

The 8th Annual Symposium on Biopharmaceuticals

San Diego Bio-Pharma Conference 2009

Riding the Economic Wave – Challenges and Opportunities



Leading Organizer

Sino-American Biomedical and Pharmaceutical Professionals Association (SABPA)
San Diego Chinese Association (SDCA)

Co-organizers

The American Chemical Society, San Diego Section
UCSD Technology Transfer and Intellectual Property Services

June 6th, 2009 Hilton, San Diego/Del Mar

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Sino-American Biomedical and Pharmaceutical Professionals Association (SABPA)

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Symposium Program

Into its eighth year, this annual symposium strives to strengthen connections between academia and industry, and between technology innovation and product development. Two scientific sessions feature an array of distinguished speakers presenting most recent advances in the life cycle of drug discovery and development. Two interactive panel discussions present strategies to reinvent biopharma R&D business model with the aim to enhance efficiency and success rate from both regional and global perspectives. Through a format of knowledge sharing and networking, the goal is to promote innovation, collaboration, and support advancement of San Diego's biopharmaceutical research and development.

8:00 am - 5:00 pm	Exhibition & Job Bulletins
8:00 am - 8:40 am	Continental Breakfast & Registration
	Welcome
8:40 am – 8:50 am	Xiangming Fang , President of SABPA SD, Sr. VP and CSO, eBioCenter Corporation
	Opening Address
8:50 am – 9:00 am	The Honorable Brian P. Bilbray , Member of Congress
9:00 am - 10:00 am	Session I. Frontier Research and Innovations
	Session Chair : Hui Cai , Chair of Board, SABPA, BOD of SDCA, President and CEO, Inflexion BioPartners
	Improving <i>in vivo</i> and Clinical Imaging with Activatable Cell-penetrating Peptides
	Roger Tsien , Professor, UCSD, 2008 Nobel Prize Laureate for Chemistry
	A Chemical Approach to Cell Fate Control
	Sheng Ding , Associate Professor, The Scripps Research Institute
10:00 am -10:30 am	Coffee Break (sponsored by Azopharma Product Development Group)
10:30 pm - 11:50 pm	Panel Discussion I: Evolving Business Models for Bio-Pharma R&D - Challenges and Opportunities
	Moderator: Jack Florio , Senior Vice President, Brinson Patrick Securities
	Stephen Chang , CSO, Stemgent
	David Kabakoff , Executive-in-Residence, Sofinnova Ventures
	Christopher LeMasters , CBO, Tragara Pharmaceuticals
	Randy Woods , President and CEO, Sequel Pharmaceuticals
12:00 pm - 1:15 pm	Luncheon
1:15 pm - 2:00 pm	San Diego Bio-Pharma Achievement Award:
	Moderator : Hui Li , Vice Chair of Board, SABPA, Senior Principal Scientist, Pfizer Global Research & Development
	Award Recipient: Professor K.C. Nicolaou , The Scripps Research Institute & UCSD

Session II. New Drug Development

- 2:00 pm - 3:00 pm **Session Chair** : [Cheng Jin](#), Executive Director, Business Development of PharmaLegacy Laboratories
- A Novel Approach to Drug Discovery and Development for Osteoporosis and Other Bone Diseases**
[Hua Zhu \(David\) Ke](#), Scientific Executive Director, Bone and Mineral Metabolism, Amgen
- Oral Delivery of Oligonucleotides in Man**
[Lloyd G. Tillman](#), Executive Director of Pharmaceutical Development, ISIS
- 3:00 pm - 3:30 pm **Coffee Break** (sponsored by [Azopharma Product Development Group](#))
- 3:30 pm - 4:30 pm **Panel Discussion II: Emerging Infectious Diseases - What We Have Learnt from the N1H1 Outbreak**
- Moderator** : [Eldora Lynn Ellison](#), Director, Sterne, Kessler, Goldstein & Fox
- [Ronald B. Moss](#), Executive VP, Clinical Development & Medical Affairs, NexBio
- [Graham Lidgard](#), Senior VP of R&D, Nanogen
- [David Looney](#), Associate Professor, Medicine, UCSD Medical Center
- [Sean M. Sullivan](#), Executive director, Pharmaceutical Sciences, Vical
- [Christina Yang](#), SVP, Clinical, Regulatory & Quality, Gen-Probe
- 4:30 pm **Closing**
- [Feng Tian](#), President of SDCA, BOD of SABPA
- 4:30 pm—5:00 pm **Networking**

Leading Organizers



Sino-American Biomedical and Pharmaceutical Professionals Association (SABPA) is an 501(c)(3) nonprofit organization founded in early 2002 by [professionals and scholars](#) from the Chinese community in San Diego. In 2005, we expanded to Orange County and Los Angeles. We invite all scholars, professionals and entrepreneurs of any origin who are working in, engaged in, or interested in the biotech and pharmaceutical industry in Southern California to [join us](#) as a member of SABPA.

SABPA's **Mission** is to focus on Networking; Career Development; Education; and Pacific Connections.

SABPA's **Vision** is to become the most valuable local professional association to our members and to our community.

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Secretaries: Shuyan Lu, Yinghong Gao;
Treasurers: Jia Liu, Tia Chen

Call for Volunteers for the SABPA Committees
(Please e-mail info@sabpa.org if interested)

<http://www.sabpa.org>



San Diego Chinese Association (SDCA) is a *US IRS-approved 501(c)(4) non-profit organization*. It was founded in 1993 in San Diego by a group of highly motivated Chinese professionals.

SDCA Board Members

CAI, Hui (蔡辉), Ph.D.; MBA	Inflexion BioPartners
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- Provide financial incentives to researchers to stimulate technological innovations.

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- Active and equal-opportunity marketing of available UCSD innovations.
- Fair risk- and benefit-sharing with licensees.
- Long term and cross-cultural partnership with industries
- Serve & protect the interests of the University & UCSD researchers.

Featured Speakers

Confirmed Speakers, Panelists, Chairs, and Moderators

Hui Cai, Ph.D., Chair of Board, SABPA, BOD of SDCA, President and CEO, Inflexion BioPartners

Stephen M. Chang, Ph.D., CSO, Stemgent

Sheng Ding, Ph.D., Associate Professor, Department of Chemistry, The Scripps Research Institute

Eldora Ellison, Ph.D., Esq., Director, Sterne, Kessler, Goldstein & Fox PLLC

Xiangming Fang, M.D., Ph.D., President of SABPA SD, Sr. VP and CSO, eBioCenter Corporation

Jack Florio, MBA, Senior Vice President, Brinson Patrick Securities Corporation

Cheng Jin, M.D., Ph.D., Executive Director, Business Development, PharmaLegacy Laboratories

David Kabokoff, Executive-in-Residence, Sofinnova Ventures

Hua Zhu (David) Ke, Ph.D., Scientific Executive Director, Bone and Mineral Metabolism, Amgen Inc.

Hui Li, Ph.D., Vice Chair of Board, SABPA, Senior Principal Scientist, Pfizer Global Research & Development

Graham Lidgard, Ph.D., Senior Vice President of R&D, Nanogen

David Looney, M.D., Associate Professor IR, Medicine, UCSD Medical Center

Ronald B. Moss, M.D., Executive VP, Clinical Development & Medical Affairs, NexBio

K.C. Nicolaou, Ph.D. Professor, The Scripps Research Institute & UCSD

Sean M. Sullivan, Ph.D., Executive Director, Pharmaceutical Sciences, Vical, Inc.

Lloyd G. Tillman, Ph.D., Executive Director of Pharmaceutical Development, ISIS Pharmaceuticals, Inc.

Roger Tsien, Ph.D., Professor, UCSD, 2008 Nobel Prize Laureate for Chemistry

Randall E. Woods, President & CEO, Sequel Pharmaceuticals

Christina Yang, Ph.D., Senior VP, Clinical, Regulatory & Quality, GenProbe

Hui Cai, Ph.D. MBA., Chair of Board, SABPA, BOD of SDCA, President and CEO, Inflexion BioPartners



Dr. Hui Cai is Chairwoman of the Board at the Sino-American Biomedical and Pharmaceutical Professionals Association (SABPA, www.sabpa.org), Chairwoman of the San Diego Section of the American Chemical Society (ACS San Diego, www.sandiegoacs.org), and a former President of San Diego Chinese Association (SDCA, www.sdcausa.org). She was appointed by the Mayor of San Diego in 2002 and has served as a Commissioner at City of San Diego Science and Technology Commission.

Dr. Hui Cai is President & CEO of Inflexion BioPartners (www.inflexionbio.com), a professional consultancy that offers management and consulting services to help optimizing key resources along the biotech and pharmaceutical R&D value chain. Dr. Cai has a broad portfolio of expertise and solid track record in strategic initiatives aimed at maximizing organizational efficiency and efficacy. She is also a recognized leader in fostering government, academia, and industry relations, both locally and internationally.

Prior to Inflexion BioPartners, she was Vice President of Corporate Development at HUYA Bioscience International, where she was involved in strategic planning, strategic partnership, cross-Pacific operation, international sourcing of drug candidates, and portfolio management.

Prior to that, Dr. Cai had nearly ten years of pharmaceutical research and development experience at Johnson & Johnson Pharmaceutical Research and Development, co-leading multiple small molecule drug discovery and development programs. She is a co-author and co-inventor to over 40 scientific publications and issued or pending patents.

Dr. Cai received her BS and MS from Peking University, PhD in Chemistry from The Scripps Research Institute, and MBA from UCSD Rady School of Management as a recipient of the distinguished DLA Piper - Athena FlexMBA Scholarship.

Featured Speakers

Stephen M. Chang, Ph.D. CSO of Stemgent



Dr. Stephen Chang is Chief Scientific Officer at Stemgent. Prior to that he has served as a director of the MultiCell Technologies since June 2004, became president of MultiCell Technologies in February 2005, and was appointed chief executive officer (CEO) in May 2006. Dr. Chang is also president of MCT Rhode Island Corp. and Xenogenics Corporation, and president, chief financial officer (CFO), treasurer, and director of MCTI, a partially-owned subsidiary of the Company. Dr. Chang is president of CURES, a coalition of patient advocates, biotechnology companies, pharmaceutical companies, and venture capitalists dedicated to ensuring the safety, research, and development of innovative life saving medications. Dr. Chang is also on the Board of BIO-COM, San Diego's premier life sciences organization. Dr. Chang was chief science officer (CSO) and vice president of Canji Inc./Schering Plough Research Institute in San Diego from 1998 to 2004. He earned his doctoral degree in biological chemistry, molecular biology, and biochemistry from the University of California, Irvine.

Sheng Ding, Ph.D. Associate Professor, Department of Chemistry, The Scripps Research Institute



Dr. Sheng Ding is currently Associate Professor in the Department of Chemistry at The Scripps Research Institute in La Jolla, USA. He obtained his B.S. in chemistry with honors from Caltech in 1999, and a Ph.D. in chemistry from Scripps in 2003. Dr. Ding's lab has been developing and integrating chemical and functional genomics tools to study stem cell biology and regeneration, with a focus on applying high throughput cellular screening approaches to identify and further characterize novel small molecules that can control various cell fate/function. Ding is also a cofounder of Fate Therapeutics and Stemgent.

Eldora Ellison, Ph.D., Esq., Director, Sterne, Kessler, Goldstein & Fox PLLC



Eldora Ellison, Ph.D., Esq. is a Director in the law firm of Sterne, Kessler, Goldstein & Fox PLLC. In addition to holding a law degree from Georgetown University Law Center, Dr. Ellison holds a Ph.D. in Biochemistry, Molecular and Cell Biology from Cornell University. Dr. Ellison's practice focuses on patent issues in the life sciences, and includes counseling clients on intellectual property strategy; evaluating patent portfolios; representing clients in patent litigations and interferences; licensing; conducting validity, non-infringement, and freedom-to-operate analyses; preparing and prosecuting patent applications; resolving complex inventorship disputes; carrying out due diligence investigations; and client counseling regarding FDA/ANDA practice. Dr. Ellison has represented a variety of types of organizations, including large corporations, small start-up companies, and not-for-profit organizations.

Featured Speakers

Xiangming Fang, M.D., Ph.D. President of SABPA SD, Sr. VP and CSO, eBioCenter Corporation



Dr. Fang is Co-Founder, Senior Vice President and Chief Scientific Officer at eBioCenter Corporation (www.ebiocenter.com), an internet-based company providing marketing and information services in the fields of biopharma and life sciences.

Dr. Fang has 26 years of experience in biomedical research and product development, including 16 years of biotech industry experience and 10 years of management experience. She has strong scientific background with integrated knowledge in medicine, molecular and cell biology, protein chemistry and immunology. Previously as the Senior Vice President and Chief Scientific Officer at GenWay Biotech, she is responsible for new technology and product development and production, as well as customer support and partnership coordination. Prior to GenWay, Dr. Fang served at GenStar Therapeutics, initially as the Director of the Cancer Program and the Director of Preclinical Studies, then as Vice President, Hemophilia and Vector Development. She was responsible for managing preclinical studies of hemophilia and cancer programs, providing technical support to the GMP manufacturing of clinical materials and to Pre-IND and IND submission. In her previous employment, as a Research Scientist at Baxter Healthcare Corporation, Dr. Fang was the co-inventor of the oncolytic dual-viral system for cancer gene therapy. Prior to Baxter, as a Sr. Scientist at GeneMedicine, Inc., Dr. Fang led the effort to develop a non-viral vector system for gene therapy of hemophilia B.

Dr. Fang obtained her M.D. degree from Zhejiang University Medical School and Ph.D. in Molecular Biology from the University of Alabama. She completed her postdoctoral studies at the University of Texas, MD Anderson Cancer Center.

Dr. Xiangming Fang is current President of Sino-American Biomedical and Pharmaceutical Professional Association, San Diego Chapter (SABPA, San Diego). She has served as BOD of SABPA for 6 years.

Jack Florio, MBA, Senior Vice President, Brinson Patrick Securities Corporation



Jack J. Florio is Senior Vice President with Brinson Patrick Securities Corporation, a New York based investment banking boutique serving the equity capital raising needs of small cap to Fortune 500 publicly traded companies. He is also Vice President, Marketing and Communications and an active investor with San Diego Tech Coast Angels, the largest angel investor network in the United States.

Previously Jack had a 30-year career with Eli Lilly and Company where he held a number of senior management positions in the US and abroad. In many of these roles, Jack was involved with the development and management of various advisory boards.

Mr. Florio received his BS in Pharmaceutical Sciences from Columbia University and his MBA from New York University. Jack arrived in San Diego in April 2001 and has taken on both full and part time senior management roles in seven different biotech and medical device companies in the US, Europe, and China. These included In Jet Digital Aerosols, Biota, Opticon, Infacare, Aegis Therapeutics, Vital Therapies, and Hepawash. Jack was working heavily in China with Vital Therapies focused on commercialization, partnering, and capital acquisition. More recently Jack was President of InterPharma-LinkUSA, a global transaction oriented management consulting firm focused on partnering and M&A in the pharmaceutical and biotech industries where he remains as an advisor.

Jack also is very active in the community in a variety of roles including working with CONNECT on Springboard panels and other programs as well as several BIOCUM committees. Jack is currently on the boards of the San Diego Chapter of the American Liver Foundation and the San Diego Venture Group.

Featured Speakers

Cheng Jin, Ph.D., Executive Director, Business Development, PharmaLegacy Laboratories
Laboratories



Dr. Cheng Jin is the Executive Director, Business Development of PharmaLegacy Laboratories, a Shanghai-based CRO company focusing on providing preclinical specialty pharmacology services. Prior to joining PharmaLegacy Laboratories, Dr. Jin served as CSO of Imagen Co. Ltd, Seoul, Korea. He led P43 project for anti-cancer, autoimmune and cosmetic applications and managed international collaborations. Prior to joining Imagen Co. Ltd, he was the Assistant Director of Shanghai Institute of Materia Medica (SIMM), Chinese Academy of Sciences (CAS), and managed the overall responsibility of global business development. He successfully initiated and led the success in \$50 million long-term collaboration deal with Astra-Zeneca. Dr. Jin received 2004 Wang Kuan Cheng Research Fellowship Award.

Dr. Jin gained over more than 10 years of drug discovery and development experience at local bio-pharmaceutical companies in US as a researcher (Res. Scientist, Sr. Res. Scientist, and Lead Scientist) and Director. Dr. Jin authored more than 30 articles published in scientific journals. Dr. Jin obtained his M.D. in Clinical Medicine, China Medical University, China and Ph.D. in Molecular Biology at Showa University, Tokyo, Japan.

Hua Zhu (David) Ke, Ph.D., Scientific Executive Director, Bone and Mineral Metabolism, Amgen Inc.; Adjunct professor, University of Utah School of Medicine



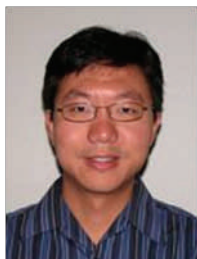
Dr. Ke's primary research interests include bone biology, osteoporosis and orthopedic related research. Specifically, his research areas include selective estrogen receptor modulators (SERMs), estrogen receptor alpha and beta and their regulation on bone metabolism, androgen and selective androgen receptor modulator, prostaglandin E receptors and their skeletal effects, OPG/RANK/RANKL and their regulations on bone resorption, etc. Most recently he and his group have focused on the research related to osteoblasts regulation, specifically the sclerostin pathway and its role on bone formation. He has authored or co-authored approximately 90 scientific papers in the peer-review scientific journals, and is an inventor or co-inventor of more than 30 patents. Dr. Ke finished his post-doc training in University of Utah, and became a research scientist in Pfizer Global Research and Development in 1992. In 2005, he joined Amgen bone research group. Currently Dr. Ke is a Scientific Executive Director in Amgen and serves as the head of Amgen bone and orthopedic research group. In addition, he is an adjunct professor at the University of Utah School of Medicine, Salt Lake City, Utah.

Christopher LeMasters, CBO, Tragara Pharmaceuticals, Inc.



Mr. LeMasters is co-founder and Chief Business Officer of Tragara Pharmaceuticals, where he oversees the operational and financial functions of the company. At Tragara, he completed the negotiation with Daiichi-Sankyo for the company's founding license to Capoxigem™ (apricoxib, TG01). He also negotiated the company's world-wide license to SB1317 (TG02) from S*BIO Pte Ltd of Singapore. Previously, Mr. LeMasters was a co-founder and Chief Business Officer of Cabrellis Pharmaceuticals, where he negotiated the company's \$104 million acquisition by Pharmion Corporation in 2006. He also served as Vice President, Business Development of Conforma Therapeutics where he was responsible for the in-licensing of Amrubicin from Dainippon Sumitomo and for negotiating the \$250 million acquisition by Biogen Idec. Mr. LeMasters earlier worked for six years in Corporate Business Development at Eli Lilly and Company in Indianapolis. In that role, he was responsible for the successful negotiation of numerous partnerships and licenses across diverse therapeutic areas. Mr. LeMasters was also a management consultant with Coopers & Lybrand Consulting in Chicago for four years, where he led strategy consulting projects for Fortune 500 clients. He specialized in turn-around and profit improvement strategy and implementation. Mr. LeMasters began his business career as an operational auditor with Owens Corning Fiberglas in Toledo, Ohio, where he led formal assessments of internal organizations and manufacturing/distribution operations. Mr. LeMasters has a B.A. in Finance from Indiana University and an M.B.A. with honors from the University of Chicago, and is a Co-Founder and Board Member of Aarden Pharmaceuticals of Indianapolis and San Diego.

Hui Li, Ph.D., Vice Chair of Board, SABPA, Senior Principal Scientist, Pfizer Global Research & Development



Dr. Hui Li is a senior principal scientist at Pfizer Global Research & Development, La Jolla Laboratories. Over the past 9 years, he has led research efforts in multiple disease areas including anti-viral, diabetes oncology and ophthalmology. He is a co-inventor of Filibuvir (PF-00868554), a Hepatitis C Virus polymerase inhibitor currently in phase II clinical trial. Dr. Li obtained his B.S degree from Peking University and Ph.D in organic chemistry from University of California, San Diego. There he worked under the guidance of Professor K. C. Nicolaou on new synthetic technology development and the total synthesis of glycopeptide antibiotic Vancomycin.

Dr. Li is a founding member of the Sino-American Biomedical & Pharmaceutical Association (SABPA) in 2002 and is currently the vice chairman of SABPA board. He also served as SABPA (San Diego) president from 2006 to 2008 and established the Alliance of Chinese-American Biotechnology and Pharmaceutical Associations with other organizations across the US.

Featured Speakers

Graham Lidgard, Ph.D., Senior Vice President of R&D, Nanogen



Dr. Graham Lidgard joined Nanogen in January 2003 with over 28 years of experience in the Clinical Diagnostics industry. Nanogen has two contracts with the Center for Disease Control and Prevention (CDC) for the development of clinical diagnostic assays for influenza detection and subtyping in a POC setting with a rapid immunoassay and in a laboratory setting with highly sensitive multiplexed real time PCR. He was previously Vice President of Research and Development at Gen-Probe where he led the R&D organization to develop DNA probe products for blood screening and STD's as well as the fully automated probe system, TIGRIS. Prior to Gen-Probe he was a co-founder of Matritech Inc., a cancer diagnostics company in Massachusetts and held several positions with Corning Medical/Ciba Corning in program management, business development, marketing, technology acquisition and product development capacities. Dr. Lidgard received his B.S. and Ph.D. in Biological Chemistry from the University of Manchester.

David Kabakoff , Ph.D., Executive-in-Residence, Sofinnova Ventures



David Kabakoff, Ph.D., joined Sofinnova Ventures as an Executive-in-Residence in 2007. David has 30 years of experience leading technology and product development programs in the pharmaceutical, biopharmaceutical, and drug delivery fields. He currently serves as Chairman of Trius Therapeutics and Chairman of Amplimmune, Inc. He is also a Director of InterMune, Inc.; Avalon Pharmaceuticals, Inc.; and Alylix, Inc. Dr. Kabakoff also serves as a Board Observer at Intellikine and Anza Therapeutics.

David co-founded Salmedix, Inc., a developer of cancer drug treatments, and served as the company's Chairman and Chief Executive Officer. In June 2005, David negotiated the acquisition of Salmedix by Cephalon, Inc. David also held the positions of Executive Vice President, President and Chief Executive Officer of Spiros Development Corp. while at Dura Pharmaceuticals, a specialty respiratory pharmaceutical and pulmonary drug delivery company. Earlier, David was also employed as Chief Executive Officer of Corvas International and held senior executive positions with Hybritech, Inc.

David received his Ph.D. from Yale University and his B.A. from Case Western Reserve University.

David Looney, M.D., Associate Professor, Medicine, UCSD Medical Center



Dr. Looney graduated from the University of Missouri School of Medicine in 1979 and performed his internship and residency training at Letterman Army Medical Center in San Francisco. His infectious disease fellowship was done at the Brook Army Medical Center in San Antonio, TX, and the the Texas State Chest Hospital and Hansen's Disease Center in San Antonio. He completed training in Tropical Medicine at the Walter Reed Army Insitute of Research, and did postdoctoral training in the laboratory of Dr. Flossie Wong-Staal at the NCI Laboratory of Tumor Cell Biology.

Since coming to UCSD in 1989, Dr. Looney has conducted both basic and clinical research involving HIV vaccine, Gene Therapy of HIV infection, Kaposi's Sarcoma, and investigations into the role of small RNAs in transcriptional silencing and HIV replication. He current is leader of the Center for AIDS Research Molecular Biology Core, which provides support to HIV-investigators and developmental projects.

Ronald B. Moss, M.D., Executive VP, Clinical Development & Medical Affairs, NexBio



Dr. Moss brings to NexBio 22 years of research and clinical experience, including 15 years of pharmaceutical drug development experience ranging from Phase 1 to NDA, and extensive expertise in clinical, regulatory and quality affairs. He previously worked at several biopharmaceutical companies in various capacities including Rhone Poulenc Rorer (now Aventis), Immune Response Corporation, Telos and Merck, where he was Senior Director of Worldwide Regulatory Affairs for Vaccines/Biologics in the Merck Research Laboratories division. Most recently, he was Vice President of Clinical Development at Vical, Inc., a publicly-traded company, where he guided the clinical development of various biological products for emerging infectious diseases, including U.S. Government-funded development of a pre-pandemic influenza vaccine. Ron earned his M.D. degree at the Chicago Medical School, having graduated Phi Beta Kappa with a bachelor's degree from the State University of New York at Stony Brook (SUNY). He completed his residency in Pediatrics at SUNY, followed by a fellowship at the National Institute of Allergy and Infectious Disease, where he was Clinical Associate in Allergy and Clinical Immunology. Ron is Board-certified in both Pediatrics and Allergy & Immunology.

Featured Speakers

K.C. Nicolaou, Ph.D., Chairman, Department of Chemistry, The Scripps Research Institute



Dr. K.C. Nicolaou was born on July 5, 1946 in Cyprus, where he grew up and went to school until the age of 18. In 1964, he emigrated to England where he spent two years learning English and preparing to enter the university. His advanced studies in chemistry were carried out at the University of London (B.Sc., 1969, Bedford College, First Class Honors; Ph.D. 1972, University College, with Professors F. Sondheimer and P.J. Garratt). In 1972, he crossed the Atlantic to the United States and completed postdoctoral appointments at Columbia University (1972-1973, Professor T.J. Katz) and Harvard University (1973-1976, Professor E.J. Corey) after which he joined the faculty at the University of Pennsylvania, where he rose through the ranks to become the Rhodes-Thompson Professor of Chemistry. In 1989, he accepted joint appointments at the University of California, San Diego, where he is Professor of Chemistry, and The Scripps Research Institute, where he is the Chairman of the Department of Chemistry and holds the Darlene Shiley Chair in Chemistry and the Aline. W. and L. Skaggs Professorship in Chemical Biology. For his scientific work, Professor Nicolaou has received numerous awards and honors, including the Humboldt Foundation US Senior Scientist Prize (Germany, 1987), the A.C. Cope Scholar Award, American Chemical Society (1987), the Award for Creative Work in Synthetic Organic Chemistry, American Chemical Society (1993), the Dr. Paul Janssen Prize for Creativity in Organic Synthesis, Janssen Research Foundation (1994), the Rhone-Poulenc Medal, Royal Society of Chemistry (U.K., 1995), the William H. Nichols Medal, New York Section-American Chemical Society (1996), the Inhoffen Medal, Gesellschaft für Biotechnologische Forschung mbH (GBF) (Germany, 1996), the Ernest Guenther Award in the Chemistry of Natural Products, American Chemical Society (1996), the Chemical Pioneer Award, American Institute of Chemists (1996), the Linus Pauling Award, Oregon, Portland, Puget Sound Sections-American Chemical Society (1996), the Decoration of the Order of the Commander of Honor Medal (bestowed by the President of Greece, 1998), the Esselen Award for Chemistry in the Public Interest, American Chemical Society (1998), the Yamada Prize (Japan, 1999), the first Aspirin Prize for Solidarity through Chemistry (Spain, 1999), the Max Tishler Lecture Prize, Harvard University (2000), the Paul Karrer Gold Medal, Universität Zürich (Switzerland, 2000), the Centenary Medal, Royal Society of Chemistry (U.K., 2000-2001), the Ernst Schering Prize, Ernst Schering Research Foundation (Germany, 2001), the Nagoya Gold Medal of Organic Chemistry, Nagoya University (Japan, 2001), Tetrahedron Prize for Creativity in Organic Chemistry (2002), the ACS Nobel Laureate Signature Award for Graduate Education in Chemistry (2003), the Aristeio Bodossaki Prize (2004), the ACS A.C. Cope Award (2005) Auburn Section-American Chemical Society Auburn-G. M. Kosolapoff Award (2006), the Burkardt-Helferich Prize (2006), the ISHC Senior Award in Heterocyclic Chemistry (2007), the August-Wilhelm-von-Hofmann-Denkünze Award (2008), and the Chandler Medal, Columbia University (2008).

Nicolaou is a Member of the New York Academy of Sciences (1987), Fellow of the American Academy of Arts and Sciences (1993), Member of the National Academy of Sciences (USA, 1996), Fellow of the American Association for the Advancement of Science (1999), Foreign Member, Academy of Athens (Greece, 2001), and holds 12 honorary degrees from universities around the world. He is the author or co-author of almost 700 scientific articles, reviews, and book chapters, over 60 patents, and 4 books, including the popular Classics in Total Synthesis co-authored with his student Erik J. Sorensen (1996 VCH), Classics in Total Synthesis II co-authored with his student Scott A. Snyder (2003, Wiley-VCH), and Molecules That Changed the World, co-authored with his research associate T. Montanogon (2008, Wiley-VCH). His dedication to chemical education is evidenced by his training of more than 400 graduate students and postdoctoral fellows.

Sean M. Sullivan, Ph.D., Executive Director, Pharmaceutical Sciences, Vical, Inc.



Dr. Sean Sullivan is Executive Director, Pharmaceutical Sciences at Vical, Inc. He is in charge of Pharmaceutical Development and Scale up of Vical's Genetic Vaccine Products. Prior to joining Vical, Dr. Sullivan was a tenured Associate Professor in the Department of Pharmaceutics, College of Pharmacy, and University of Florida for 7 years. Dr. Sullivan also had a joint appointment with the Shands Cancer Institute. Prior to joining the University, he was in the biotechnology industry for 14 years developing liposome and polymer based nucleic acid delivery systems for the treatment of infectious disease (HIV, HSV and Hepatitis), arthritis and cancer. These delivery systems were for topical and systemic administration of antisense DNA, ribozymes and plasmid DNA. He has authored 40 publications and is an inventor on 19 patents. He has served as an Adhoc member of several NIH study sections and has been on the editorial board for Human Gene Therapy and Pharmaceutical Research.

Lloyd G. Tillman, Ph. D., Executive Director of Pharmaceutical Development, ISIS Pharmaceuticals, Inc.



Dr. Lloyd Tillman is Executive Director of Pharmaceutical Development at Isis Pharmaceuticals, Inc., Carlsbad, CA. He is responsible for formulation research and development of antisense drugs. Beyond enabling new formulations for antisense based therapeutics, he manages development activities for preclinical and clinical supplies and for product registration. While at Isis, he has published several peer-reviewed manuscripts focusing on oligonucleotide formulations. He also lectures courses on Drug Dosage Form Design and Delivery Systems and on Concepts of Pharmacy Practice at the UCSD Skaggs School of Pharmacy and Pharmaceutical Sciences.

Prior to joining Isis in 1997, Dr. Tillman worked at the FDA overseeing the Product Quality Research Laboratory within CDER. His group focused to derive science-based data to support SUPAC and Biopharmaceutics Drug Classification System initiatives and other regulatory guidance's. Previous to the FDA he worked on oral solid dosage forms at Burroughs Wellcome Co. where he managed the pharmaceutical product development of several NCE's into clinical trials and in two cases (MEPRON and VALTREX) into production and onto the market.

Featured Speakers

Roger Tsien, Ph.D., Professor, UCSD; Howard Hughes Medical Institute; 2008 Nobel Prize Laureate for Chemistry



Roger Y. Tsien, Ph.D., was born in New York City in 1952 and received his A.B. in Chemistry and Physics summa cum laude from Harvard College in 1972. A Marshall Scholarship then took him to the Physiological Laboratory at the University of Cambridge, where he received his Ph.D. in 1977 and remained as a Research Fellow until 1981. He then became an Assistant, Associate, then full Professor in the Dept. of Physiology-Anatomy at the University of California, Berkeley. In 1989 he moved to the University of California, San Diego, where he is an Investigator of the Howard Hughes Medical Institute and Professor in the Depts. of Pharmacology and of Chemistry & Biochemistry.

Tsien is renowned for revolutionizing the fields of cell biology and neurobiology by allowing scientists to peer inside living cells and watch the behavior of molecules in real time. He is well-known for developing colorful dyes, such as Fura-2, to track the movement of calcium within cells and has genetically modified organisms to produce the molecules that make jellyfish and corals glow, creating fluorescent colors in a dazzling variety of hues. These multicolored fluorescent proteins are used by scientists to track where and when certain genes are expressed in cells or in whole organisms. In 2004, Tsien was awarded the Wolf Prize in Medicine "for his seminal contribution to the design and biological application of novel fluorescent and photolabile molecules to analyze and perturb cell signal transduction." He was elected to the Institute of Medicine in 1995, the National Academy of Sciences in 1998, and the Royal Academy in 2006. In 2008, Tsien shared the Nobel Prize in Chemistry with Osamu Shimomura and Martin Chalfie for "the green fluorescent protein: discovery, expression and development."

Roger Y. Tsien has received several honors and awards in his life, including:

- E.B. Wilson Medal, American Society for Cell Biology(2008)
- Lammont Prize, New York Academy of Sciences(1986)
- Javits Neuroscience Investigator Award, National Institute of Neurological Disorders and Stroke(1989)
- Young Scientist Award, Passano Foundation(1991)
- W. Alden Spencer Award in Neurobiology, Columbia University (1991)
- Artois-Baillet-Latour Health Prize, Belgium (1995)
- Gairdner Foundation International Award, Canada (1995)
- Basic Research Prize, American Heart Association (1995)
- Elected to Institute of Medicine (1995)
- Elected to American Academy of Arts and Sciences (1998)
- Elected to the National Academy of Sciences (1998)
- Award for Innovation in High Throughput Screening, Society for Biomolecular Screening (1998)
- Herbert Sober Lectureship, American Society for Biochemistry and Molecular Biology (2000)
- Pearse Prize, Royal Microscopical Society (2000)
- ACS Award for Creative Invention, American Chemical Society (2002)
- Christian B. Anfinsen Award, Protein Society (2002)
- Heineken Prize for Biochemistry and Biophysics, Royal Netherlands Academy of Sciences (2002)
- Max Delbrück Medal, Max Delbrück Centrum für Molekulare Medizin, Berlin (2002)
- Wolf Prize in Medicine, Israel (2004)
- Keio Medical Science Prize, Japan (2004)
- Perl Prize in Neuroscience, U. North Carolina(2005)
- J.Allyn Taylor International Prize in Medicine, Robarts Institute in Canada(2005)
- ABRF Award, Association Biomolecular Resource Facilities(2006)
- Lewis S. Rosenstiel Award for Distinguished Work in the Basic Medical Sciences, Brandeis University(2006)
- Fellow of the Royal Society, UK (2006)
- Nobel Prize in Chemistry, Sweden(2008)

Randall E. Woods, President & CEO, Sequel Pharmaceuticals



Randall E. Woods is the President and Chief Executive Officer and a member of the Board of Directors of Sequel Pharmaceuticals. Mr. Woods served in the same capacity at NovaCardia prior to its acquisition by Merck & Co. Mr. Woods brings to Sequel 36 years of experience in the biotech/pharmaceutical arena. Mr. Woods served nearly eight years as the Chief Executive Officer of Corvas International, Inc., a publicly traded biopharmaceutical company focused on cardiovascular disease and cancer. Prior to Corvas, Mr. Woods was President of Boehringer Mannheim's US Pharmaceutical operations and spent over 20 years at Eli Lilly & Company in sales and marketing positions. Mr. Woods served as the chairman for the advisory board of the University of California, San Diego's Sulpizio Family Cardiovascular Center and is the Chairman of the board of Directors for BIOCUM, a life science industry association in Southern California. He also serves on the Board of Arena Pharmaceuticals. Mr. Woods received his Bachelor Degree in Biology and Chemistry and a Masters Degree in Marketing.

Christina Yang, Ph.D., Senior Vice President, Clinical, Regulatory & Quality, GenProbe



Dr. Yang joined the Company in April 2007 as Vice President, Clinical, Regulatory and Quality. Dr. Yang brings over fifteen years experience in regulatory and clinical affairs, quality assurance and quality control. Most recently, Dr. Yang served as Vice President, Quality and Regulatory Affairs of Focus Diagnostics, owned by Quest Diagnostics, consisting of laboratory services, clinical trial and IVD production units with focus on infectious disease. Immediately prior, Dr. Yang held a variety of management positions in R&D, quality systems, diagnostic operations, and technical manufacturing. From 1987 to 1995, Dr. Yang served in quality control, biochemistry and allergy, and organic chemistry management positions at Diagnostic Products Corporation in Los Angeles. She has a B.S. in Biology from National Taiwan Normal University, Taipei, Taiwan and a Ph.D in Zoology from Iowa State University, Iowa. Dr. Yang is a Regulatory Affairs Certified (RAC), ISO9000 certified lead auditor as well as a Certified Quality Auditor (CQA).

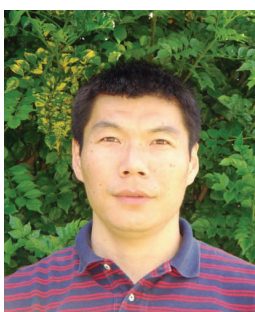
Featured Speakers

Ming Guo, Ph.D., Vice President of Pharmaceutical Sciences & Manufacturing, Ascenta Therapeutics



Dr. Ming Guo is Vice President of Pharmaceutical Sciences & Manufacturing at Ascenta Therapeutics, Inc. since March 2005, working on several NCE drug R&D programs targeting apoptosis pathways as cancer therapy as well as corporate management and business development. Dr. Guo played a pivotal role in establishment of a wholly owned subsidiary in China – Ascenta (Shanghai) R&D Center in summer 2005 as one of the first US NCE R&D organizations in China, and assumes its General Manager role currently. Before Ascenta, Dr. Guo worked at Pfizer for 9 years, leading many aspects of drug development activities, both in-house and outsourced, with technical leadership in process chemistry and manufacturing as well as project management (a project team award recipient at beginning of 2005). Before Pfizer, Dr. Guo worked at Monsanto and ABC Laboratories for 6 years. Dr. Guo taught at the UCSD Extension about NCE drug development for 2002-2004 and is currently an adjunct Professor at Peking University, China. As one of the co-founders, Dr. Guo served as the first Chairman of the Board and later a Board Director of SABPA (www.sabpa.org). Dr. Guo has numerous scientific publications and patents, and is invited speaker at various scientific and business conferences. Dr. Guo holds a Ph.D. degree from University of California at San Diego (UCSD) and an M.S. degree from the Institute of Materia Medica (IMM), Chinese Academy of Medical Sciences.

Feng Tian, Ph.D., President of SDCA, BOD of SABPA



Dr. Feng Tian was a Scientific Investigator at Metabasis Therapeutics, Inc., where he focuses on the discovery of novel small molecule drugs targeting liver diseases and metabolic diseases such as diabetes, hyperlipidemia, and liver fibrosis. After obtaining his B.S. and M.S. degrees from Peking University in China, Feng went to Michigan State University and acquired his Ph.D. degree in Organic Chemistry. Then he moved to San Diego and completed his postdoctoral research at the Scripps Research Institute. Feng served as the program co-chair of *Annual Symposium on Biopharmaceuticals* in 2005 and 2007. Currently, he is a board member of SABPA and the President of San Diego Chinese Association, where he focuses on promoting volunteerism and fostering leadership among its members.

Sui Xiong Cai, Ph.D., BOD of SABPA, Chair of Sci & Tech Committee



Dr. Sui Xiong Cai was Senior Director of Chemistry of EpiCept Corporation. Dr. Cai has provided executive level leadership of chemistry department in four companies over the past 12 years, and has extensive experience with department/project planning and management, as well as collaboration with pharmaceutical and biotech companies. He has over 17 years of experience in oncology and CNS drug discovery and development, including inducers of apoptosis as anti-cancer agents; inhibitors of caspases for the treatment of CNS, MCI, liver and other degenerative diseases; inhibitors of SARS coronavirus proteases for the treatment of SARS; antagonists and modulators of glutamate receptors and sodium channel blockers for the treatment of CNS diseases; and novel fluorescent dyes and substrates for the development of HTS assays. Dr. Cai led the medicinal chemistry team to the recent discovery of two anticancer compounds currently in clinical trials, one in phase II and the other in phase I. He has expertise in the management of company's intellectual property portfolio, from drafting and filing to prosecution of patent applications. Dr. Cai is also responsible for the management of outsourcing activities, including small-scale synthesis and kg cGMP manufacture of API for preclinical and clinical studies. He is the co-inventor of >70 issued US patents and has published >90 peer-reviewed papers, and is on the Editorial Advisory Board of *Recent Patents on Anti-Cancer Drug Discovery*, *Drug Design Reviews-Online*, and *The Open Cancer Journal*.

Dr. Cai earned his Ph.D. in organic chemistry from the University of Oregon and his B.S. in chemistry from the University of Science and Technology of China. He has been serving on the Board of Directors of Sino-American Biomedical and Pharmaceutical Professionals Association (SABPA) since its inception in 2002, and is the current Chair of Science and Technology Committee.

Improving *in vivo* and clinical imaging with activatable cell-penetrating peptides

Olson ES, Aguilera TA, Jiang T, Barder TE, Crisp JL, Scadeng M, Ellies LG, Nguyen QT, **Tsien RY**.
University of California San Diego, USA

Activatable cell penetrating peptides (ACPPs) are polycationic cell penetrating peptides (CPPs) whose cellular uptake is minimized by a polyanionic inhibitory domain and then restored upon proteolysis of the peptide linker connecting the polyanionic and polycationic domains. Local activity of proteases able to cut the linker causes amplified retention in tissues and uptake into cells. Tumor uptake of ACPPs is up to 4 fold higher with a matrix metalloproteinase substrate (PLGLAG) as the linker than with a negative control composed of D-amino acids. Conjugation of ACPPs to macromolecular carriers such as dendrimers prolongs pharmacokinetics and increases delivery of payload (Cy5 or Gd-DOTA or both in the same molecule) to tumor for far-red or MR imaging. The dual labeled probe with Cy5 and Gd-DOTA enables whole body MRI scanning followed by fluorescence-guided surgery. Such fluorescence guidance improves tumor-free survival in two animal models. Thrombin-cleavable ACPPs accumulate in atherosclerotic plaques and experimental stroke models, so vascular pathologies can also be imaged. The ability of ACPPs to deliver various cargoes with enzymatic amplification to protease-expressing tissues *in vivo* offers clinical potential.

A Chemical Approach to Cell Fate Control

Sheng Ding, The Scripps Research Institute

Recent advances in stem cell biology may make possible new approaches for the treatment of a number of diseases. A better understanding of molecular mechanisms that control stem cell fate as well as an improved ability to manipulate them are required. Toward these goals, we have developed and implemented high throughput cell-based phenotypic screens of arrayed chemical and gene libraries to identify and further characterize small molecules and genes that can control stem cell fate in various systems. This talk will provide latest examples of discovery efforts in my lab that have advanced our ability and understanding toward controlling stem cell fate, including self-renewal, survival, differentiation and reprogramming of pluripotent stem cells.

A Novel Approach to Drug Discovery and Development for Osteoporosis and Other Bone Diseases

Hua Zhu (David) Ke, Amgen Inc

Osteoporosis is a skeletal disease characterized by low bone mass and micro-architectural deterioration of bone tissue with a consequent increase in bone fragility and susceptibility to fracture. The 2004 U.S. Surgeon General report highlighted the enormous burden of osteoporosis-related fractures. It is estimated that 10 million Americans > 50 yr of age have osteoporosis with approximately 1.5 million fragility fractures each year. Another 34 million Americans are at high risk for osteoporosis. Strategy for prevention and treatment of osteoporosis includes life style changes (nutrition, physical activity, and fall prevention), addressing secondary factors (such as diseases or drug) that cause osteoporosis, and pharmacologic intervention (agents that inhibit bone resorption and stimulate bone formation). Current available therapies include estrogen, selective estrogen receptor modulators, bisphosphonates, calcitonin, strontium ranelate and parathyroid hormones. These agents, while offering some clinical benefits have many limitations including safety and efficacy concerns. Currently there are new potential therapies in late stage clinical trials (cathepsin K inhibitor) or awaiting U.S. FDA approval (RANKL inhibitor) that may offer advantages over existing therapies. This presentation will review a novel approach, inhibition of sclerostin, as an anabolic (stimulation of bone formation) drug target for a potential novel osteoporosis therapy.

Sclerostin, a protein secreted by osteocytes, is a negative regulator of osteoblast differentiation/function and acts as an inhibitor of bone formation. In humans, complete lack of the sclerostin, due to inactivating mutations in the SOST gene, causes sclerosteosis, a rare genetic disease characterized by increased bone mass and increased bone mineral density throughout the skeleton. Similar to the human condition, sclerostin knock-out mice demonstrate increased trabecular and cortical bone mineral density and bone strength by increased bone formation. To explore the therapeutic potential of sclerostin as a target for the anabolic treatment of diseases in which bone loss is a significant component, a sclerostin neutralizing monoclonal antibody (Scl-Ab) has been developed. In an ovariectomy (OVX)-induced bone loss rat model of osteoporosis, Scl-Ab increased bone formation, restored trabecular and cortical bone mass and bone strength at all skeletal sites. In mice and rat fracture healing models, administration of Scl-Ab significantly improved bone healing. In a phase 1 trial in postmenopausal women with osteopenia, a single administration resulted in increases in serum bone formation markers (s BSAP, osteocalcin, P1NP), and a dose-dependent decrease in a serum bone resorption marker (CTX1). These effects were associated with an increase in bone mineral density. Taken together, these data suggest that inhibition of sclerostin by monoclonal antibody may be an attractive strategy for treatment of osteoporosis and improving fracture healing.

Oral Delivery of Oligonucleotides in Man

Lloyd Tillman, ISIS Pharmaceuticals, Inc

Oral absorption of hydrophilic macromolecules such as oligonucleotides is limited due to poor permeability across GI mucosa. Generally bioavailability is nil without the use of enhancers that are purported to transiently open epithelial tight-junctions increasing paracellular absorption. This presentation reviews formulation requirements necessary to develop one such enhancer, the fatty acid sodium caprate (C10), into an effective solid dosage formulation for oral delivery of oligonucleotides. The presentation will also give a brief overview into antisense oligonucleotide technology along with the recent progress made in this field.

Total Synthesis of Biologically Active Natural Products

K.C. NICOLAOU, Ph.D.

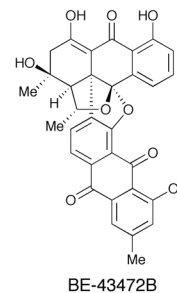
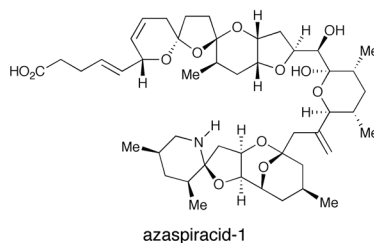
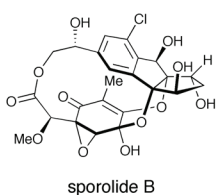
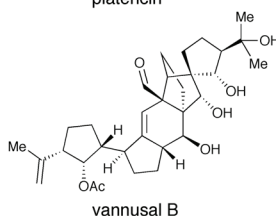
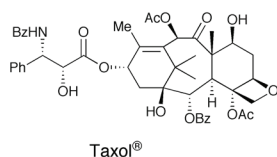
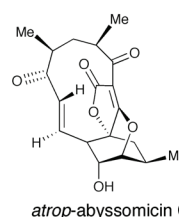
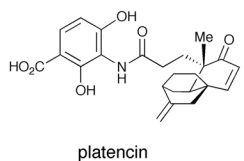
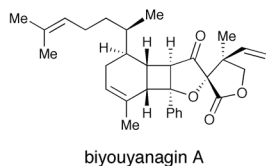
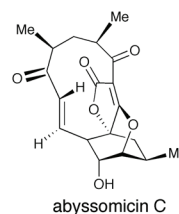
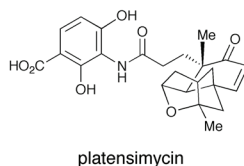
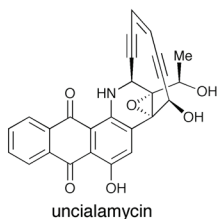
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Intelligent drug discovery from Nature has been in practice for millennia and has a glorious history in terms of medical breakthroughs.¹⁻³ Aspirin[®], penicillin[®] and Taxol[®] are but three examples of such stories. Such natural products provide fertile platforms for discovery and development in the area of chemical synthesis, chemical biology and medicine. These opportunities continue to fascinate and deliver new science as new structures come under scrutiny by synthetic chemists. In this lecture, a number of total synthesis endeavors will be summarized with emphasis on mechanistically-based design of new cascade reactions and synthetic strategies and chemical biology studies.



1. Nicolaou, K.C. & Montagnon, T. (2008). *Molecules that Changed the World*. Wiley-VCH.
2. Nicolaou, K.C. & Snyder, S. (2003). *Classics in Total Synthesis II*. Wiley-VCH.
3. Nicolaou, K.C. & Sorensen, E. (1996). *Classics in Total Synthesis*. Wiley-VCH.

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