbury Center as the preeminent small meeting place for molecular biology and genetics. The Cold Spring Harbor Laboratory Corporate Sponsor Program again provided the funding for six Banbury Center meetings (for a full listing of the members of the Program, see the Financial Support Section). Suffice to write here that without the generosity of these companies, the Banbury Center program would be very much the poorer and the scientific world deprived of a unique resource.

Some of these same companies (Glaxo, Pfizer, SmithKline Beecham, Zeneca), together with Merck and Sequana, made contributions to the HUGO **Human Gene Map Workshop II.** This meeting was also supported by funds from the Department of Energy and the National Institutes of Health, and from Europe, the European Commission, the Wellcome Trust, and the Medical Research Council.

A similar combination of federal and private enterprise support funded the meeting on **Lyme Disease.** The former included the Centers for Disease Control, Food and Drug Administration, Med Immune, and the National Institute of Allergy and Infectious Disease, whereas the latter included Connaught Laboratories, Fort Dodge Laboratories, and SmithKline Beecham Clinical Laboratories.

The meeting on **HIV and the Pathogenesis of AIDS** was supported by contributions from Mothers' Voices, the Office of AIDS Research (NIH), the Albert B. Sabin Foundation, Pediatric AIDS Foundation, and Viaticus, Inc. These groups not only were generous in their support, but also committed the funds at very short notice.

The Department of Energy also funded the last in the series of **Genetics Workshops** for non-scientists. This was a very successful venture that provided a grounding in genetics to a very diverse range of individuals.

Foundations had a prominent role in the year. The Robert Wood Johnson Foundation, The William Stamps Farish Fund, the Charles A. Dana Foundation, and the Albert B. Sabin Foundation each funded a meeting in its entirety. The very successful meeting on **Neurofibromatosis** was supported by the National Neurofibromatosis Foundation and the Wilson Foundation, together with private contributions.

J.P. Morgan generously funded the Executives' Conference. Two other meetings were funded by individual companies. **DNA Repair and Genetic Instability** was supported by OncorMed, Inc., and **Advances in Imaging and Their Applications** was funded by the Finisterre Fund. These meetings are, in all senses, Banbury Center meetings, with the same rigorous standards of participants' selection and program design applied to them. It may be that we will increase the numbers of such meetings as a means of being able to hold first-class meetings on a greater variety of topics.

Acknowledgments

This sustained level of activities could not be maintained without the dedicated help of many people. All the organizers worked hard, sometimes at very short notice, to make sure their meetings were a success; Bea Toliver, Ellie Sidorenko, and Katya Davey kept the Center running smoothly; Chris McEvoy and Bill Bishop kept the grounds looking beautiful; and Jim Hope (Catering) and Art Brings (Buildings & Grounds) and their staff coped with a very tight schedule.

Looking Forward to 1996

We have some very exciting meetings planned for 1996, including ones on DNA base "flipping," plant reproductive biology, and triplet repeat and polyglutamine tract diseases. Although the framework of the 1996 program is in place, we continue to add meetings. One of the great advantages that Banbury Center has over other meetings venues is its flexibility. If there are rapid developments in a subject that require critical analysis, we can organize a discussion meeting at very short notice. This can be done only because of the support provided by the scientists of the Laboratory, and I would like to acknowledge that support, on behalf of myself and all the scientists who attend our meetings.

Jan Witkowski

MEETINGS

1-in-9 Breast Cancer Group: A Genetics Workshop

January 28

FUNDED BY

Cold Spring Harbor Laboratory

ARRANGED BY

M. Bloom, DNA Learning Center, Cold Spring Harbor Laboratory
D. Micklos, DNA Learning Center, Cold Spring Harbor Laboratory
J.A. Witkowski, Banbury Center, Cold Spring Harbor Laboratory

SESSION 1

M. Bloom and D. Micklos, DNA Learning Center, and J.A. Witkowski, Banbury Center, Cold Spring Harbor Laboratory: Laboratory: Fingerprinting your own DNA.

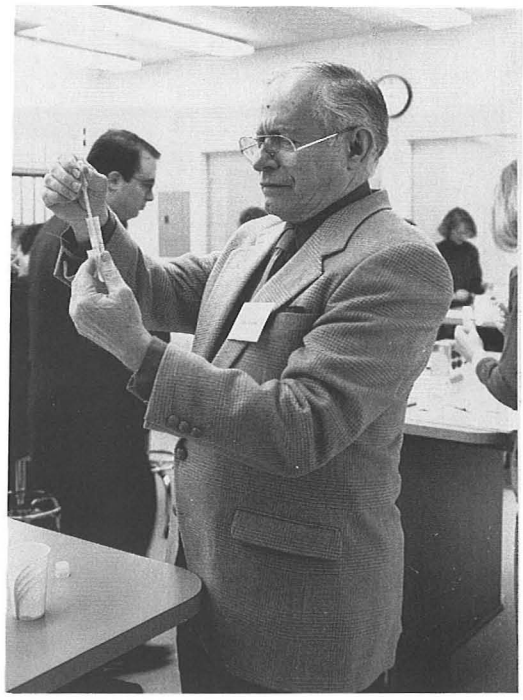
SESSION 2

D. Micklos, DNA Learning Center, Cold Spring Harbor Laboratory: Mendelian genetics and why you aren't your parents.
M. Bloom, DNA Learning Center, Cold Spring Harbor Laboratory: What is a gene?
J.A. Witkowski, Banbury Center, Cold Spring Harbor Laboratory: Diagnosis using DNA.

SESSION 3

E.B. Claus, Yale University, New Haven, Connecticut: Breast cancer genetics.
M. Bloom and D. Micklos, DNA Learning Center, and J.A. Witkowski, Banbury Center, Cold Spring Harbor Laboratory: Laboratory: Results of DNA-fingerprinting experiment.

B. Hummel-Rossi, L. Levine, R. Schaefer



I. Kritchek

DNA Repair and Genetic Instability in Cancer

January 29-January 31

FUNDED BY

OncorMed, Inc.

ARRANGED BY

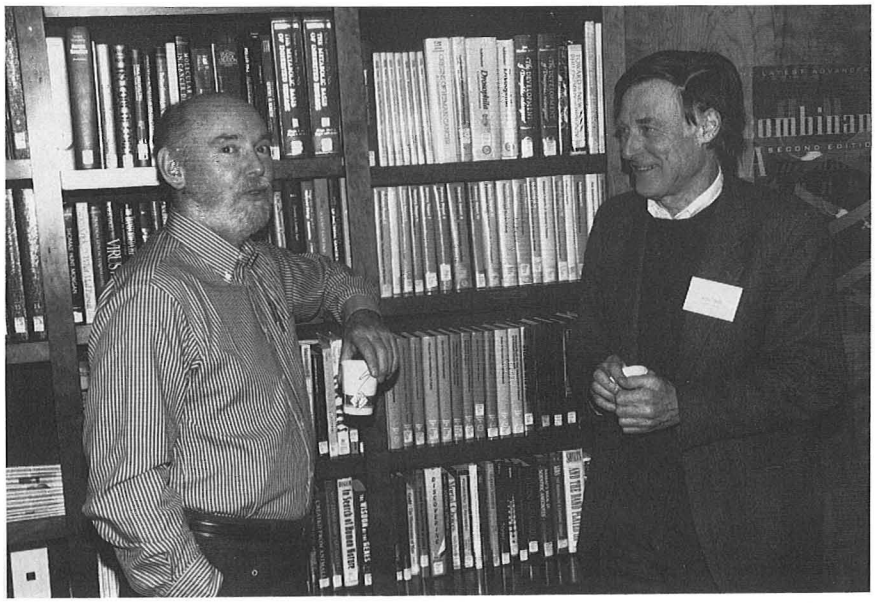
D. Dolginow, OncorMed, Inc., Gaithersburg, Maryland
D. Sidransky, Johns Hopkins University, Baltimore, Maryland

SESSION 1
Chairperson: D. Sidransky, Johns Hopkins University, Baltimore, Maryland

J. Cairns, Radcliffe Infirmary, Oxford, United Kingdom:
Mutation, promotion, and the kinetics of carcinogenesis.

SESSION 2
Chairperson: P. Modrich, Howard Hughes Medical Institute, Duke University Medical Center, Durham, North Carolina

B. Vogelstein, The Johns Hopkins Oncology Center, Baltimore, Maryland: DNA-repair and genetic instability in colorectal cancer.
L.A. Loeb, University of Washington, Seattle: Multiple mutations in cancer.
S.N. Thibodeau, Mayo Clinic, Rochester, Minnesota: Clinical significance of microsatellite instability.
T.D. Petes, University of North Carolina, Chapel Hill: Genetic control of genetic instability in yeast.
P. Karran, Imperial Cancer Research Fund, Herts, United Kingdom: Mismatch repair, drug resistance, and colon cancer.
A.M. Carr, Sussex University, Falmer, United Kingdom: Cell cycle checkpoints in yeast and response to DNA damage.
T.A. Kunkel, National Institute of Environmental Health Sciences, Research Triangle Park, North Carolina: Studies of DNA replication fidelity and mismatch repair in human cell extracts.



J.E. Cleaver, J. Cairns

SESSION 3
Chairperson: J.E. Cleaver, University of California, San Francisco

P. Modrich, Howard Hughes Medical Institute, Duke University Medical Center, Durham, North Carolina: Mismatch repair deficiency and genetic destabilization in tumor cells.
G. Bedi, Johns Hopkins University School of Medicine, Baltimore, Maryland: Microsatellite instability in AIDS-related neoplasms.
D. Monckton, Baylor College of Medicine, Houston, Texas: Triplet repeat instability in myotonic dystrophy.
D. Toczyski, University of Washington, Seattle: Adaptation to the RAD9-dependent checkpoint in the presence of an irreparable dsDNA break.
B.A. Donahue, Stanford University, California: Role of transcription in nucleotide excision repair.
P. Peltomaki, University of Helsinki, Finland: Microsatellite instability in colorectal adenomas and carcinomas.
J.H. Miller, University of California, Los Angeles: Mechanisms of base-change damage in mutagenesis.

SESSION 4
Chairperson: B. Vogelstein, The Johns Hopkins Oncology Center, Baltimore, Maryland

J.E. Cleaver, University of California, San Francisco: DNA repair and gene expression studies involving the XPA photoproduct-specific DNA-binding protein.
N. Arnheim, University of Southern California, Los Angeles: Germ-line trinucleotide repeat instability.
P.L. Foster, Boston University School of Medicine, Massachusetts: Mechanisms of adaptive mutation in *Escherichia coli.*
D. Sidransky, Johns Hopkins University, Baltimore, Maryland: Tumor instability in cancer detection.
J. Jiricny, IRBM P. Angeletti, Pomezia, Italy: G-T mismatch binding activities present in HELA cell extracts.
R.M. Liskay, Oregon Health Sciences University, Portland, Oregon: Mutation and cancer avoidance.
L.A. Hedrick, Johns Hopkins University, Baltimore, Maryland: Mutational analysis of repair genes in endometrial carcinoma.

SESSION 5
Chairperson: J. Cairns, Radcliffe Infirmary, Oxford, United Kingdom

L.H. Thompson, Lawrence Livermore National Laboratory, California: Characterization of human repair genes in terms of genetic instability.
N.G.J. Jaspers, Erasmus University, Rotterdam, The Netherlands: Nucleotide excision-repair deficiency in man.
E. Alani, Dana-Farber Cancer Institute, Boston, Massachusetts: Yeast and human mutators genes.

The Targets and Regulation of the Ubiquitin System

February 12–February 15

FUNDED BY

Cold Spring Harbor Laboratory Corporate Sponsor Program

ARRANGED BY

P. Howley, Harvard Medical School, Boston, Massachusetts
A. Varshavsky, California Institute of Technology, Pasadena

SESSION 1: UBCs and Cell Cycle Control
Chairperson: P. Howley, Harvard Medical School, Boston, Massachusetts

S. Jentsch, Heidelberg University, Germany: A ubiquitin-conjugating enzyme involved in the degradation of both S- and M-phase cyclins.
D. Finley, Harvard Medical School, Boston, Massachusetts: Induction of ubiquitination in erythroid differentiation.
F. Cross, The Rockefeller University, New York, New York: Degradation of the CDC28 inhibitor FAR1.
A. Murray, University of California, San Francisco: The spindle assembly checkpoint and cyclin proteolysis.
A. Hershko, Technion-Israel Institute of Technology, Haifa: Mechanisms and regulation of cyclin degradation.
M. Ellison, University of Alberta, Edmonton, Canada: Placing the mechanism of protein ubiquitination within a structural context.

SESSION 2: Targets of Ubiquitination
Chairperson: A. Hershko, Technion-Israel Institute of Technology, Haifa

D. Bohmann, European Molecular Biology Laboratory, Heidelberg, Germany: Ubiquitin-dependent degradation of Jun.
P.A. Baeuerle, Albert-Ludwigs-University of Freiburg, Germany: Role of proteolysis in the activation of transcription factor NF-κb.
T. Maniatis, Harvard University, Cambridge, Massachusetts: Ubiquitin and proteasome-dependent activation of NF-κb.
M. Hochstrasser, University of Chicago, Illinois: Ubiquitin and proteasome-mediated degradation of the yeast MATα2 transcriptional regulator.
M. Scheffner, Deutsches Krebsforschungszentrum, Heidelberg, Germany: Regulation of p53 stability.
K. Madura, Robert Wood Johnson Medical School, UMDNJ, Piscataway: Ubiquitin-dependent degradation of yeast G-α.

SESSION 3: Regulation of Ubiquitination
Chairperson: C.M. Pickart, State University of New York, Buffalo

A. Varshavsky, California Institute of Technology, Pasadena: Substrates and functions of the N-end rule pathway.
J. Becker, University of Tennessee, Knoxville: Involvement of *UBR1* in the transport of peptides in yeast.
V. Chau, Wayne State University School of Medicine, Detroit, Michigan: Mechanistic analyses with a reconstituted N-end rule pathway.
J. Huibregtse, Harvard Medical School, Boston, Massachusetts: A class of proteins structurally and functionally related to the Eb-AP protein ligase.
A. Ciechanover, Technion-Israel Institute of Technology, Haifa: Novel ubiquitin-protein ligates (E3s).
R. Vierstra, University of Wisconsin-Madison: Targeted degradation: Potential new method for selective protein degradation.

SESSION 4: Ubiquitination Targets and Related Topics
Chairperson: A.L. Goldberg, Harvard Medical School, Boston, Massachusetts

K.L. Rock, Dana Farber Cancer Institute, Boston, Massachusetts: Role of ubiquitin-proteasome pathway in the degradation of cellular proteins and the generation of MHC class-I-presented peptides.
M. Rechsteiner, University of Utah, Salt Lake City: KEKE motifs, proteolysis, and antigen presentation.
A. Weissman, National Institutes of Health, Bethesda, Maryland: Ubiquitination and early events in T-cell activation.
L.A. Guarino, Texas A&M University, College Station: Phospholipid anchors ubiquitin to the membranes of viral particles.
A.L. Haas, Medical College of Wisconsin, Milwaukee: Ubiquitin cross-reactive protein (p15), an interferon-induced ubiquitin homolog.
P. Coffino, University of California, San Francisco: Ornithine decarboxylase: Regulating degradation without ubiquitin.

M. Rechsteiner, A. Hershko

SESSION 5: Protein Degradation
Chairperson: A. Varshavsky, California Institute of Technology, Pasadena

E. Craig, University of Wisconsin, Madison: Relationship between molecular chaperones and the ubiquitin system.
A.L. Goldberg, Harvard Medical School, Boston, Massachusetts: Protein degradation.
G.N. DeMartino, University of Texas Southwestern Medical Center, Dallas: Regulatory proteins of the proteasome.
C. Pickart, State University of New York, Buffalo: Mechanism of proteolytic targeting by multiubiquitin chains.
K.D. Wilkinson, Emory University School of Medicine, Atlanta, Georgia: Processing of polymeric ubiquitin: The *UCH* and *UBP* gene families.
C.A. Slaughter, Howard Hughes Medical Institute, University of Texas Southwestern Medical Center, Dallas: High-molecular-weight modifiers of proteasome activity.

Genetics of Human Behavior

March 5-March 8

FUNDED BY

The William Stamps Farish Fund

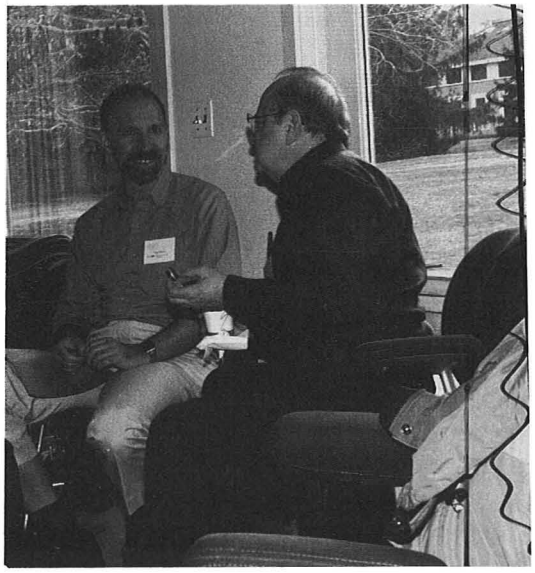
ARRANGED BY

E. Balaban, The Neurosciences Institute, La Jolla, California
J. Beckwith, Harvard Medical School, Boston, Massachusetts
L.N. Geller, Harvard Medical School, Boston, Massachusetts
K.S. Kendler, Virginia Commonwealth University, Richmond
N.J. Risch, Yale University School of Medicine, New Haven, Connecticut
J.D. Watson, Cold Spring Harbor Laboratory

SESSION 1: Phenotypes
Moderators: E. Balaban, The Neurosciences Institute, La Jolla, California and
K. Merikangas, Yale Family Study Center, New Haven, Connecticut

K.S. Kendler, Virginia Commonwealth University, Richmond: Assessment of psychiatric disorders in a genetic context.
E. Ostrander, University of Seattle, Washington: Animal behavior.
E. Balaban, The Neurosciences Institute, La Jolla, California: Respondent.

J.S. Alper, J. Beckwith, P.R. Billings



N.J. Risch, I. Gottesman

SESSION 2: Estimating Genetic Contributions
Moderators: M. Feldman, Stanford University Medical School, California and
C.R. Cloninger, Washington University School of Medicine, St. Louis, Missouri

T. Reich, Washington University School of Medicine, St. Louis, Missouri: Family studies.
N.G. Martin, Queensland Institute of Medical Research, Brisbane, Australia: Twin studies.
L.J. Eaves, Virginia Commonwealth University, Richmond: Twin-family studies.
D.W. Fulker, University of Colorado, Boulder: Colorado adoption study.
M. Feldman, Stanford University Medical School, Stanford: Respondent.

SESSION 3: Linkage, Association, etc.
Moderator: N.J. Risch, Yale University School of Medicine, New Haven, Connecticut

P. McGuffin, University of Wales College of Medicine, Cardiff, United Kingdom: Detecting and locating QTL and genes of small effect.
G. Ebers, University Hospital, London, Ontario, Canada: Sib-pair studies in MS and sexual orientation.
E.S. Gershon, National Institute of Mental Health, National Institutes of Health, Bethesda, Maryland: Positive results in complex inheritance traits.
J. Crabbe, Oregon Health Sciences University, Portland: QTL approaches with animal models.

SESSION 4: Presentation of Results to the Public
Moderators: G. Carey, University of Colorado, Boulder and **J. Beckwith,** Harvard Medical School, Boston, Massachusetts

D. Nelkin, New York University, New York: The gene as a cultural icon.
T. Duster, University of California, Berkeley: The public reception of the genetic revolution.
R.W. Cooke, Newsday, Inc., Melville, New York: A journalist's perspective.
I.I. Gottesman, University of Virginia, Charlottesville: Respondent.

HIV and the Pathogenesis of AIDS

March 19-March 22

FUNDED BY

Mothers' Voices, Office of AIDS Research, National Institutes of Health, Pediatric AIDS Foundation, The Albert B. Sabin Vaccine Foundation, and Viaticus, Inc.

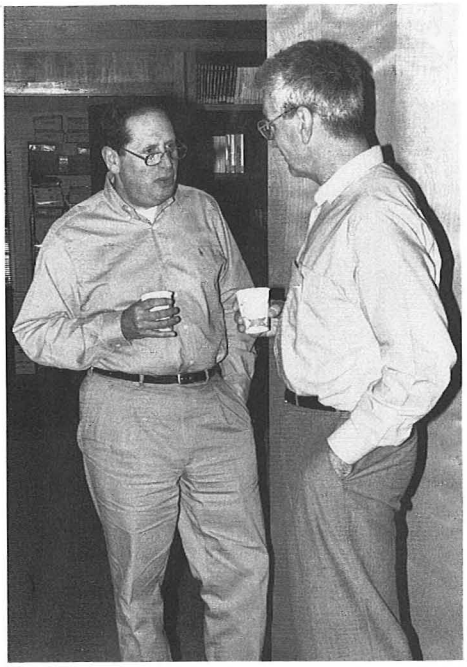
ARRANGED BY

D.D. Ho, Aaron Diamond AIDS Research Center, New York, New York
S.M. Wolinsky, Northwestern University Medical School, Chicago, Illinois

Introductory remarks: D.D. Ho, Aaron Diamond AIDS Research Center, New York, New York, and **S.M. Wolinsky,** Northwestern University Medical School, Chicago, Illinois.

SESSION 1: Viral Dynamics
Chairperson: J.M. Coffin, Tufts University School of Medicine, Boston, Massachusetts

J.M. Coffin, Tufts University School of Medicine, Boston, Massachusetts: Introduction
G.M. Shaw, University of Alabama at Birmingham: Review.
General discussion and summary of key questions and experiments.



W.E. Paul, R.A. Weiss

SESSION 2: Mechanism of CD4 Destruction
Chairperson: S. Wain-Hobson, Institut Pasteur, Paris, France

S. Wain-Hobson, Institut Pasteur, Paris, France: Introduction.
M. Feinberg, Gladstone Institute of Virology/Immunology, San Francisco, California: Review.
General discussion and summary of key questions and experiments.

SESSION 3: CD4 Regeneration
Chairperson: W.E. Paul, AIDS Research, National Institutes of Health, Bethesda, Maryland

W.E. Paul, AIDS Research, National Institutes of Health, Bethesda, Maryland: Introduction.
B.F. Haynes, Duke University, Durham, North Carolina: Review.
General discussion and summary of key questions.

SESSION 4: Correlates of Protection/Host Resistance
Chairperson: A.S. Fauci, NIAID, National Institutes of Health, Bethesda, Maryland

A.S. Fauci, NIAID, National Institutes of Health, Bethesda, Maryland: Introduction.
R.A. Koup, Aaron Diamond AIDS Research Center, New York, New York: Review.
General discussion and summary of key questions and experiments.

SESSION 5: Issues of Vaccine Development
Chairperson: D.P. Bolognesi, Duke University Medical Center, Durham, North Carolina

D.P. Bolognesi, Duke University Medical Center, Durham, North Carolina: Introduction.
K.S. Steimer, Biocine-Chiron, Emeryville, California: Review.
General discussion and summary of key questions and experiments.

SESSION 6: Implication for/of Treatment Studies
Chairperson: R.T. Schooley, University of Colorado Health Sciences Center, Denver, Colorado

R.T. Schooley, University of Colorado Health Science Center, Denver: Introduction.
D.D. Richman, University of California, San Diego: Review.
General discussion and summary of key questions and experiments.

SESSION 7: Viral Compartments and Transmission
Chairperson: A.T. Haase, University of Minnesota, Minneapolis

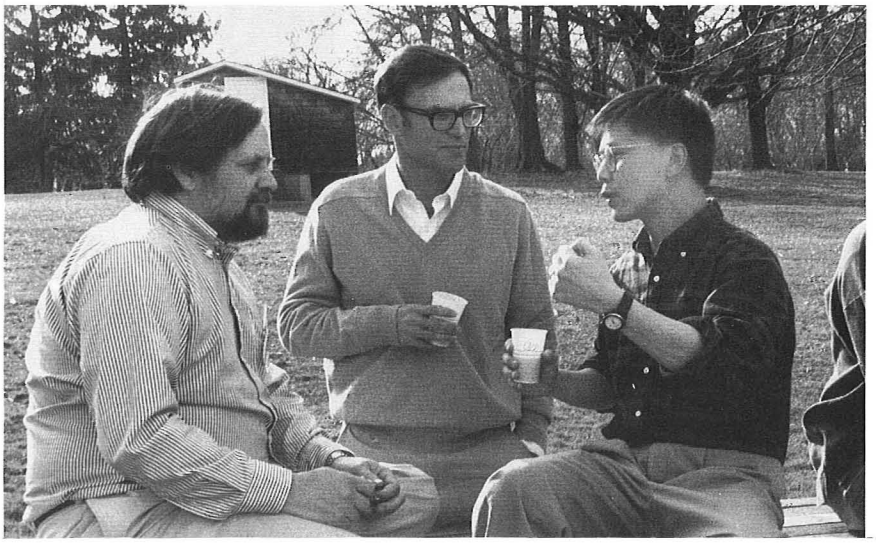
A.T. Haase, University of Minnesota, Minneapolis: Introduction.
J.I. Mullins, University of Washington, Seattle: Review.
General discussion and summary of key questions and experiments.

SESSION 8: Antigenic Diversity and Viral Variation
Chairperson: M.A. Nowak, University of Oxford, United Kingdom

M.A. Nowak, University of Oxford, United Kingdom: Introduction.
B.T.M. Korber, Los Alamos National Laboratory, New Mexico: Review.
General discussion and summary of key questions and experiments.

SESSION 9: Conclusions and Future Prospects
Chairperson: R.A. Weiss, Institute of Cancer Research, London, United Kingdom

Summary



J.M. Coffin, A.T. Haase, D.D. Ho

Lyme Disease: Molecular and Immunologic Aspects of Detection and Vaccine Development

March 26-March 29

FUNDED BY

Centers for Disease Control, Connaught Laboratories, Inc., Food and Drug Administration, Fort Dodge Laboratories, MedImmune, Inc., National Institute of Allergy and Infectious Diseases, and SmithKline Beecham Clinical Laboratories

ARRANGED BY

J.J. Dunn, Brookhaven National Laboratory, Upton, New York
S.E. Schutzer, UMDNJ-New Jersey Medical School, Newark

SESSION 1: Molecular Biology
Chairperson: J.J. Weis, University of Utah School of Medicine, Salt Lake City

S. Casjens, University of Utah Medical School, Salt Lake City: Structure and diversity of the *B. burgdorferi* (*sensu lato*) genome.

C.J. Luke, University of Texas Health Science Center, San Antonio: Alternative candidate antigens for vaccine development.

B. Stevenson, Rocky Mountain Laboratories, NIH, Hamilton, Montana: Molecular mechanisms of Osp variation, regulation of expression.

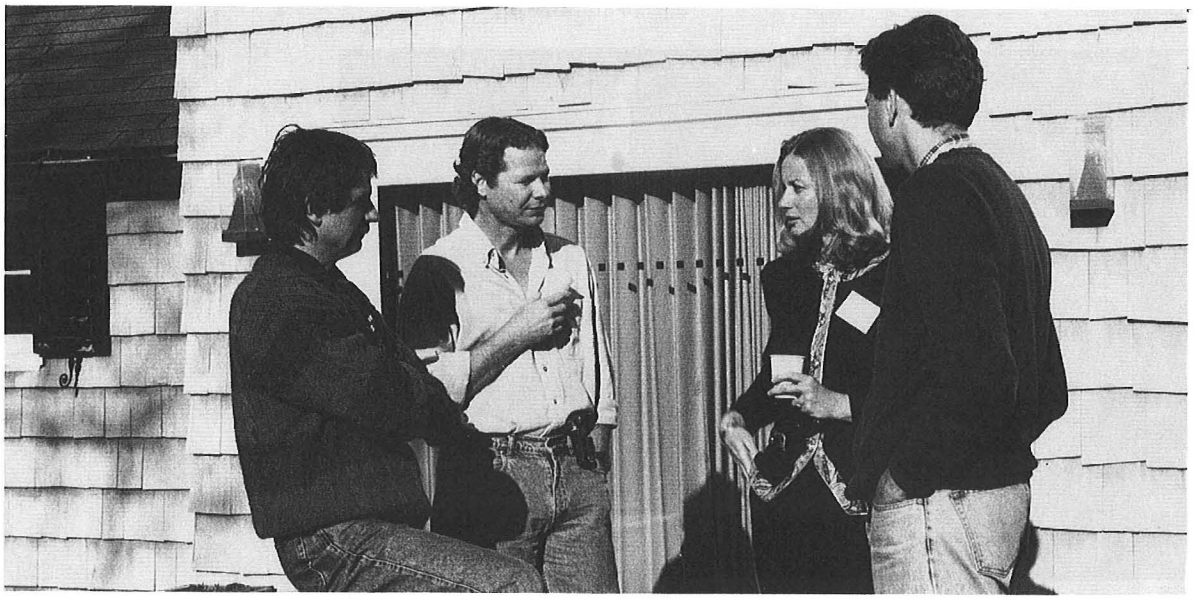
E. Fikrig, Yale University School of Medicine, New Haven, Connecticut: Immunogenicity of new surface antigens.

SESSION 2: Immunology
Chairperson: P.K. Coyle, State University of New York, Stony Brook

B. Wilske, Max von Pettenkofer-Institut, Munich, Germany: Immune response to OspC.

S.E. Schutzer, UMDNJ-New Jersey Medical School, Newark: Immune responses to OspA in previously infected individuals.

T.G. Schwan, Rocky Mountain Laboratories, NIAID, NIH, Hamilton, Montana: Osp expression in ticks.



M.M. Simon, S.P. Nickell, E.S. Raveche, E. Fikrig

SESSION 3: Vaccine
Chairperson: J. Soreth, U.S. Food and Drug Administration, Rockville, Maryland

B. Johnson, Centers for Disease Control, Fort Collins, Colorado: Humoral response and protection to key epitopes of Bb proteins.
S.W. Barthold, Yale University School of Medicine, New Haven, Connecticut: Immunization against tick-borne Lyme borreliosis.
M. Hanson, MedImmune Inc., Gaithersburg, Maryland: Protective immunity via recombinant chimeric OspA BCG vaccine.
F. Meurice, SmithKline Beecham Pharmaceuticals, King of Prussia, Pennsylvania: SKB vaccine trial data.

SESSION 4: Special Discussion: Infection and Autoimmunity in Chronic Lyme Disease
Moderator: M.T. Philipp, Tulane Regional Primate Research Center, Covington, Louisiana
Commentaries: F.S. Kantor, Yale University School of Medicine, New Haven, Connecticut, and **J.J. Weis,** University of Utah School of Medicine, Salt Lake City

SESSION 5: Animal Models
Chairperson: E. Fikrig, Yale University School of Medicine, New Haven, Connecticut

R.H. Jacobson, Cornell University College of Veterinary Medicine, Ithaca, New York: Immune response and Bb-specific immune complexes in dogs.
J. Radolf, University of Texas Southwestern Medical Center, Dallas, Texas: The human Lyme disease vaccine, OspA, protects mice against tick transmission of infection with homologous but not heterologous strains of *B. burgdorferi.*
M.T. Philipp, Tulane Regional Primate Research Center, Covington, Louisiana: Lyme disease and immune response in rhesus monkey.
S.W. Barthold, Yale University School of Medicine, New Haven, Connecticut: Evolution of Bb antigens in the host.

SESSION 6: Pathogenesis I
Chairperson: F.S. Kantor, Yale University School of Medicine, New Haven, Connecticut

Y.-W. Chiang, Fort Dodge Laboratories, Iowa: Dog models of Lyme disease.
E.S. Raveche, UMDNJ-New Jersey Medical School, Newark: Bacterial induction of autoimmune response.
J.L. Benach, State University of New York, Stony Brook: Evasion mechanisms of Bb.
R.J. Dattwyler, State University of New York, Stony Brook: Influence of antimicrobials on the immune response.
L. Bochenstedt, Yale University School of Medicine, New Haven, Connecticut: Antigen variation.
P.K. Coyle, State University of New York, Stony Brook: Evidence for early and persistent infection in neurologic Lyme disease.
M.M. Simon, Max-Planck Institut fur Immunobiologie, Freiburg, Germany: Cellular interaction.
J.J. Weis, University of Utah School of Medicine, Salt Lake City: Mechanisms of Bb persistence.

SESSION 7: Special Discussion: Immune Response to Unique versus Many Proteins
Moderator: M.T. Philipp, Tulane Regional Primate Research Center, Covington, Louisiana
Commentary: B. Johnson, Centers for Disease Control, Fort Collins, Colorado

SESSION 8: Pathogenesis II/Recombinant Proteins
Chairperson: R.J. Dattwyler, State University of New York, Stony Brook

J.J. Dunn, Brookhaven National Laboratory, Upton, New York: Construction of Bb cosmid library.
D.H. Persing, Mayo Clinic, Rochester, Minnesota: Genetic stability of Bb in animal model.
B.J. Luft, State University of New York, Stony Brook: Chimeric molecules for detection and vaccination.
S.P. Nickell, Johns Hopkins School of Hygiene and Public Health, Baltimore, Maryland: T-cell response.

SESSION 9: Special Discussion: Entry and Endpoints for Antibiotic and Vaccine Trials
Moderator: M.T. Philipp, Tulane Regional Primate Research Center, Covington, Louisiana
Commentaries: J. Collins, Glaxo Inc. Research Institute, Research Triangle Park, North Carolina, and **R.J. Dattwyler,** State University of New York at Stony Brook

SESSION 10: Discussion and Future Directions and Chronic Lyme Disease
Chairperson: E. McSweegan, National Institute of Allergy and Infectious Diseases, Bethesda, Maryland

Incorporating Genetics into Medicine and Nursing Education and Practice

April 3-April 6

FUNDED BY

The Robert Wood Johnson Foundation

ARRANGED BY

N.A. Holtzman, The Johns Hopkins Medical Institutions, Baltimore, Maryland

SESSION 1
Chairperson: N.A. Holtzman, The Johns Hopkins Medical Institutions, Baltimore, Maryland

N.A. Holtzman, The Johns Hopkins Medical Institutions, Baltimore, Maryland: Introductory remarks.
F.S. Collins, National Center for Human Genome Research, National Institutes of Health, Bethesda, Maryland: Current state of human genetics and genetics education.

SESSION 2: Report of Survey Findings
N.A. Holtzman, The Johns Hopkins Medical Institutions, Baltimore, Maryland: Analysis of survey. Discussion of implications and summary.

SESSION 3: Defining the Issues: Incorporating Genetics in Primary Care Practice (Panel Discussion)
Chairperson: S. Feetham, National Institute of Nursing Research, National Institutes of Health, Bethesda, Maryland

S. Feetham, National Institute of Nursing Research, National Institutes of Health, Bethesda, Maryland: Introductory remarks.
J.R. Allen, American Medical Association, Chicago, Illinois
R.E. Pyeritz, American College of Medical Genetics, Pittsburgh, Pennsylvania

J.G. Davis, N. Fisher

SESSION 4: Group discussions on Genetics in Primary Care Practice
Group 1: Chairperson: C. Scanlon, American Nurses Association, Washington, D.C.
Rapporteur: N.L. Fisher, Medical Genetic Services, Seattle, Washington
Group 2: Chairperson: W.L. Freeman, American Academy of Family Physicians, Albuquerque, New Mexico
Rapporteur: G. Anderson, Shriver Center for Mental Retardation, Waltham, Massachusetts

SESSION 5: Reports of Discussion Groups
Chairperson: N.A. Holtzman, The Johns Hopkins Medical Institutions, Baltimore, Maryland

Group 1: Rapporteur: N.L. Fisher, Medical Genetic Services, Seattle, Washington
Group 2: Rapporteur: G. Anderson, Shriver Center for Mental Retardation, Waltham, Massachusetts

SESSION 6: Needs and Implementation of Genetics Education (Panel Discussion)
Chairperson: N.A. Holtzman, The Johns Hopkins Medical Institutions, Baltimore, Maryland

M. Grey, Yale School of Nursing, New Haven, Connecticut
F. McCurdy, University of Nebraska Medical Center, Omaha
M. Genel, Yale University School of Medicine, New Haven, Connecticut
J.G. Davis, New York Hospital-Cornell University College of Medicine, New York

SESSION 7: Group Discussions of Genetics Education
Group 1: Chairperson: S. Feetham, National Institute of Nursing Research, National Institutes of Health, Bethesda, Maryland
Rapporteur: C.M. Hanson, American College of Nurse Practitioners, Statesboro, Georgia
Group 2: Chairperson: J.R. Allen, American Medical Association, Chicago, Illinois
Rapporteur: P. Rappo, American Academy of Pediatrics, North Easton, Massachusetts

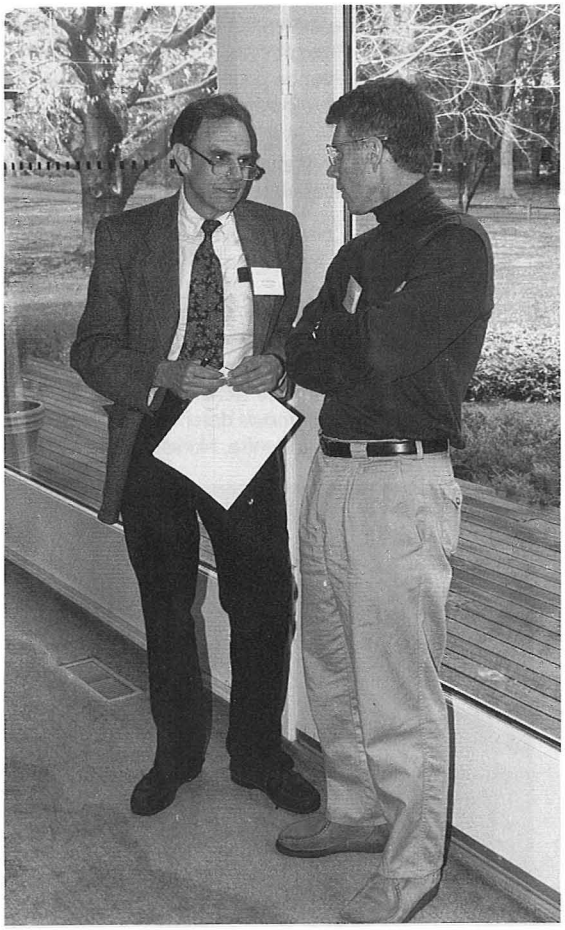
SESSION 8: Reports of Discussion Groups
Chairperson: J.R. Allen, American Medical Association, Chicago, Illinois

Group 1: Rapporteur: C.M. Hanson, American College of Nurse Practitioners, Statesboro, Georgia
Group 2: Rapporteur: P. Rappo, American Academy of Pediatrics, North Easton, Massachusetts

SESSION 9: Setting Out Future Goals: Preliminary Discussion

SESSION 10: Future Goals: Defining Proposals
Chairperson: S. Feetham, National Institute of Nursing Research, National Institutes of Health, Bethesda, Maryland

N.A. Holtzman, The Johns Hopkins Medical Institutions, Baltimore, Maryland: Closing remarks.



N.A. Holtzman, J.R. Allen

Molecular Biology of Disease Resistance Genes in Plants

April 9-April 12

FUNDED BY

Cold Spring Harbor Laboratory Corporate Sponsor Program

ARRANGED BY

S.P. Briggs, Pioneer Hi-Bred International, Inc., Johnston, Iowa
R.W. Michelmore, University of California, Davis
B. Staskawicz, University of California, Berkeley

SESSION 1: Genetics and Evolution of Plant-Pathogen Interactions
Chairperson: S.P. Briggs, Pioneer Hi-Bred International, Inc., Johnston, Iowa

S.P. Briggs, Pioneer Hi-Bred International, Inc., Johnston, Iowa: Remarks.

I. Crute, Horticulture Research International, Warwick, United Kingdom: The genetics of pathogenic specificity to host species and higher-order host taxa.

R.W. Michelmore, University of California, Davis: Clusters of resistance genes of lettuce.

C. Gebhardt, Max-Planck-Institut fur Zuchtungsforschung, Kohn, Germany: Present state of map-based cloning of the nematode resistance gene G1 and the fungal resistance gene R1 in potato.

S. Hulbert, Kansas State University, Manhattan: Evolutionary events at the Rp1 complex.

P. Schulze-Lefert, Biologie I, Aaachen, Germany: Genes required for function of resistance genes to powdery mildew infection in barley.

P. Vos, Keygene N.V., Wageningen, The Netherlands: State of the art of positional gene isolation technology.

J. Howard, University of Cologne, Germany: Origin and maintenance of variation in class I genes of the vertebrate MHC.

SESSION 2: Receptor-related Disease Resistance Genes
Chairperson: R.W. Michelmore, University of California, Davis

G.B. Martin, Purdue University, West Lafayette, Indiana: Characterization of the Pto resistance gene family in tomato.

B.J. Baker, USDA/ARS, Albany, California: The product of the tobacco mosaic virus disease resistance gene N: Similarity to toll and the interleukin-1 receptor.

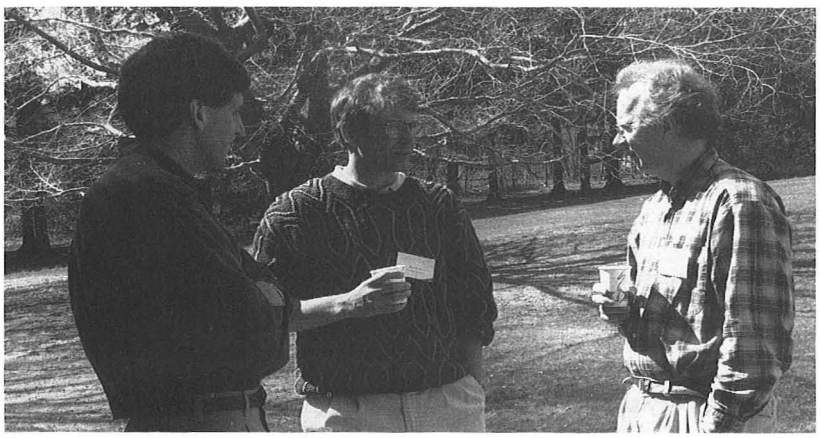
F.M. Ausubel, Massachusetts General Hospital, Boston: RPS2 and other *Arabidopsis* defense-related genes.

J.D.G. Jones, John Innes Centre, Norwich, United Kingdom: Characterization of the Cf9, Cf2, and RPP5 disease resistance genes.

B. Staskawicz, University of California, Berkeley: Signal transduction events specifying plant disease resistance.

J. Ellis, CSIRO Plant Industry, Canberra, Australia: The L and M rust resistance genes from flax.

P. Ronald, University of California, Davis: The rice Xa21 locus: Isolation of a multigene family with striking similarity to dicot disease resistance genes.



S. Hulbert, J. Ryals, D.C. Baulcombe

SESSION 3: Characterization of Additional Resistance Genes
Chairperson: B.J. Baker, USDA/ARS, Albany, California

B.J. Baker, USDA/ARS, Albany, California: Remarks.
J. Dangl, Max-Delbruck-Laboratorium in der MPG, Koln, Germany: *Arabidopsis* and *Pseudomonas syringae* loci controlling pathogen recognition and cell death.
R. Innes, Indiana University, Bloomington: Comparison of the *Arabidopsis RPS3* and soybean *RPG1* genes. Are they true homologs?
G.S. Johal, University of Missouri, Columbia: What art thou, o mimics?
S.P. Briggs, Pioneer Hi-Bred International, Inc., Johnston, Iowa: Inactivation of candidate defense genes.

SESSION 4: Pathogen Determinants of Avirulence
Chairperson: J. Dangl, Max-Delbruck-Laboratorium in der MPG, Koln, Germany

D.C. Baulcombe, The Sainsbury Laboratory, Norwich, United Kingdom: Virus-encoded elicitors of resistance.
P.J.D.M. de Wit, Wageningen Agricultural University, The Netherlands: Avirulence gene products of *Cladosporium fulvum* and their receptors in plants.
B. Valent, The Du Pont Company, Wilmington, Delaware: Gene-for-gene interactions in the rice blast system.

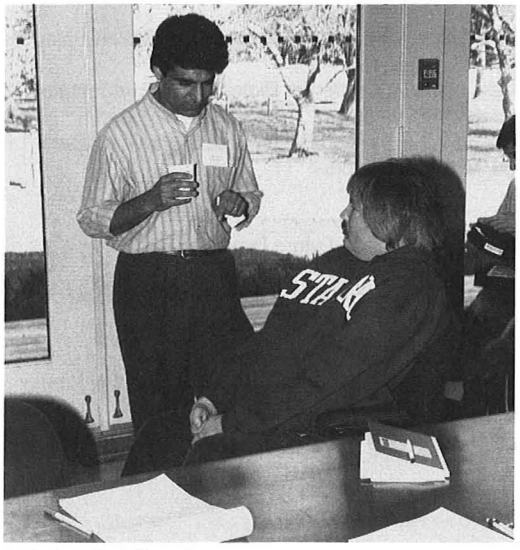
SESSION 5: The Oxidative Burst and Systemic Acquired Resistance
Chairperson: B. Staskawicz, University of California, Berkeley

U.G. Knaus, The Scripps Research Institute, La Jolla, California: Regulation of the oxidative burst in human leukocytes.
P.S. Low, Purdue University, West Lafayette, Indiana: Signal transduction pathways during the oxidative burst.
C.J. Lamb, Salk Institute for Biological Studies, San Diego, California: Mechanism and function of the oxidative burst in the hypersensitive response.
D. Shah, Monsanto Company, St. Louis, Missouri: Engineering disease resistance through manipulation of active oxygen in potato.
I. Raskin, Rutgers University, New Brunswick, New Jersey: Salicylic acid as a signal in disease resistance.
D.F. Klessig, Rutgers University, Piscataway, New Jersey: A mechanism of action of salicylic acid in plant disease resistance.
X. Dong, Duke University, Durham, North Carolina: Genetic dissection of systemic acquired resistance response using *Arabidopsis* mutants.
J. Ryals, Ciba Agricultural Biotechnology, Research Triangle Park, North Carolina: Signaling and signal transduction in acquired resistance.

SESSION 6: Disease Resistance Physiology and Signal Transduction
Chairperson: J.D.G. Jones, John Innes Centre, Norwich, United Kingdom

R. Fluhr, The Weizmann Institute of Science, Rehovot, Israel: The tomato 12 locus and pathways to the pathogenesis response.
G. De Lorenzo, Universita "La Sapienza", Roma, Italy: Polygalacturonase-inhibiting proteins (PGIPs): Plant proteins specialized for recognition of fungal pathogens.
C.A. Ryan, Washington State University, Pullman: Systemin: A mobile wound signal in plants.
J.C. Walker, University of Missouri, Columbia: Signal transduction in plants: The interaction of protein kinases and phosphatases.
J.R. Ecker, University of Pennsylvania, Philadelphia: Ethylene signal transduction.

General discussion: Signaling in disease resistance.



G.S. Johal, J. Dangl

Human Gene Map Workshop II

May 9-May 10

FUNDED BY

European Commission, Glaxo, Merck, Pfizer Inc., Sequana Therapeutics, Inc., SmithKline Beecham, Wellcome Trust, United Kingdom Medical Research Council, United States Department of Energy, United States National Institutes of Health, and Zeneca Pharmaceuticals

ARRANGED BY

R.H. Waterston, Washington University School of Medicine, St. Louis, Missouri

SESSION 1: EST Reports/Libraries

R. Wilson, Washington University School of Medicine, St. Louis, Missouri
M.B. Soares, Columbia University, New York, New York
K. Okubo, Osaka University, Japan
C. Auffray, CNRS, Villejuif, France
K. Gibson, HGMP Resource Center, Cambridge, United Kingdom
M. Adams, The Institute for Genomic Research, Gaithersburg, Maryland
M.H. Polymeropoulos, National Center for Human Genome Research, National Institutes of Health, Bethesda, Maryland
H. Shizuya, California Institute of Technology, Pasadena

SESSION 2: Reports on Mapping of ESTs

D.R. Cox, Stanford University School of Medicine, California: Introduction.
J. Weissenbach, Laboratoire des Maladies Genetiques Humaines, Evry, France
K. Schmitt, University of Cambridge, United Kingdom
D.R. Cox, Stanford University School of Medicine, California
T.J. Hudson, Whitehead Institute, Massachusetts Institute of Technology, Cambridge
D.R. Bentley, The Sanger Centre Hinxton Hall, Cambridgeshire, United Kingdom
M.R. James, The Wellcome Trust Centre for Human Genetics, Oxford, United Kingdom

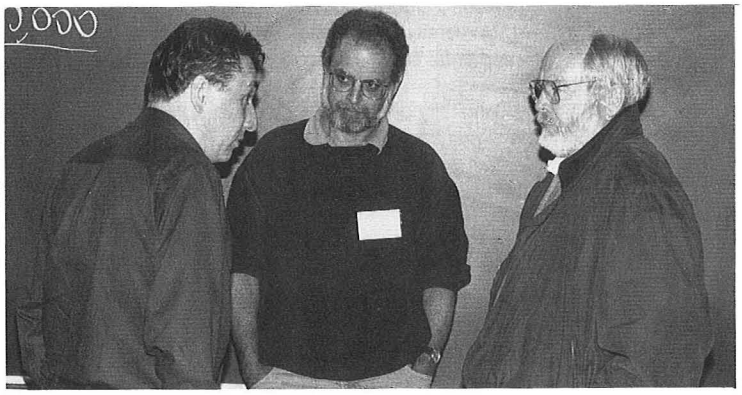
SESSION 3: Informatics

M. Boguski, National Center for Biotechnology Information, Bethesda, Maryland: Introduction.
K.O. Elliston, Merck Research Laboratories, Rahway, New Jersey
M. Boguski, National Center for Biotechnology Information, Bethesda, Maryland
G. Cameron, The European Bioinformatics Institute, Cambridge, United Kingdom
Y. Tateno, DNA Research Center, National Institute of Genetics, Mishima, Japan
C.A. Fields, National Center for Genome Resources, Santa Fe, New Mexico
K.H. Buetow, Fox Chase Cancer Center, Philadelphia, Pennsylvania
K. Fasman, Genome Data Base, Baltimore, Maryland

SESSION 4: Conclusions/Future Plans

G. Lennon, Lawrence Livermore National Laboratory, California: IMAGE update.

Discussion:
Moderator: R.H. Waterston, Washington University School of Medicine, St. Louis, Missouri



D.R. Cox, M.S. Guyer, D.A. Smith

CREB and Memory

June 8-June 11

FUNDED BY

Cold Spring Harbor Laboratory Corporate Sponsor Program

ARRANGED BY

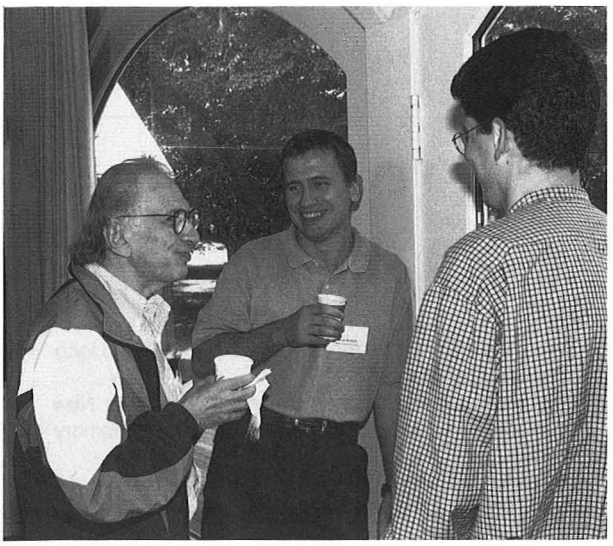
T. Tully, Cold Spring Harbor Laboratory
J. Yin, Cold Spring Harbor Laboratory

SESSION 1: Behavior I
Chairperson: G. Schutz, German Cancer Research Center, Heidelberg, Germany

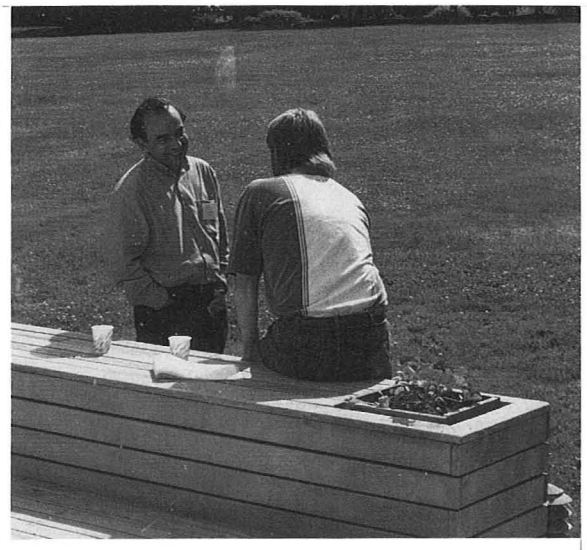
D. Bartsch, HHMI, Columbia University, New York, New York: Long-term facilitation in *Aplysia* neurons requires coordinated transcriptional activation by Af-I and derepression of ApCREB-2.
C. Bailey, Columbia University, New York, New York: Structural changes during long-term memory.
T.J. Carew, Yale University, New Haven, Connecticut: Parallel processing of short-term and long-term synaptic facilitation in *Aplysia*.
J. Yin, Cold Spring Harbor Laboratory: CREB and the formation of long-term memory in *Drosophila*.
E.J. Nestler, Yale University School of Medicine, New Haven, Connecticut: Regulation of CREB expression: In vivo evidence for a functional role in the brain.

SESSION 2: CREB/CREM
Chairperson: M.E. Greenberg, Children's Hospital, Boston, Massachusetts

J.F. Habener, HHMI, Harvard Medical School, Boston, Massachusetts: Alternative exon splicing generates alternative activator and repressor isoforms of CREB in the testis.
M. Montminy, The Salk Institute, La Jolla, California: Transcriptional regulation by cAMP.
G. Schutz, German Cancer Research Center, Heidelberg, Germany: Molecular genetic analysis of cAMP-dependent gene expression in development.
P. Sassone-Corsi, I.G.B.M.C., Strasbourg, France: Molecular and physiological aspects of the transcriptional response to cAMP.
N.S. Foulkes, I.G.B.M.C., Strasbourg, France: Regulation of CREM and circadian rhythms.
E. Lalli, I.G.B.M.C., Strasbourg, France: CREM in endocrine glands.



E. Kandel, D. Bartsch, D. Michael



R. McKay, T. Tully

SESSION 3: Downstream
Chairperson: J. Yin, Cold Spring Harbor Laboratory

J. Lundblad, Vollum Institute, Oregon Health Sciences University, Portland: The cAMP:CREB:CBP pathway: A target of DNA and RNA tumor viruses.

R. Kwok, Vollum Institute, Oregon Health Sciences University, Portland: Differential utilization of the CREB:CBP pathway allows specific activation of viral versus cellular promoters.

J.P. Hoeffler, University of Colorado Health Science Center, Denver: Elucidating in vivo promoter-binding specificity of CREB/ATF proteins.

T. Hai, Ohio State University, Columbus: ATF3 and ATF4: The ebb and flow of transcriptional regulation by ATF.

SESSION 4: Transduction
Chairperson: D.R. Storm, University of Washington School of Medicine, Seattle

D.D. Ginty, Johns Hopkins University School of Medicine, Baltimore, Maryland: CREB confers growth factor activation of gene expression.

G. Enikolopov, Cold Spring Harbor Laboratory: NO, CREB, and cAMP in short- and long-term signaling.

M.E. Greenberg, Children's Hospital, Boston, Massachusetts: CREB: A mediator of neurotrophin and neurotransmitter signaling.

C.J. Fiol, Indiana University School of Medicine, Indianapolis: Molecular mechanisms in hierarchal phosphorylations.

R. Maurer, Vollum Institute, Oregon Health Sciences University, Portland: Differential regulation of CREB by Ca^{++}/calmodulin-dependent protein kinases.

SESSION 5: PKA
Chairperson: M. Montminy, The Salk Institute, La Jolla, California

S.S. Taylor, University of California, San Diego: cAMP-dependent protein kinase: Structure and subcellular localization.

H. Bayley, Worcester Foundation, Shrewsbury, Massachusetts: Functional diversity of cAMP-dependent protein kinases in *Aplysia*.

R.L. Idzerda, University of Washington, Seattle: Targeted disruption of protein kinase A subunits.

J.D. Scott, Vollum Institute, Oregon Health Sciences University, Portland: Neuronal targeting of kinases and phosphatases: Their role in postsynaptic events.

R.Y. Tsien, HHMI, University of California, San Diego: Fluorescence imaging of cAMP and gene expression in single cells.

M. Bollen, Afdeling Biochemie, Campus Gasthuisberg, Leuven, Belgium: Nuclear Ser/Thr protein phosphatases and their substrates.

SESSION 6: General Discussion
Discussion Leaders:
T. Curran, Roche Institute of Molecular Biology, Nutley, New Jersey
E. R. Kandel, HHMI, Columbia University, New York, New York
T. Tully, Cold Spring Harbor Laboratory

SESSION 7: Behavior II
Chairperson: J. Yin, Cold Spring Harbor Laboratory

K. Deisseroth, Stanford University, Palo Alto, California: CREB phosphorylation during synaptic plasticity.

H. Bito, Stanford University, Palo Alto, California: CREB phosphorylation pathways in action-potential-driven hippocampal neurons.

D.R. Storm, University of Washington School of Medicine, Seattle: Role of cAMP and Ca^{++}-sensitive adenylyl cyclase for neuroplasticity.

A. Silva, Cold Spring Harbor Laboratory: CREB and long-term memory in mice.

E.R. Kandel, HHMI, Columbia University, New York, New York: CREB and its role in implicit and explicit memory storage.

R. McKay, LMB/NINDS, National Institutes of Health, Bethesda, Maryland: Constructing a chimeric hippocampus.

Molecular Diagnosis of Inherited Breast Cancer

October 10-October 13

FUNDED BY

Cold Spring Harbor Laboratory Corporate Sponsor Program

ARRANGED BY

B.J. Ponder, University of Cambridge, United Kingdom
C.S. Richards, Baylor College of Medicine, Houston, Texas
J.A. Witkowski, Banbury Center, Cold Spring Harbor Laboratory

SESSION 1: Mutations in BRCA1
Chairperson: S.H. Friend, Fred Hutchinson Cancer Research Center, Seattle, Washington

B.J. Ponder, University of Cambridge, United Kingdom: Introduction.
D. Easton, Institute of Public Health, Cambridge, United Kingdom: Contribution of BRCA1, BRCA2, and other breast cancer genes to familial and nonfamilial breast cancer.
C. Szabo, University of Washington, Seattle: Mutations in BRCA1.
L.C. Brody, National Center for Human Genome Research, National Institutes of Health, Bethesda, Maryland: BRCA1 mutations in the Ashkenazi Jewish population.
B.J. Ponder, University of Cambridge, United Kingdom: Summary.
Discussion of BRCA mutations.

SESSION 2: Mutations in Other Genes
Chairperson: J.E. Garber, Dana Farber Cancer Institute, Boston, Massachusetts

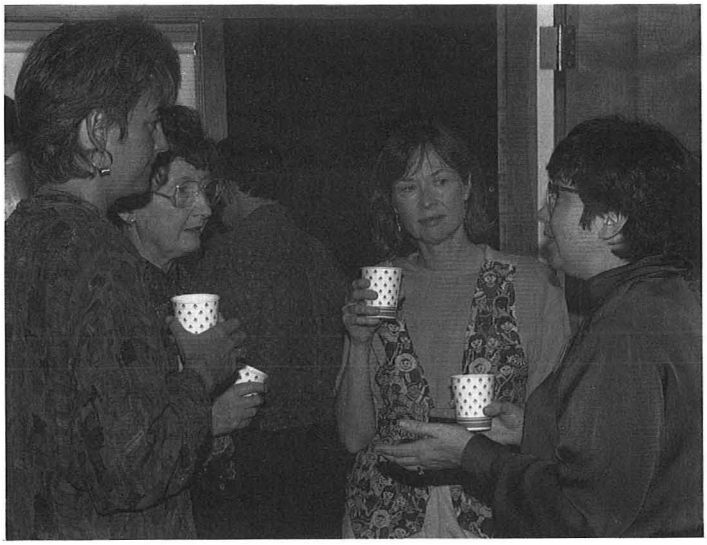
B.J. Ponder, University of Cambridge, United Kingdom: Introduction.
D.A. Tagle, National Center for Human Genome Research, National Institutes of Health, Bethesda, Maryland: The AT gene: Its functions and contributions to breast cancer.
B.E. Henderson, University of Southern California School of Medicine, Los Angeles: Estrogen metabolism genes and BRCA1.
Discussion of genes other than BRCA1 and breast cancer.

SESSION 3: Populations in Screening
Chairperson: J.E. Garber, Dana Farber Cancer Institute, Boston, Massachusetts

E.B. Claus, Yale University School of Medicine, New Haven, Connecticut: Risk estimates/individuals at risk/identifying women at risk of BRCA1, etc.
W.W. Grody, University of California, Los Angeles, School of Medicine: Population carrier screening in a complex gene: The CF experience.
P.D. Murphy, OncorMed, Inc., Gaithersburg, Maryland: The approach OncorMed uses for BRCA1 testing.
Discussion of screening strategies.

SESSION 4: Technologies for Detecting Mutations
Chairperson: C.S. Richards, Baylor College of Medicine, Houston, Texas

J. Shumaker, Baylor College of Medicine, Houston, Texas: Comparative DNA sequencing by APEX.
R.A. Gibbs, Baylor College of Medicine, Houston, Texas: Improvements in DNA sequencing for mutational analysis.
A.-C. Syvanen, National Public Health Institute, Helsinki, Finland: Solid-phase minisequencing: A promising tool for large-scale DNA diagnostics.
Discussion of sequencing.
R.G.H. Cotton, Murdoch Institute, Melbourne, Victoria, Australia: Gene-specific databases: How do we ensure they are online and update?
J. Gordon, Abbott Labs, Abbott Park, Illinois: Simple rapid technologies for readout of complex mutations.
P. Devilee, University of Leiden, The Netherlands: Performance of the protein truncation test in screening out BRCA1 mutations: The Dutch experience.
Discussion of other tests.



B.B. Biesecker, J. Chamberlain, C.S. Richards, M.J.E. Kahn

SESSION 5
Chairperson: B.J. Ponder, University of Cambridge, United Kingdom

J.E. Garber, Dana Farber Cancer Institute, Boston, Massachusetts: Clinical Issues in BRCA1 testing.
M.J. Ellis Kahn, Richmond, Virginia: Making personal decisions.
B. Bowles Biesecker, National Center for Human Genome Research, National Institutes of Health, Bethesda, Maryland: Informed consent issues in BRCA1 testing.
M.S. Watson, Washington University School of Medicine, St. Louis, Missouri: Considerations in test transition into clinical service.
J. Chamberlain, Institute of Cancer Research, Sutton, Surrey, United Kingdom: What can be offered to premenopausal women with molecular diagnosis of inherited breast cancer?
C. Eng, Mount Sinai School of Medicine, New York, New York: Acceptance of genetic screening in the Ashkenazi Jewish population.
M. Bobrow, Addenbrooke's Hospital, Cambridge, United Kingdom: Implementing genetic screening and testing in the National Health Service.
P. Reilly, Shriver Center for Mental Retardation, Waltham, Massachusetts: DNA-based testing and managed care.

General Discussion:
Moderator: B.J. Ponder, Cambridge University, United Kingdom

Neurofibromatosis: How to Develop Therapies?

October 15-October 18

FUNDED BY

The National Neurofibromatosis Foundation, Inc., The Wilson Foundation, and private contributions

ARRANGED BY

F. McCormick, Onyx Pharmaceuticals, Richmond, California
B.R. Seizinger, Bristol-Myers Squibb Pharmaceutical Research Institute, Princeton, New Jersey

SESSION 1: Clinical Clues for Intervention in NF1
Chairperson: B.R. Korf, Children's Hospital, Boston, Massachusetts

B.R. Korf, Children's Hospital, Boston, Massachusetts: Clinical clues that suggest opportunities for intervention in NF1.
A. Rubenstein, Mt. Sinai School of Medicine, New York, New York: Clinical clues to therapy in NF1: Data and data collection.
K.N. North, Children's Hospital, Boston, Massachusetts: Current understanding of cognitive dysfunction in patients with NF1: Implications for research and therapy.
P.C. Phillips, Children's Hospital of Philadelphia, Pennsylvania: NF1 clinical trials: Progress and problems.

SESSION 2: Molecular Genetic and Cell Biological Aspects of NF1 (Other Than Ras)
Chairperson: N.G. Copeland, National Cancer Institute-Frederick Cancer Research Center, Maryland

D.H. Gutmann, Washington University School of Medicine, St. Louis, Missouri: Tumor suppressor gene products and the cytoskeleton: Potential avenues for cancer therapy.
L.F. Parada, University of Texas Southwestern Medical Center, Dallas, Texas: Role of the NF1 gene in neuronal survival.
F. McCormick, Onyx Pharmaceuticals, Richmond, California: Regulators and effectors of Ras proteins.
B.R. Seizinger, Bristol-Myers Squibb Pharmaceutical Research Institute, Princeton, New Jersey: Toward the development of a new generation of more specific anti-cancer drugs based on rational insights into the signaling pathways of tumor suppressor genes: p53.
K.M. Shannon, University of California, San Francisco: NF1 in myeloid growth control and leukemogenesis.
R.L. White, Howard Hughes Medical Institute, University of Utah Medical Center, Salt Lake City: Analysis of NF1 mutations in yeast and mammalian cells.

SESSION 3: NF1 Function and Ras Signaling: (A) Ras-Farnesylation Inhibitors
Chairperson: B.R. Seizinger, Bristol-Myers Squibb Pharmaceutical Research Institute, Princeton, New Jersey

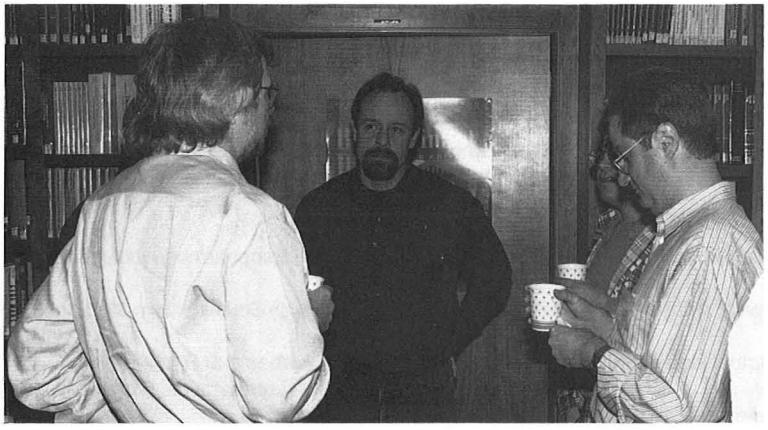
N. Ratner, University of Cincinnati, Ohio: In vitro systems to test therapeutic agents in NF1-deficient cells.
S. Sebti, University of Pittsburgh School of Medicine, Pennsylvania: Farnesyltransferase inhibitors induce cytoplasmic accumulation of inactive Ras/Raf complexes.
J.B. Gibbs, Merck Research Laboratories, West Point, Pennsylvania: Farnesyltransferase inhibitors as potential cancer chemotherapeutics.
D. Leopold, Parke-Davis Pharmaceutical Research, Ann Arbor, Michigan: Inhibitors of Ras-related signal transduction and challenges to evaluation of their therapeutic potential.

SESSION 4: NF1 Function and Ras Signaling: (B) Other Aspects
Chairperson: J.B. Gibbs, Merck Research Laboratories, West Point, Pennsylvania

F. McCormick, Onyx Pharmaceuticals, Richmond, California: A novel therapeutic approach for p53-defective cancers.
J. DeClue, National Cancer Institute, Bethesda, Maryland: Roles of neurofibromin and tuberin as tumor suppressor gene products and regulatory GAP proteins.
N. Wright, Cold Spring Harbor Laboratory: The Ras pathway in synaptic transmission.

SESSION 5: Animal Models for NF1
Chairperson: A. Rubenstein, Mt. Sinai School of Medicine, New York

A. Silva, Cold Spring Harbor Laboratory: Genetic, electrophysiological, and behavioral studies of NF1 mutant mice.
N.G. Copeland, National Cancer Institute-Frederick Cancer Research Center, Maryland: A mouse model for NF1-associated juvenile chronic myelogenous leukemia.
A. McClatchey, Massachusetts Institute of Technology, Cambridge: Toward a mouse model for NF1.
M. Henkemeyer, Mt. Sinai Hospital, Toronto, Ontario, Canada: Synergy of Gap and NF1 mutations in embryonic development and tumor formation.



F. McCormick, L.F. Parada, B.R. Seizinger

SESSION 6: NF2
Chairperson: B.R. Seizinger, Bristol-Myers Squibb Pharmaceutical Research Institute, Princeton, New Jersey

N. Kley, Bristol-Myers Squibb Pharmaceutical Research Institute, Princeton, New Jersey: Molecular genetic analysis of the NF gene.
V. Ramesh, Massachusetts General Hospital, Charlestown: Expression and cellular localization of the NF2 protein Merlin.
A. McClatchey, Massachusetts Institute of Technology, Cambridge: Consequences of a targeted mutation at the NF2 locus.

SESSION 7: Funding
Chairperson: J.A. Witkowski, Banbury Center, Cold Spring Harbor Laboratory

B. Stillman, Cold Spring Harbor Laboratory
F. McCormick, Onyx Pharmaceuticals, Richmond, California

Advances in Imaging and Their Applications

October 22-October 24

FUNDED BY

Finisterre Fund

ARRANGED BY

P.P. Antich, University of Texas Southwestern Medical Center at Dallas
R.W. Parkey, University of Texas Southwestern Medical Center at Dallas
J.E. Smith, Kingston, New Hampshire

Keynote address: F.J. Bonte, University of Texas Southwestern Medical Center at Dallas

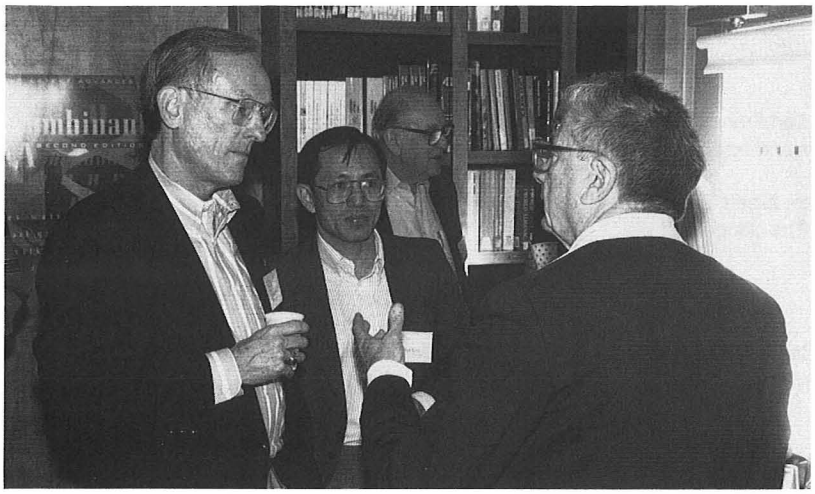
SESSION 1: Issues in Clinical Functional Imaging
Chairperson: R.W. Parkey, University of Texas Southwestern Medical Center at Dallas

C.L. Partain, Vanderbilt University Medical Center, Nashville, Tennessee: Functional imaging.
D.M. Wieland, University of Michigan Medical Center, Ann Arbor: Clinical applications of neuronal mapping with PET.
A. Alavi, University of Pennsylvania Hospital, Philadelphia: Role of modern imaging techniques in the management of patients with brain tumors.
H.W. Strauss, Stanford University, California: Cardiac infection imaging.
R.M. Peshock, University of Texas Southwestern Medical Center, Dallas: Integrated assessment of cardiac function with MRI.
R. Foster, University of Alabama at Birmingham: Applications of magnetic resonance to the cardiovascular system.
General Discussion: Impact of Functional Imaging on Future Patient Care
Moderator: F.J. Bonte, University of Texas Southwestern Medical Center at Dallas

SESSION 2: Issues in Functional Imaging: Modalities, Quantitation, Therapy
Chairperson: P.P. Antich, University of Texas Southwestern Medical Center at Dallas

J.G. McAfee, National Institutes of Health, Bethesda, Maryland: Peptides, growth factors, and cytokines in nuclear medicine.
B.C. Lentle, Vancouver Hospital Health Sciences Center, Canada: 511KeV SPECT with F-18 FDG.
E. Hahn, German Cancer Research Center, Heidelberg, Germany: Functional imaging in oncology.
N.A. Lassen, Bispebjerg Hospital, Copenhagen NV, Denmark: Co-registration of SPECT and MRI.
J. Fowler, Brookhaven National Laboratory, Upton, New York: PET and neuropharmacology.
H.F. Kung, University of Pennsylvania, Philadelphia: CNS receptor imaging with SPECT.
Panel: Functional Imaging in Basic Science Studies
Moderator: W.C. Eckelman, National Institutes of Health, Bethesda, Maryland

J.A. Barrett, DuPont Merck Radiopharmaceuticals, North Billerica, Massachusetts
P.P. Antich, University of Texas Southwestern Medical Center at Dallas
E.M. Stokely, University of Alabama at Birmingham
H.D. Burns, Merck Research Laboratories, West Point, Pennsylvania



L. Partain, H.F. Kung, F.J. Bonte, J.G. McAfee

SESSION 3: Issues in Functional Imaging: Contrast Agents and Radiopharmaceuticals
Chairperson: J.E. Smith, Kingston, New Hampshire

T.J. Brady, Massachusetts General Hospital-NMR Center, Charlestown: Target-specific MR contrast agents.
W.C. Eckelman, National Institutes of Health, Bethesda, Maryland: The uses of 18F and 99mTc radiopharmaceuticals as biochemical probes.
K. Linder, Bracco Diagnostics USA, Princeton, New Jersey: Imaging hypoxia with technetium-nitroimidazoles.
A. Davison, Massachusetts Institute of Technology, Cambridge: Technetium-based radiopharmaceuticals: Is it reasonable to expect further advances in the chemical design of imaging agents?
M.J. Welch, Mallinckrodt Institute of Radiology, St. Louis, Missouri: Receptors in oncology: Receptor ligands for therapy.

Panel: Biology, Physics, Chemistry: Inroads and Barriers
Moderator: J.G. McAfee, National Institutes of Health, Bethesda, Maryland

R.M. Peshock, University of Texas Southwestern Medical Center at Dallas
J.A. Barrett, DuPont Merck Radiopharmaceuticals, North Bellerica, Massachusetts
H.D. Burns, Merck Research Laboratories, West Point, Pennsylvania

J.P. Morgan & Co. Incorporated/Cold Spring Harbor Laboratory Executive Conference on Infectious Diseases: Ancient Plagues, New Epidemics

October 28-October 30

ARRANGED BY

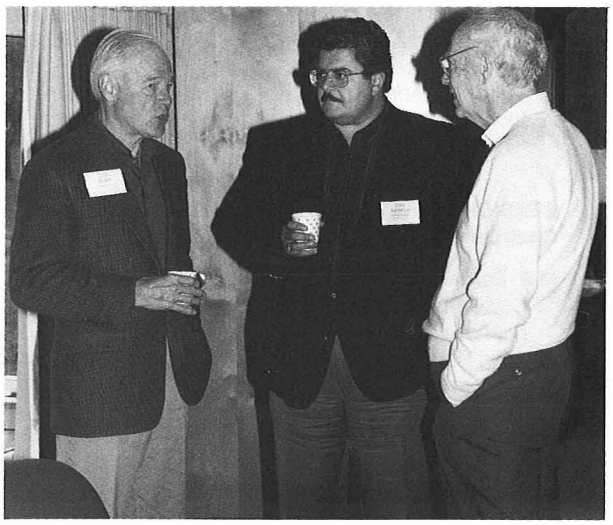
J.D. Watson, Cold Spring Harbor Laboratory
J.A. Witkowski, Cold Spring Harbor Laboratory

SESSION 1

R. Horton, *The Lancet*, London, United Kingdom: Plagues and epidemics in human society.

SESSION 2

R. Berkelman, National Center for Infectious Diseases, Centers for Disease Control and Prevention, Atlanta, Georgia: Ebola, Marburg, and other newly emerging viruses.
M.J. Blaser, Vanderbilt University School of Medicine, Nashville, Tennessee: Thinking about ulcers as an infectious disease.



H. Wendt, J. Karabellas, J.D. Watson

D. Ganem, HHMI, University of California, San Francisco: Herpesviruses old and new: Challenges and opportunities.
B. Bloom, Howard Hughes Medical Institute, Albert Einstein College of Medicine, Bronx, New York: The dangers of antibiotic-resistant bacteria.

SESSION 3

D. Micklos and M. Bloom, DNA Learning Center, Cold Spring Harbor Laboratory: Laboratory experiment: Making antibiotic-resistant bacteria.

SESSION 4

D.T. Jamison, University of California, Los Angeles: The economic impact of infectious diseases.
H.O. Smith, Johns Hopkins University School of Medicine, Baltimore, Maryland: Sequencing bacteria and viruses: A new approach to understanding infectious agents.
D.C. Wiley, Howard Hughes Medical Institute, Harvard University, Cambridge, Massachusetts: Atomic models: Providing clues about infectious and human immunity, and suggesting therapies.

Molecular Biology of Prions and Pathology of Prion Diseases

November 5-November 8

FUNDED BY

Cold Spring Harbor Laboratory Corporate Sponsor Program

ARRANGED BY

P. Gambetti, Case Western Reserve University, Cleveland, Ohio
S.B. Prusiner, University of California, San Francisco
R.B. Wickner, National Institutes of Health, Bethesda, Maryland

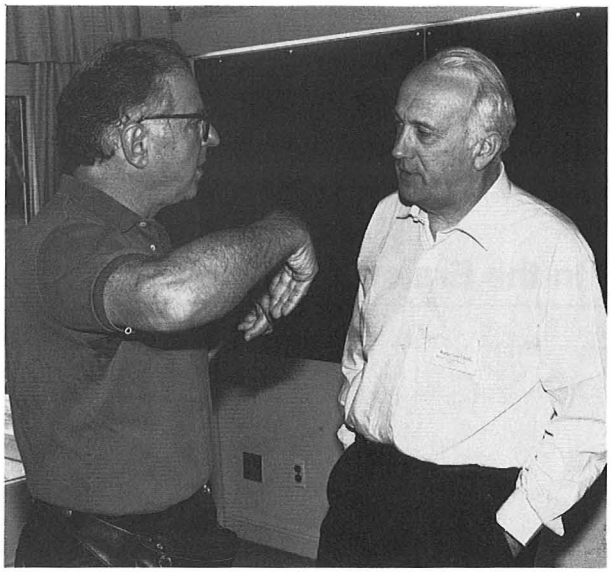
Opening remarks: J.A. Witkowski, Banbury Center, Cold Spring Harbor Laboratory, and **S.B. Prusiner,** University of California, San Francisco, School of Medicine

SESSION 1: Human Genetics and Neuropathology
Chairperson: S.J. De Armond, University of California, San Francisco

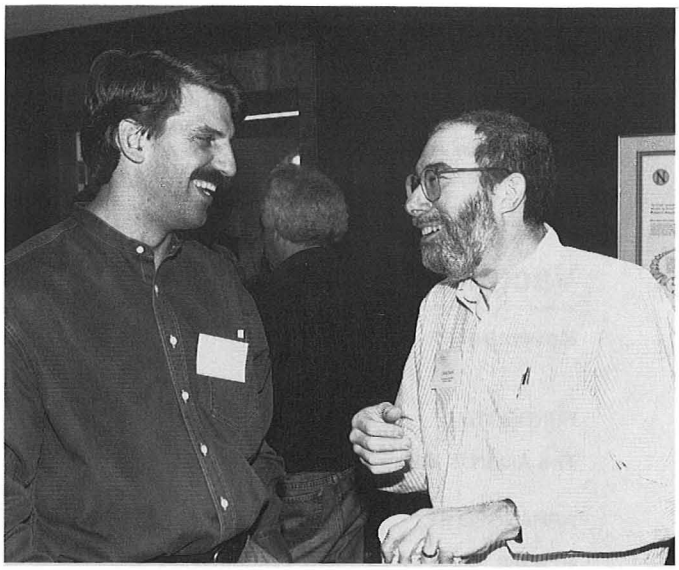
B. Ghetti, Indiana University Medical Center, Indianapolis: Neuropathology of the PrP amyloidoses.
P. Gambetti, Case Western Reserve University, Cleveland, Ohio: Molecular pathology of FF1 and other prion diseases.
R. Gabizon, Hadassah University Hospital, Jerusalem, Israel: Biochemistry of the inherited prion disease E200K.
J.-L. Laplanche, Hospital St. Louis, Paris, France: Molecular basis of sheep susceptibility to natural scrapie in France.
G. Wells, Central Veterinary Laboratory, Surrey, United Kingdom: Neuropathology of BSE and oral transmission.
D. Dormont, Service De Neurovirologie, Fontenay-aux-Roses Cedex, France: Polyene antibiotics in prion diseases.

SESSION 2: Prion Protein Structures
Chairperson: C. Weissmann, University of Zurich, Switzerland

M.A. Baldwin, University of California, San Francisco: Covalent structure of PrP isoforms, spectroscopy of PrP peptides, and molecular models.
J. Safar, National Institutes of Health, Bethesda, Maryland: Conformational mechanisms in PrP^{Sc} formation and infectivity.
B. Caughey, National Institutes of Health Rocky Mountain Labs, Hamilton, Montana: In vitro protease-resistant PrP formation.
D. Riesner, Heinrich-Heine University of Dusseldorf, Germany: Conformation and solubility of PrP.
F. Tagliavini, Instituto Nazionale Neurologico "Carlo Besta," Milan, Italy: Aggregation and biological properties of PrP peptides.
T.L. James, University of California, San Francisco, School of Medicine: Conformational transitions of PrP and peptides studied by NMR.
P.T. Lansbury, Massachusetts Institute of Technology, Cambridge: Molecular mechanisms of amyloid formation.



C. Weissmann, B. Ghetti



P.T. Lansbury, D.A. Harris

SESSION 3: Prion Protein Structures
Chairperson: R.F. Marsh, University of Wisconsin, Madison

D. Wemmer, University of California, Berkeley: PrP peptide structure determination with solid-state NMR.

K. Kaneko, University of California, San Francisco: Conversion of PrP^{C} into a PrP^{Sc}-like molecule.

SESSION 4: Transgenic and Gene-targeted Mice
Chairperson: R.F. Marsh, University of Wisconsin, Madison

C. Weissmann, University of Zurich, Switzerland: Role of PrP in experimental scrapie.

J. Manson, Institute for Animal Health, Edinburgh, United Kingdom: PrP in gene-targeted mice.

G. Telling, University of California, San Francisco: Prion propagation and protein X in transgenic mice.

A. Aguzzi, Institute of Neuropathology, Zurich, Switzerland: PrP^{Sc} in brain grafts.

SESSION 5: Yeast Prions
Chairperson: R.B. Wickner, National Institutes of Health, Bethesda, Maryland

F. Lacroute, CNRS, Gif-sur-Yvette, France: Genetic background on URE3 appearance frequency.

R.B. Wickner, National Institutes of Health, Bethesda, Maryland: URE3 and PS1 as prions of yeast: Genetic evidence.

D.C. Masison, National Institutes of Health, Bethesda, Maryland: Prion-inducing domain of yeast Ure2p and protease resistance of Ure2p in prion-containing cells.

S. Liebman, University of Illinois, Chicago: Variability of yeast prion-like elements affecting translational fidelity.

Y.O. Chernoff, Georgia Institute of Technology, Atlanta: Propagation of PS1 and chaperones.

S.L. Lindquist, HHMI, University of Chicago, Illinois: Hsp104 and maintenance of yeast prions.

M.F. Tuite, University of Kent, United Kingdom: The genetics of PS1: A non-Mendelian phenomenon explained?

SESSION 6: Cell Biology of Prion Protein Isoforms and Molecular Chaperones
Chairperson: P. Gambetti, Case Western Reserve University, Cleveland, Ohio

R.B. Petersen, Case Western Reserve University, Cleveland, Ohio: Effects of PrP mutations on PrP metabolism.

W J. Welch, University of California, San Francisco: Molecular chaperones and prion propagation.

A. Taraboulos, The Hebrew University of Jerusalem, Hadassah Medical School, Israel: Cholesterol in the cellular metabolism of the PrP isoforms.

D.A. Harris, Washington University Medical Center, St. Louis, Missouri: Cell biology of prion diseases.

SESSION 7: Strains of Prions and Molecular Pathogenesis
Chairperson: P. Gambetti, Case Western Reserve University, Cleveland, Ohio

R.F. Marsh, University of Wisconsin, Madison: Strain-specific neuropathology of TME.
G.A. Carlson, McLaughlin Research Institute, Great Falls, Montana: Host genetics and prion diversity.
S.J. De Armond, University of California, San Francisco: Transgenic models of prion disease pathogenesis.
S.B. Prusiner, University of California, San Francisco, School of Medicine: Closing comments.

Vaccine Development and Delivery in the Era of Managed Care

November 12-November 15

FUNDED BY

The Albert B. Sabin Vaccine Foundation

ARRANGED BY

H. Bailit, Aetna Health Plans, Hartford, Connecticut
E.K. Marcuse, Children's Hospital and Medical Center, Seattle, Washington
M.T. Osterholm, Minnesota Department of Health, Minneapolis
P.K. Russell, School of Hygiene and Public Health, The Johns Hopkins University, Baltimore, Maryland
T. Vernon, Merck & Company, Inc., West Point, Pennsylvania

Opening remarks: P.K. Russell, School of Hygiene and Public Health, The Johns Hopkins University, Baltimore, Maryland and **H.R. Shepherd,** Albert B. Sabin Vaccine Foundation, New Canaan, Connecticut

SESSION 1: Vaccine Delivery in Pediatric and Family Practice
Chairperson: E.K. Marcuse, Children's Hospital and Medical Center, Seattle, Washington

B. Guyer, School of Hygiene & Public Health, The Johns Hopkins University, Baltimore, Maryland: Interaction of parental and provider factors in explaining vaccination coverage: Implications for policy.
B. Harvey, Palo Alto, California: Barriers to vaccine delivery in the private sector.
J.R. Almquist, Virginia Mason Pediatrics, Federal Way, Washington: Problems faced by practitioners.
S. Berman, University of Colorado, Children's Hospital, Denver: The doctors' dilemmas: Immunization barriers from a primary care provider's perspective.
S.L. Katz, Duke University Medical Center, Durham, North Carolina: Flexibility in new vaccine schedules.

SESSION 2: Vaccine Financing and Delivery by the Insurance and Managed Care Industry
Chairperson: H.L. Bailit, Aetna Health Plans, Hartford, Connecticut

C.M. Grant, Connaught Laboratories, Inc., Swiftwater, Pennsylvania: Partnerships in adult and pediatric immunization services, consumer expectations. CLI can emphasize "adult" vaccines if you have coverage for pediatrics.
A. McCollam, The Prudential Insurance Co. of America, Roseland, New Jersey: A managed care perspective on vaccine coverage and reimbursement.
R.A. Hansen, Aetna Health Plans, Hartford, Connecticut: How we factor the cost of immunization services into the price for managed care benefit plans at Aetna Health Plans.
D. Siegel, Health Alliance Plan of Michigan, Detroit: Managed care perspectives on enhancing appropriate immunization administration through managed care vehicles.

SESSION 3: Successes and Problems in National and State Vaccination Programs
Chairperson: W.A. Orenstein, Centers for Disease Control & Prevention, Atlanta, Georgia

R.H. Bernier, Centers for Disease Control, Atlanta, Georgia: Current status of the Childhood Immunization Initiative.
D.K. Alfano, Kansas Department of Health & Environment, Topeka: A states perspective.
M. Sheehan, Minnesota Department of Health, Minneapolis: Providing chilhood immunizations in a managed care environment: The Minnesota experience.

D. Siegel, D.A. Henderson

SESSION 4: Government/Industry Relationships
Chairperson: M.T. Osterholm, Minnesota Department of Health, Minneapolis

J.J. Totten, Mercer Management Consulting, Inc., Washington, D.C.: Government/industry relationships and the impact on U.S. vaccine industry economics.
L.B. Hackett, Mercer Management Consulting, Inc., Washington, D.C.: Children's immunization initiative.
S.K. Sharma, United States General Accounting Office, Washington, D.C.: Barriers and obstacles to vaccination.

SESSION 5: Introductions of New Vaccines
Chairperson: R.G. Douglas, Merck & Co., Inc., Whitehouse Station, New Jersey

L.K. Gordon, OraVax Inc., Cambridge, Massachusetts: A perspective from industry. Oral vaccines and mucosal immunity products in development for respiratory syncytial virus, *Helicobacter pylori*, and *Clostridium difficile*.

Colloquium Summary:
D.A. Henderson, Baltimore, Maryland
P. Freeman, University of Massachusetts, Boston

Human Molecular Genetics: A Hands-on Workshop

November 16-November 19

FUNDED BY

Ethical, Legal, and Social Issues Program and Department of Energy's Human Genome Project

ARRANGED BY

M. Bloom, DNA Learning Center, Cold Spring Harbor Laboratory
D. Micklos, DNA Learning Center, Cold Spring Harbor Laboratory
J.A. Witkowski, Banbury Center, Cold Spring Harbor Laboratory

SESSION 1

D. Micklos, DNA Learning Center, Cold Spring Harbor Laboratory: Mendelian view of the gene: From peas to eugenics.
J.A. Witkowski, Banbury Center, Cold Spring Harbor Laboratory: Modern view of the gene.
J.A. Witkowski, Banbury Center, Cold Spring Harbor Laboratory: PCR, RFLPs, and (CA)n: What they are; what they do.

SESSION 2

B. Ward, Integrated Genetics, Inc., Waltham, Massachusetts: Cytogenetics in the age of DNA.
D. Micklos, DNA Learning Center, Cold Spring Harbor Laboratory: Laboratory I: Using restriction enzymes to construct chromosome maps.
D. Micklos, DNA Learning Center, Cold Spring Harbor Laboratory: Laboratory II: Construction of chromosome map.

SESSION 3

M. Bloom, DNA Learning Center, Cold Spring Harbor Laboratory: Cloning human disease genes.
P. Ward, Institute of Molecular Genetics, Baylor College of Medicine, Houston, Texas: DNA-based diagnosis for human genetic diseases.
J. Friedman, HHMI, The Rockefeller University, New York, New York: The genetics of obesity.
W.T. Brown, New York State Institute for Basic Research, Staten Island, New York: Molecular Genetics and biology of the fragile-X syndrome.

SESSION 4

M. Bloom and D. Micklos, DNA Learning Center, Cold Spring Harbor Laboratory: Laboratory: Fingerprinting your own DNA by polymerase chain reaction.

SESSION 5

M. Bloom and D. Micklos, DNA Learning Center, Cold Spring Harbor Laboratory: Laboratory results: Analyzing fingerprinting results.
T. Tully, Cold Spring Harbor Laboratory: Genetics and behavior.
M.G. McInnis, The Johns Hopkins University, Baltimore, Maryland: Genetics of psychiatric disorders.
K. Culver, OncorPharm, Inc., Gaithersburg, Maryland: Human gene therapy trials.
P. Reilly, Shriver Center for Mental Retardation, Waltham, Massachusetts: Future of genetic testing and screening.

Looking to the Next Generation of Genetic Analysis

November 28-December 1

FUNDED BY

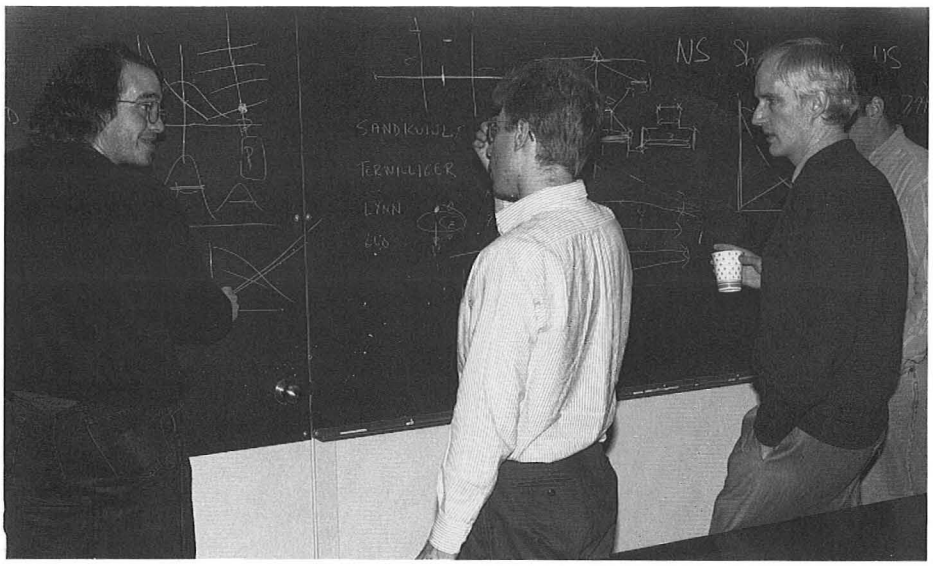
The Charles A. Dana Foundation

ARRANGED BY

A. Chakravarti, Case Western Reserve University, Cleveland, Ohio
E.S. Lander, Whitehead Institute for Biomedical Research, Cambridge, Massachusetts

SESSION 1: "Real World" Experience
Chairperson: K. Morgan, Montreal General Hospital, Canada

N.B. Freimer, University of California, San Francisco: IBD mapping of loci for human behavioral traits.
J.R. DePaulo and M.G. McInnis, The Johns Hopkins Hospital, Baltimore, Maryland: Studies of manic-depressive illness.
L. Peltonen, National Public Health Institute, Helsinki, Finland: Lessons from disease gene search in genetic isolates.
M.S. Georges, University of Liege, Belgium: The application of IBD mapping to locate disease genes in livestock: The example of syndactyly.



J.D. Terwilliger, L. Kruglyak, L.A. Sandkuijl

SESSION 2: Genomic Technologies
Chairperson: A. Chakravarti, Case Western Reserve University, Cleveland, Ohio

T.J. Hudson, Whitehead Institute, Cambridge, Massachusetts: Integrated genetic, physical, and transcript map development of 2-allele polymorphisms.

M.T. Boyce-Jacino, Molecular Tool Inc., Baltimore, Maryland: Identification and genotyping of diallelic polymorphisms.

D.G. Wang, Whitehead Institute, Cambridge, Massachusetts and Robert Lipshutz, Affymetrix, Santa Clara, California: Automated comparative sequencing of PCR products for large-scale screening of biallelic markers and genotyping them on DNA chips.

M. Zabeau, Keygene N.V., Wageningen, The Netherlands: AFLP: A robust high throughput diallelic marker system for the next generation of genetic analysis.

SESSION 3: IBD Mapping in Families
Chairperson: M.S. Georges, University of Liege, Belgium

L. Kruglyak, Whitehead Institute, Cambridge, Massachusetts: A new multipoint method for nonparametric linkage analysis of pedigree data based on identity by descent.

D.W. Fulker, Institute for Behavioral Genetics, University of Colorado, Boulder: Simple strategies for increasing power in sib-pair QTL studies.

J.M. Olson, Case Western Reserve University, Cleveland, Ohio: Two-locus linkage models for complex diseases.

N. Schork, Case Western Reserve University, Cleveland, Ohio: IBD sibship mapping with multiple phenotypes: Design and power issues.

A. Chakravarti, M. Zabeau

Banbury Center Grants

Grantor	*Program/Principal Investigator*	*Duration of Grant*	*1995 Funding+*
FEDERAL SUPPORT			
NATIONAL INSTITUTES OF HEALTH			
	HIV and the Pathogenesis of AIDS	1995	25,000 *
	Lyme Disease Conference	1995	10,000 *
DEPARTMENT OF ENERGY			
	Human Genetics for Nonscientists: Practical Workshops for Policy Makers and Opinion Leaders	1994–1995	66,579
NONFEDERAL SUPPORT			
Meeting Support			
Connaught Laboratories	Lyme Disease Conference	1995	10,000 *
The Charles A. Dana Foundation	Genetic Basis of Manic-Depressive Illness	1993–1995	361,000
Finisterre Fund	Imaging Meeting	1995	23,670 *
Fort Dodge Laboratories	Lyme Disease Conference	1995	5,000 *
MedImmune, Inc.	Lyme Disease Conference	1995	2,000 *
Mothers' Voices, Inc.	HIV and the Pathogenesis of AIDS	1995	5,000 *
OncorMed	DNA Repair Meeting	1995	31,298 *
Pediatric AIDS Foundation	HIV and the Pathogenesis of AIDS	1995	4,914 *
Private Contributions	Neurofibromatosis Meeting	1995	15,000 *
Albert B. Sabin Vaccine	HIV and the Pathogenesis of AIDS	1995	2,000 *
Foundation, Inc.	Vaccine Development	1995	35,149
SmithKline Beecham	Lyme Disease Conference	1995	5,000 *
Viaticus, Inc.	HIV and the Pathogenesis of AIDS	1995	2,000 *
The William Stamps Farish Fund	Molecular Genetics of Diabetes	1993–1996	50,000
The Wilson Foundation	Neurofibromatosis Meeting	1995	5,000 *

* New Grants Awarded in 1995
+ Includes direct and indirect cost

Banbury Center Staff

Jan A. Witkowski, Director
Beatrice Toliver, Administrative Assistant
Eleanor Sidorenko, Secretary
Katya Davey, Hostess
Christopher McEvoy, Buildings and Grounds
Andrew Sauer, Buildings and Grounds

Corporate Sponsors of Cold Spring Harbor Laboratory 1995

American Cyanamid Company
Amgen Inc.
BASF Bioresearch Corporation
Beckman Instruments, Inc.
Becton Dickinson and Company
Bristol-Myers Squibb Company
Chugai Pharmaceutical Co., Ltd.
Chugai Research Institute for Molecular Medicine, Inc.
Diagnostic Products Corporation
The Du Pont Merck Pharmaceutical Company
Forest Laboratories, Inc.
Genentech, Inc.
Glaxo
Hoffmann-La Roche Inc.
Human Genome Sciences, Inc.
Johnson & Johnson
Kyowa Hakko Kogyo Co., Ltd.
Life Technologies, Inc.
Marion Merrell Dow Inc.
Mitsubishi Kasei Institute of Life Sciences
Monsanto Company
New England BioLabs, Inc.
Oncogene Science, Inc.
Pall Corporation
The Perkin-Elmer Corporation
Pfizer Inc.
Research Genetics, Inc.
Sandoz Research Institute
Schering-Plough Corporation
SmithKline Beecham Pharmaceuticals
Sumitomo Pharmaceuticals Co., Ltd.
The Upjohn Company
The Wellcome Research Laboratories, Burroughs Wellcome Co.
Wyeth-Ayerst Research
Zeneca Group PLC

Special Program Support

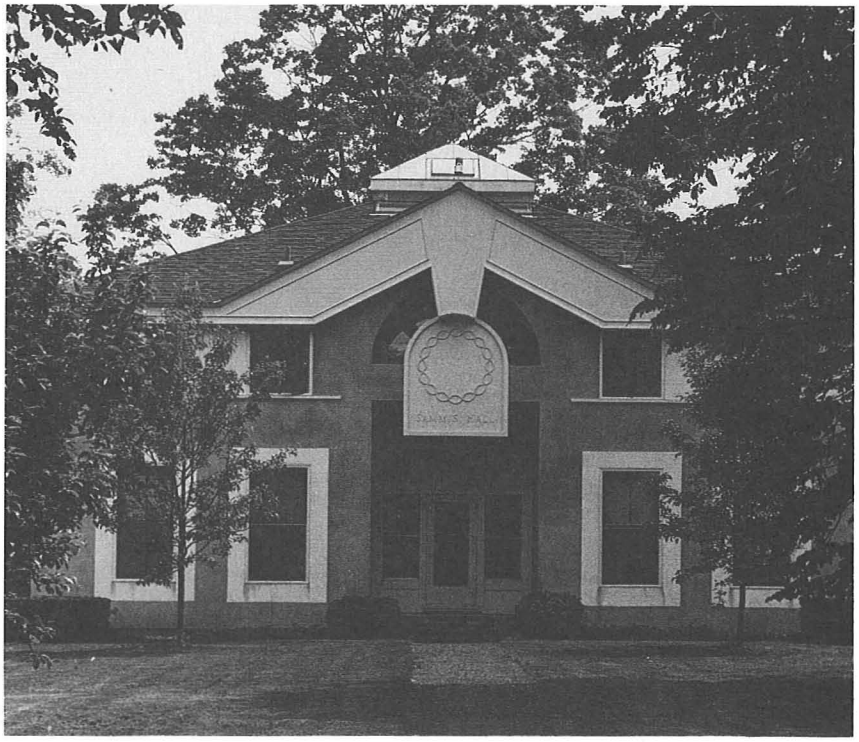
The Charles A. Dana Foundation
The William Stamps Farish Fund

Banbury Center Scientific Advisory Board

Byron E. Butterworth, Chemical Industry Institute of Toxicology
John Cairns, Radcliffe Infirmary, Oxford, United Kingdom
C. Thomas Caskey, Merck Research Laboratories
Allan H. Conney, Rutgers-The State University of New Jersey
Robert T. Fraley, Monsanto Company
Susan J. Hockfield, Yale University
Fred D. Hoerger, Dow Chemical Company
Joseph Sambrook, University of Texas Southwestern Medical Center
Michael M. Simpson, Congressional Research Service
I. Bernard Weinstein, College of Physicians & Surgeons, Columbia University
Norton Zinder, Rockefeller University

(*Facing page*) Banbury Center Meeting House

Robertson House provides dining and housing accommodations at Banbury Center.



Sammis Hall