



CONNECTTM

PRESENT

Technology Innovation Forum

Tuesday, February 22, 2005

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Agenda

8:00 a.m. Registration, Networking, and Breakfast

8:15 a.m. Welcome from BIOCOM Science and Technology Committee Chair, Tina Nova and Fish & Richardson Managing Partner, John Gartman

9:00 a.m.

La Jolla Ballroom A

Julie Swain, M.D., FDA

Medical Device Trial Design for the Business Professional: Lessons Learned

La Jolla Ballroom C

Terry Sejnowski, Ph.D., Salk Institute

The Computational Cell

La Jolla Ballroom B

Oliver Ryder, Ph.D., CRES

Conservation Genomics: Applying tools of Genome Biology to Endangered Species Conservation Efforts

La Jolla Ballroom D

Kathryn Ely, Ph.D., Burnham Institute

Cancer Biology at the Burnham Institute: An NCI-designated Basic Science Cancer Center

10:00 a.m.

La Jolla Ballroom A

Patricia Thistlethwaite, M.D., Ph.D., UCSD

Molecular Mechanisms of Pulmonary Hypertension

La Jolla Ballroom C

John Cashman, Ph.D.,

Human BioMolecular Research Institute

Medicinal Chemistry: Exploring Bioorganic Principles to Drive Drug Design

La Jolla Ballroom B

Jeanne Loring, Ph.D., Burnham Institute

Creating a Community of Stem Cell Scientists.

La Jolla Ballroom D

Marc Montminy, M.D., Ph.D., Salk Institute

New Strategies to Improve How Pancreatic Islet Cells Function in Diabetes

11:00 a.m.

La Jolla Ballroom A

Geert Schmid-Schonbein, Ph.D., UCSD

The Origin of Inflammation: A Holy Grail of Research and Intervention in Cardiovascular Disease

La Jolla Ballroom B

Larry Goldstein, Ph.D., UCSD

New Approaches to Neurodegenerative Disease

La Jolla Ballroom C

Andrew Baird, Ph.D.

Human BioMolecular Research Institute

Medicinal Biology: Exploiting Biological Principles to Drive Drug Design

La Jolla Ballroom D

Adam Godzik, Ph.D.

Burnham Institute

Bioinformatics – from information overload to *in silico* biology

12:00 p.m. Close of Presentations

February 22, 2005

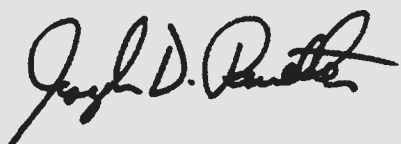
Dear Members and Friends,

On behalf of BIOCOM and CONNECT, we are pleased to welcome you to the 2005 Technology Innovation Forum. Today is the first of an ongoing series of forums designed to connect the San Diego life science business community and our region's world-renowned research institutions. Together, our organizations share a common mission to advocate for San Diego's cutting-edge research and assist in transitioning these discoveries to the commercial market. This Forum serves as a platform to facilitate communication and collaboration, so that San Diego life science professionals can more effectively do business in San Diego.

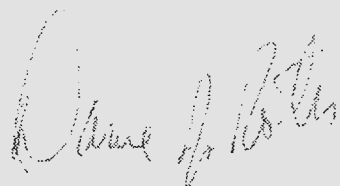
With cutting-edge science paired with the nation's top biotechnology community, San Diego researchers and business leaders have the unique opportunity to mutually benefit from one another. We hope that today's glimpse into the research efforts taking place in San Diego will help to grow partnerships between these two crucial components our life science community.

We thank you for attending today and look forward to your future participation.

Sincerely,



Joseph D. Panetta
President & CEO
BIOCOM



Duane Roth
Executive Director
CONNECT

About BIOCOM and CONNECT



BIOCOM is a premiere life science industry association representing more than 450 member companies. The association focuses on initiatives that positively influence the growth of the life science industry, including capital formation, public policy, workforce development, and scientific discovery and development. For more information on BIOCOM or the San Diego regional life sciences community, please visit the organization's Web site at www.biocom.org or contact our offices at 858-455-0300.



CONNECT is the globally recognized, university-based public benefits organization fostering entrepreneurship in the San Diego region by catalyzing, accelerating, and supporting the growth of the most promising technology and life sciences businesses. For more information about CONNECT programs, visit www.connect.org.

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Presenters

(In order of presentation)

La Jolla Ballroom A

Julie Swain, M.D., FDA – 9:00 a.m.

Patricia Thistlethwaite, M.D., Ph.D., UCSD – 10:00 a.m.

Geert Schmid-Schonbein, Ph.D., UCSD – 11:00 a.m.

La Jolla Ballroom B

Oliver Ryder, Ph.D., Conservation and Research for Endangered Species,

Zoological Society – 9:00 a.m.

Jeanne Loring, Ph.D., Burnham Institute – 10:00 a.m.

Larry Goldstein, Ph.D., UCSD – 11:00 a.m.

La Jolla Ballroom C

Terry Sejnowski, Ph.D., Salk Institute – 9:00 a.m.

John Cashman, Ph.D., Human BioMolecular Research Institute – 10:00 a.m.

Andrew Baird, Ph.D., Human BioMolecular Research Institute – 11:00 a.m.

La Jolla Ballroom D

Kathryn Ely, Ph.D., Burnham Institute – 9:00 a.m.

Marc Montminy, M.D., Ph.D., Salk Institute – 10:00 a.m.

Adam Godzik, Ph.D., Burnham Institute – 11:00 a.m.

La Jolla Ballroom A

Julie A. Swain, M.D.

FDA

Dr. Julie Swain is a cardiovascular surgeon who is a consultant to the FDA serving as the Special Assistant to the Director, Division of Cardiovascular and Respiratory Devices in the Office of Device Evaluation. Prior to joining the FDA, she served as the acting Deputy Associate Administrator of the Office of Biological and Physical Research at NASA Headquarters. She has been a faculty member at Harvard Medical School on the staff of Massachusetts General Hospital. Prior to assuming her position at Harvard, she was a Professor of Surgery at the University of Kentucky and Chief of the Division of Cardiovascular Surgery, Chief of the Division of Cardiovascular Surgery at the University of Nevada School of Medicine, Senior Investigator at the National Institutes of Health, and Chief of Cardiovascular Surgery at Louisiana State University. Her research interests have been in hypothermia and neurological function after cardiac surgery. Dr. Swain's Bachelor's degree is in Physical Chemistry from the University of California at Los Angeles, and her M.D. is from Baylor College of Medicine. She has held postdoctoral research fellowships in Cardiovascular Medicine at Harvard and Cell Biophysics at Baylor. Her postgraduate clinical training was at Baylor and the University of California at San Diego.

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Patricia Thistlethwaite, M.D., Ph.D.

UCSD

Patricia A. Thistlethwaite is a Magna Cum Laude graduate of Harvard Medical School, where she obtained an M.D. and Ph.D. in 1994. Dr. Thistlethwaite trained in general surgery at Massachusetts General Hospital and completed her cardiothoracic surgery residency at the University of Pittsburgh. She joined the faculty of the University of California, San Diego in 1997. As an active cardiothoracic surgeon, Dr. Thistlethwaite specializes in adult cardiac surgery (coronary artery bypass and valve operations) and heart/lung transplantation. She is a member of the Society of Thoracic Surgeons, Western Thoracic Surgical Association, and International Society of Heart and Lung Transplantation. In addition to clinical pursuits, Dr. Thistlethwaite runs an active NIH-funded molecular biology laboratory on the UCSD campus which focuses on innovative approaches to coronary vascular disease and pulmonary hypertension. She has authored over 65 articles and book chapters.

Geert Schmid-Schonbein, Ph.D.
UCSD

Dr. Geert W. Schmid-Schönbein, Professor of Bioengineering, has been Director of the Microcirculation Laboratory at UC San Diego in the Department of Bioengineering since 1979. After completion of a Ph.D. degree in 1976 at UC San Diego, he was Staff Associate in the Department of Physiology at Columbia University, and in 1979 started on an extended research and teaching career in Biomechanics and Microcirculation. He is Adjunct Professor in Medicine, member of the Whitaker Institute for Biomedical Engineering, the Institute of Molecular Medicine, the Cancer Center, the Material Science Graduate Program and the Biomedical Science Graduate Program at UCSD. He is a Fellow of the American Heart Association, Founding Fellow of the American Institute for Medical and Biological Engineering and Member of the World Council on Biomechanics. He has served as consultant for the National Science Foundation, the National Institute of Health, the Whitaker Foundation and in 1991 was President of the Biomedical Engineering Society, in 1998 President of the North American Society for Biorheology, and in 2003 President of the Microcirculatory Society. Together with Professor Roger Kamm from MIT in 2003 he was Founding Chair of the First US National Conference on Frontiers in Biomechanics and is co-chair with Professor Kari Alitalio from Helsinki, Norway, of the 2006 Gordon Research Conference on Lymphatics. In the Jacob School of Engineering between 1997 and 2000 he has been elected as Teacher of the Year in Bioengineering, and in 1999 the Distinguished Alumnus in Bioengineering. He has several patents and has published extensively in the area of biomechanics, circulation, lymphatics, cell and molecular mechanics. The National Institute of Health, the National Science Foundation, the American Heart Association, and the Juvenile Diabetes Association have continuously supported his research. Professor Schmid-Schönbein maintains several research collaborations with colleagues in the UCSD School of Medicine and in neighboring research institutions on fundamental mechanisms of human disease.

The mission of his laboratory is to investigate microcirculatory phenomena in living tissues and to develop quantitative models of the circulation and transport in blood vessels, in the tissues and in the lymphatics at the cellular, genetic and molecular level. The general approach is to utilize biomechanical, cellular and molecular techniques to investigate the living microcirculation in cardiovascular diseases such as ischemia, physiological shock, and hypertension. Dr. Schmid-Schönbein's team has developed a predictive biomechanical analysis of blood flow in skeletal muscle. Since 1979 his team has been at the forefront to demonstrate in several cardiovascular complications (including heart attacks, strokes, and chronic degenerative diseases) a cascade of events, today referred to as inflammation. The team uncovered previously unknown mechanism for cessation of blood flow in cardiac and cerebral ischemia, physiological shock, for venous disease, they discovered the mechanism for lymph formation, and they identified mechanism for organ injury in arterial hypertension.

In the past decade his research has focused on the mechanisms that serve to trigger inflammation as an entry to understand the origin of cardiovascular disease and prevention. His group has identified a surprising sequence of events involving the digestive enzymes in the intestine and synthesized in the pancreas. The analysis suggests that organ failure in physiological shock and death is associated with self-digestion by powerful pancreatic enzymes in the intestine that are part of normal digestion. His group has discovered new approaches for possible interventions against the lethal course of shock.

La Jolla Ballroom B

Oliver Ryder, Ph.D. **CRES**

Oliver A. Ryder, Ph.D. holds the Kleberg Genetics Chair at the Zoological Society of San Diego's conservation and research facility CRES (Conservation and Research for Endangered Species) where he heads the Genetics Division, and is an Adjunct Professor of Biology at the University of California, San Diego. He directs a highly productive genetics laboratory and has applied his background in molecular genetics to the emerging science of conservation biology and, most recently, conservation genomics. His group at CRES undertakes comparative cytogenetic and molecular genetic studies involving a diverse array of species suitable as models for comparative genomic studies and investigates the systematics and evolution of populations and species. Additionally, he undertakes research pertinent to planning and management for selected mammalian, reptilian, and avian species of conservation concern utilizing appropriate techniques and including the development and application of new methodologies. He directs the development and utilization of the "Frozen Zoo[®]," a unique genetic resource bank incorporating more than 7000 specimens representing approximately 500 species and subspecies. (http://www.conservationandscience.org/projects/gr_frozen_zoo.html).

Assessment, planning, monitoring and management of small populations for conservation will benefit from application of more effective methods of collection and analysis of genetic data. Recent studies in comparative genomic studies of primates, especially hominoid apes include molecular evolutionary and population studies involving analysis of nuclear microsatellite allelic variation, nucleotide sequencing analysis of mitochondrial genomes, and larger-scale genome comparisons, e.g., comparing segments of gorilla DNA with their human homologs. A recent collaboration with the Diversa Corporation was initiated to explore biodiversity research and conservation opportunities. He is a past president of the American Genetic Association, and an Associate Editor for the Journal of Heredity and Conservation Genetics and has served on the editorial Boards of Conservation Biology and Genetica. He is a member of the U.S. Fish and Wildlife Service Recovery Team for the endangered Peninsular bighorn sheep, the Przewalski's Horse Global Management Working Group, the American Zoo and Aquarium Association Small Population Management Advisory Group, the IUCN-World Conservation Union's Equid Specialist Group, Reintroduction Specialist Group, and Conservation Breeding Specialist Group. Oliver Ryder was the organizer of an international conference in 2000, "Genetic Resources for the New Century" that examined the interface between the utilization and conservation of biological diversity in the emerging genomics era.

Jeanne Loring, Ph.D. **Burnham Institute**

Dr. Jeanne Loring has a B.S. in Molecular Biology (magna cum laude) and a Ph.D. in Developmental Neurobiology. She received a National Merit Scholarship for her undergraduate work at the University of Washington, an individual NSF Fellowship for graduate school in the Institute for Molecular Biology at the University of Oregon, an NIH postdoctoral award, and is a member of Phi Beta Kappa.

Dr. Loring has a strong commitment to both academic and industry science. She left her academic faculty position in Embryology at the University of California at Davis in 1987 to head a research program in cell replacement therapy for Parkinson's disease at Hana Biologics. In 1989, she joined the start-up company, GenPharm International, in Mountain View, CA. to initiate their embryonic stem cell and Alzheimer's disease programs. In 1997 she became Senior Director at Incyte Genomics in Palo Alto, CA, to develop microarray applications for stem cell biology and Alzheimer's disease. Also in 1997, Dr. Loring started her own company to develop and commercialize her inventions in embryonic stem cell technology. Through that company, Arcos BioScience, she generated nine of the approximately 60 human embryonic stem cell derivations that were recognized in 2001 by the NIH as eligible for federal funding. In August 2002, Arcos merged with Cythera, Inc. of San Diego, and she served as their scientific advisor until she joined the faculty of Burnham Institute as a principal investigator in January 2004.

Dr. Loring is inventor on four patents and four patent applications in the fields of transgenic technology, Alzheimer's disease, and stem cell biology, and has authored more than fifty scientific papers, book chapters, and essays.

She is a member of two scientific review boards, the Brain Disorders and Clinical Neurosciences Study Section of the NIH (since 1996; Chair in 2004), and the Medical and Scientific Advisory Council of the Alzheimer's Association (since 1996). She continues to advise biotechnology companies in stem cell research through her consulting company, ArcGen, Inc., and is Visiting Scholar in Neuroscience at the UCSD School of Medicine.

Dr. Loring has three main scientific interests: developing human embryonic stem cells for drug discovery drug delivery and cell therapy; applying gene expression profiling (microarray) to characterize human disease and models of disease; and discovering novel therapies for Alzheimer's disease.

Dr. Loring was born in Arizona, and grew up in Colorado, Utah, New Mexico, and Wyoming. She currently resides in San Diego, California.

Lawrence Goldstein, Ph.D.
UCSD

Dr. Lawrence S.B. Goldstein is Professor of Cellular and Molecular Medicine at the University of California, San Diego, School of Medicine. He is also an Investigator with the Howard Hughes Medical Institute. He receives grant funding from the NIH, the Johns Hopkins ALS Center, the Hereditary Disease Foundation, and the Ellison Medical Foundation and has over 100 publications. Dr. Goldstein received his B.A. degree in biology and genetics from UCSD in 1976 and his Ph.D. degree in genetics from the University of Washington, Seattle in 1980. He did postdoctoral research at the University of Colorado at Boulder from 1980-1983 and the Massachusetts Institute of Technology in 1983/1984. He was Assistant, Associate and Full Professor at Harvard University in the Department of Cellular and Developmental Biology from 1984-1993 and moved to UCSD and HHMI in 1993. His awards include a Senior Scholar Award from the Ellison Medical Foundation, an American Cancer Society Faculty Research Award, and the Loeb Chair in Natural Sciences when he was at Harvard University. His research is focused on understanding the molecular mechanisms of intracellular movement in neurons and the role of transport dysfunction in neurodegenerative diseases. His lab provided the first molecular descriptions of kinesin structure and organization, and has recently discovered important links between transport processes and diseases such as Alzheimers Disease and Huntingtons Disease. Dr. Goldstein has also had an active role in National Science policy. He has served on many public science advisory committees, has written about, spoken about, and been interviewed on numerous occasions on science issues by print and broadcast media, and has testified on a number of occasions in the U.S. House of Representatives and the Senate about NIH funding and stem cell research. As a cofounder and consultant of the biotechnology company Cytokinetics he has also had an active role in private industry.

La Jolla Ballroom C

Terrence Sejnowski, Ph.D.

Salk Institute

Terrence Sejnowski is an Investigator with the Howard Hughes Medical Institute and is the Francis Crick Professor at The Salk Institute for Biological Studies where he directs the Computational Neurobiology Laboratory. He is also Professor of Biological Sciences and Adjunct Professor in the Departments of Neurosciences, Psychology, Cognitive Science, and Computer Science and Engineering at the University of California, San Diego, where he is Director of the Institute for Neural Computation. Dr. Sejnowski received B.S. in physics from the Case-Western Reserve University, M.A. in physics from Princeton University, and a Ph.D. in physics from Princeton University in 1978. From 1978-1979 Dr. Sejnowski was a postdoctoral fellow in the Department of Biology at Princeton University and from 1979-1982 he was a postdoctoral fellow in the Department of Neurobiology at Harvard Medical School. In 1982 he joined the faculty of the Department of Biophysics at the Johns Hopkins University, where he achieved the rank of Professor before moving to San Diego in 1988. He has had a long-standing affiliation with the California Institute of Technology, as a Wiersma Visiting Professor of Neurobiology in 1987, as a Sherman Fairchild Distinguished Scholar in 1993 and as a part-time Visiting Professor 1995-1998.

Dr. Sejnowski received a Presidential Young Investigator Award in 1984. He received the Wright Prize from the Harvey Mudd College for excellence in interdisciplinary research in 1996 and the Hebb Prize for his contributions to learning algorithms by the International Neural Network Society in 1999. He became a Fellow of the Institute of Electrical and Electronics Engineers in 2000 and received their Neural Network Pioneer Award in 2002. In 2003 he was elected to the Johns Hopkins Society of Scholars.

In 1989, Dr. Sejnowski founded *Neural Computation*, published by the MIT Press, the leading journal in neural networks and computational neuroscience. He is also the President of the Neural Information Processing Systems Foundation, a non-profit organization that oversees the annual NIPS Conference. This interdisciplinary meeting brings together researchers from many disciplines, including biology, physics, mathematics and engineering. He co-invented the Boltzmann Machine with Geoffrey Hinton and pioneered the application of learning algorithms to difficult problems in speech (NETtalk) and vision.

The long-range goal of Dr. Sejnowski's laboratory is to understand the computational resources of brains and to build linking principles from brain to behavior using computational models. This goal is being pursued with a

combination of theoretical and experimental approaches at several levels of investigation ranging from the biophysical level to the systems level. Hippocampal and cortical slice preparations are being used to explore the properties of single neurons and synapses, including the precision of spike firing and the influence of neuromodulators. Biophysical models of electrical and chemical signal processing within neurons are used as an adjunct to physiological experiments. New techniques have been developed for modeling cell signaling using Monte Carlo methods (MCell). The central issues being addressed are how dendrites integrate synaptic signals in neurons, how networks of neurons generate dynamical patterns of activity, how sensory information is represented in the cerebral cortex, how memory representations are formed and consolidated during sleep, and how visuo-motor transformations are adaptively organized. His laboratory has developed new methods for analyzing the sources for electrical and magnetic signals recorded from the scalp and hemodynamic signals from functional brain imaging by blind separation using independent components analysis (ICA).

John Cashman, Ph.D. **Human BioMolecular Research Institute**

John R. Cashman, Ph.D., Director and Founder, has more than 24 years experience in biomedical research as a researcher, consultant, entrepreneur or administrator. In 1997, he founded the Human BioMolecular Research Institute, a non-profit research institute dedicated to performing fundamental and applied research to address important human diseases of the central nervous system. Previously, he was Senior Scientist at the Seattle Biomedical Research Institute and prior to that, he was Associate Director for the IGEN Research Institute in Seattle, Washington. In 1984, he was appointed Assistant Professor of Chemistry and Pharmaceutical Chemistry at the University of California, San Francisco. He completed a postdoctoral fellow in the Department of Chemistry at Harvard University in Cambridge, Massachusetts, with Professor E.J. Corey (1982-1984). In 1990, Professor Corey received the Nobel Prize. Dr. Cashman received his Masters and doctorate degrees in Medicinal Chemistry from the University of Kansas, Lawrence, Kansas (1982). Prior to graduate school, he obtained bachelor degrees in chemistry and biology at the College of Creative Studies, University of California, Santa Barbara (1977). Dr. Cashman was a University of California Presidents Undergraduate Researcher (1974-1976), received a Sigma Xi Undergraduate Research fellowship (1975), was a PEW Scholar Nominee at the University of California, San Francisco (1986), received a March of Dimes Basil O'Connor Research Award (1986), was appointed Technical Advisor, San Francisco Estuary Project (1990) and was elected Fellow of the American Association for the Advancement of Science in 1996. In 1991, Dr. Cashman was appointed to the Editorial Advisory Board, Chemical Research in Toxicology and in 1999 he was appointed to the Editorial Advisory Board of Current Drug Metabolism. Dr. Cashman is the author of over 145 research articles or book chapters and over 12 patents in the area of drug discovery and evaluation. He is extensively consulted by biotechnology, pharmaceutical industry and government in various areas of human drug development, drug safety evaluation,

medicinal chemistry, pharmacogenetics and biochemical toxicology. Dr. Cashman is on the Board of Directors of three biotechnology companies.

Andrew Baird, Ph.D. **Human BioMolecular Research Institute**

Andrew Baird is a Senior Investigator at The Human BioMolecular Research Institute where he directs the Laboratories for Medicinal Biology. He is also Professor of Neurosciences in Molecular Neuroscience Group in the Division of Medicine, at the University of Birmingham, Edgbaston, England where he is Director of Translational Neuroscience.

Dr. Baird received B.Sc. (hons) in biochemistry from the University of Ottawa, and a Ph.D. in biochemistry from McGill University in 1980.

From 1980-1984 Dr. Baird was a postdoctoral fellow with Roger Guillemin (Nobel, 1977) in the Neuroendocrinology Laboratories at Salk Institute for Biological Sciences before assuming faculty positions at both the Salk Institute (1984-1989) and within the Scripps Institutes for Medical Sciences (1990-1995). After serving as Chief Scientific Officer in two San Diego companies that he co-founded (Prizm Pharmaceuticals Inc., Ciblex Corporation), he became Founding Director of the Sackler Institute for Pharmaceutical Sciences at King's College London until 2002 when he returned to San Diego.

Dr. Baird has been on the editorial boards of several scientific journals including Endocrinology, Journal of Endocrinology, Cardiovascular Research, Growth Factors, Progress in Growth Factor Research and Cytokine Reviews. He has served as scientific advisor to numerous pharmaceutical and Biotechnology Companies as a consultant, member of scientific advisory boards and board of directors. He was a member of NIH study section review panels (CDB), ad hoc reviewer to several journals, investor and grant committees. He is the recipient of numerous awards and lectureships including the Hans Seyle Award, The Pharmacia Award, Kroc Lectureship. Since their discovery of basic fibroblast growth factor (FGF2) at the Salk Institute, Dr. Baird's research has focused on the development of novel strategies to transform biotherapeutics molecules, like FGF2, into clinically useful drugs. In recent years, this research has focused on innovative gene and protein deliveries to the central nervous system for the treatment of CNS injury and neurodegenerative disease.

La Jolla Ballroom D

Kathryn Ely, Ph.D. **Burnham Institute**

Kathryn Ely earned her Ph.D. in crystallography at the University of Utah, working on immunoglobulin structures. She held joint faculty appointments there in the Departments of Biology and Bioengineering for six years until relocating to the Burnham Institute. Her laboratory focuses on molecular recognition and protein-protein interactions, using a variety of biophysical techniques including crystallography, NMR, molecular modeling, surface plasmon resonance, and circular dichroism. Some structures produced by her group include: translational repressors, an ets transcription factor bound to cognate DNA, the Fab portion of an anti-integrin antibody, a complex of CD40 bound to the downstream signaling element TRAF and the BAG regulatory co-chaperone the antimetastatic protein anastellin. Her work is making important contributions to understanding molecular adaptation at protein-protein interfaces. Dr. Ely is a Professor at Burnham and also Adjunct Professor of Pathology at the University of California, San Diego. At Burnham, she is also Director of Scientific Advancement. Her professional contributions include *ad hoc* participation on National Institutes of Health and National Science Foundation review panels and a four-year assignment as structural biology reviewer on the National Cancer Institute Cancer Center Review Parent Committee. She served as Secretary/Treasurer for the Macromolecular SIG of the American Crystallographic Association. She also was a member of the National Research Council's U.S. National Committee for Crystallography. Currently she is a member of the Scientific Advisory Board of the Purdue University Cancer Center and a member of the External Advisory Committee of the COBRE program in Protein, Structure and Function at the University of Kansas.

Marc Montminy, M.D., Ph.D. **Salk Institute**

Marc Montminy is a professor in the Clayton Foundation Laboratories for Peptide Biology. Montminy's lab isolated cDNA clones for the cAMP response element binding protein (CREB) in 1989. cAMP was found to regulate cellular genes via the PKA mediated phosphorylation of CREB at SER133. This modification was shown to promote target gene activation via the recruitment of the coactivator CBP. Structural studies of the CREB/CBP complex revealed that CREB phosphorylation promotes recruitment of CBP via allosteric and direct mechanisms. The structure also suggested the potential for developing small molecules that block target gene activation by disrupting the CREB:CBP complex.

Current work in the lab focuses on the identification of CREB target genes and characterization of agonists and antagonists that may be used to evaluate the importance of CREB in mediating cellular responses to various stimuli. Montminy also conducts research on the genetic basis of diabetes. He and his team have isolated a gene, called PDX, which is intimately involved in pancreas development and glucose homeostasis. Montminy's group showed that the protein made by the PDX gene binds directly to the insulin gene to stimulate its activity.

Adam Godzik, Ph.D. **Burnham Institute**

Adam Godzik, Ph.D., Professor and Program Director, Program for Bioinformatics and Systems Biology, The Burnham Institute, and Bioinformatics Core Leader, Joint Center for Structural Genomics, UCSD.

Dr. Godzik is a physicist who is now applying tools of physics and computer science to analyze biological systems. He developed several protein structure and function prediction algorithms and led development of large biological databases, integrating results of experiment and theoretical analysis of individual proteins and entire genomes. Dr. Godzik received a Ph.D. in physics from University of Warsaw, Poland and, before joining the Burnham Institute, worked at EMBL in Heidelberg and the Scripps Research Institute in La Jolla.



