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## Breaking Away: 21st American Peptide Symposium, Bloomington Indiana, June 7 to 12

The American Peptide Society will conduct its 21st Symposium on the campus of Indiana University this coming June 7 to 12, 2009. The roots of this society strongly reside in academic circles and it seems fitting to return to a rich academic setting to celebrate the current unprecedented level of interest in peptide science.

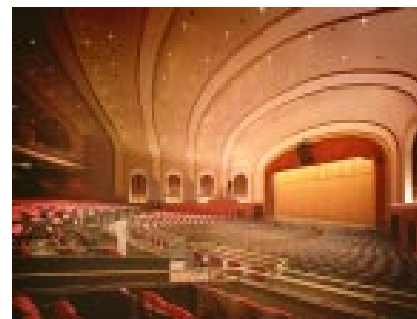
Indiana University is situated on a beautiful campus in a lovely Midwestern environment. It is easily accessible by car or plane with hourly shuttles from Indianapolis International Airport. The auditorium is of theatrical quality and will serve as the center of scientific events. Housing and entertainment will be within a short walk of the facility.

The scientific program has been set and the program committee is now focused on supplementing an impressive list of invited opinion leaders with additional speakers to be selected from submitted abstracts. The 21st Symposium is structured around the central role of peptides in physiology, pathology and pharmacology, respecting the strong chemical roots of our Society's membership.

The first days of the meeting will focus on advances in the core synthetic, physical, and analytical aspects of peptide science. The last two days transition to the more biological elements, with a full day devoted to the epidemic of vascular disease driven by the significantly elevated prevalence of obesity and adult-onset diabetes. This is one therapeutic area where peptide-based medicines have been of utmost importance in disease management and promise future breakthroughs.

There is something significant about the number 21, as any card gambler readily recognizes, as well as the number signifying the attainment of legal age in most countries. The analogies to our field of interest are striking, as recent commercial successes with peptides are fueling unprecedented interest in the field. The investment environment is filled with questions pertaining to risk-reward, and while such considerations have always been central to industrial investments, it is the rare academic investigator who isn't also confronting similar questions. As much as measuring our recent progress since our last meeting two years ago in Montreal, the 21st American Peptide Symposium is set to project the future as we plan for the 2011 meeting in San Diego.

—Richard Dimarchi and Henry Mosberg, Co-Chairs, 21st APS



*(Symposium news continued on page 2)*



## 21st American Peptide Symposium: Important Dates and Deadlines

### Abstracts

Deadline: extended to March 9, 2009

Letters of Acceptance: by April 1, 2009

### Late Breaking Abstract Submissions

Deadline: May 1, 2009

### Travel Award Submissions

Deadline: extended to March 9, 2009

Notification: by April 1, 2009

### Young Investigator Poster Competition

Deadline: extended to March 9, 2009

Notification: by April 1, 2009

### Symposium Registration

Early Fee Deadline: March 27, 2009

Regular Fee begin: March 28, 2009

On-line registration closes: May 22, 2009

### Willkie Residence Center (dorm) Reservations

Deadline: May 18, 2009

## Information That Will Help You Plan

### Getting to Bloomington, Indiana

If flying, most Symposium participants will elect to travel through the newly renovated and expanded Indianapolis International Airport. It's an easy, straightforward 50 minute drive from the airport to campus. Reliable transportation – shuttle or limousine – is available, but you will need to make reservations prior to your arrival.

### What you can expect when you arrive on campus

You will find a beautiful campus – woods, paths, limestone buildings and attractive landscaping. All Symposium activities – lectures, exhibits, poster session and most social events - are located conveniently in the center American Peptide Society Newsletter

of campus. You will find a friendly, welcoming, safe environment in which to convene.

### Where to stay

Check out Willkie Residence Center for basic, economical accommodations. The Indiana Memorial Union is just right for convenience, a lovely campus setting, building and facilities. If your preference is a small, charming bed and breakfast close to campus, the Grant Street Inn will meet your needs. How about a national chain about a mile from campus central with shuttle service to campus provided? If so, then reserve a room at the Hilton Garden Inn or the Courtyard by Marriott.



### Social events that complement scientific discussions

The Symposium will begin on Sunday evening with an outdoor, tented Opening Reception, resounding with the sounds of live entertainment and water splashing in Showalter Fountain. The Symposium will conclude with entertainment in three different venues – all located in the Indiana Memorial Union – featuring bluegrass, jazz and '60s-'70s dance music with décor and food to complement each. Don't miss *Mix, Mingle and Move, An Evening of Moonshine, Martinis and Music*. Throughout the week you will be welcomed at local galleries and bars and entertained royally by the Indiana University Jacobs School of Music.

### What you can expect to take away

We are confident that you will leave Indiana University and Bloomington, Indiana having a rich, rewarding, intellectually stimulating and culturally entertaining experience in a beautiful academic setting.

Break Away!

## Confirmed Speakers

Andrew Butler, Pennington Biomedical Research Center  
 Derek Chalmers, Cara Therapeutics, Inc.  
 Ho Cho, Ambrx, Inc.  
 Graham Cooks, Purdue University  
 David D'Alessio, University of Cincinnati  
 Phil Dawson, Scripps Research Institute  
 Patricia Ducey, Columbia University Medical Center  
 Jon Ellman, University of California, Berkeley  
 Joseph Garlich, Semafore Pharmaceuticals, Inc.  
 Blair Geho, SDG, Inc.  
 Sam Gellman, University of Wisconsin  
 Carrie Haskell-Luevano, University of Florida  
 Richard Houghten, Torrey Pines Institute for Molecular Studies  
 Victor Hruby, University of Arizona  
 Amy Keating, MIT  
 Stephen Kent, University of Chicago  
 Doug Mitchell, University of California, San Diego  
 Tom Muir, Rockefeller University  
 Fred Naider, CUNY  
 Milos Novotny, Indiana University  
 Robin Offord, Mintaka Foundation for Medical Research  
 Roger Perlmutter, Amgen, Inc.  
 Antonello Pessi, Merck Peptide Research  
 William Ringo, Pfizer Pharmaceuticals  
 Tomi Sawyer, Aileron Therapeutics  
 Gebhard Schertler, Medical Research Council Laboratory of Molecular Biology  
 Peter Schulz, Scripps Research Institute  
 Randy Seeley, University of Cincinnati  
 Steven Smith, Stony Brook University  
 Mark Staples, Cusp Pharma Tech  
 Reto Stocklin, Atheris Laboratories  
 Roger Sunahara, University of Michigan  
 James Tam, Scripps Research Institute  
 Matthias Tschop, University of Cincinnati  
 Michael Van Nieuwenhze, Indiana University  
 John Vederas, University of Alberta  
 Gregory Verdine, Harvard University  
 Andrew Vick, BioPharma Services  
 John Wade, University of Melbourne  
 Andrew Young, Amylin Pharmaceuticals, Inc.



## Symposium Reminders

We invite you to join us for the 21<sup>st</sup> American Peptide Symposium on the campus of Indiana University, June 7 to 12, 2009. Symposium Early Registration is now open. Abstracts are currently being accepted.

**Symposium web site:** [www.21staps.org](http://www.21staps.org)

### **Abstract Submissions:**

Submission Deadline: Monday, February 16th  
Submission guidelines and forms are available at: [http://21staps.org/abstract\\_sub.html](http://21staps.org/abstract_sub.html)

### **Registration:**

Register for the Symposium (and reserve a dorm room at Willkie Residence Center) at:

<http://21staps.org/registration.html>.

For information about accommodations at Willkie Residence Center, see: [http://21staps.org/on\\_acc.html](http://21staps.org/on_acc.html).

### **Hotel Reservations:**

Indiana Memorial Union (host hotel) and area hotels: Lodging arrangements (other than Willkie Residence Center) must be made by contacting the hotel directly (see "Arrangements/accommodations – on and off campus" on the web site for details). Book early!

Join your friends and colleagues in Bloomington this June! BREAK AWAY!

–Richard DiMarchi  
Henry Mosberg  
Symposium Co-Chairs

## Thinking About Your Future? The APS Student Affairs Committee Can Help!

The Student Affairs Committee (SAC) consists of graduate students and postdoctoral associates, with the objective of providing insights, programs, and resources geared toward the needs of the young investigator membership of the scientific community. Toward this objective, the SAC leadership in previous years has initiated several programs at the APS symposia.

**Job Fair** to assist in the introduction of potential employers to graduate students and postdoctoral fellows looking to advance in their careers. This activity is provided free of charge to assist young scientists in identifying employment opportunities and potential academic and industrial employers. Additionally, positions at a more experienced level are sometimes included in the job fair for individuals looking to make parallel job transitions. Interested scientists and potential employers who want to participate in the Job Fair may register at the Employment page of the American Peptide Society web site or at the SAC Job Fair booth at the 21<sup>st</sup> American Peptide Symposium.

**Young Investigators' Poster Competition** with prizes. This is a forum for young investigators to gain experience in presenting their exciting and cutting-edge research projects to established investigators with diverse multidisciplinary backgrounds, including participating in a question and answer session. This training ground provides the young investigator with an experience that may be utilized in future quests for postdoctoral or fulltime employment positions as careers advance. This competition is open to graduate or postdoctoral associates who have received a doctoral degree within the past four years; applicants must follow the instruction described at the 21<sup>st</sup> American Peptide Symposium web site.

**Young Investigators' Oral Presentations** provide graduate students and postdoctoral associates who have received a doctoral degree within the past four years an opportunity to orally present research at a national symposium. This process includes abstract submission, selection of oral presentations by the Selection Committee, the excitement of receiving an invitation for an oral presentation, and the nervousness of presenting their cutting-edge research to their peers, meeting attendees and leaders in the field. While this first experience is sometimes nerve-racking, it is a stepping-stone to gaining the necessary confidence and exposure required for a successful scientific career in academia and industry. The selected young investigators will present their talks interspersed throughout the week's scientific program.

For additional information, please visit <http://www.21stAPS.org> or contact the committee Co-chairs:

Jung-Mo Ahn, University of Texas at Dallas, [jungmo@utdallas.edu](mailto:jungmo@utdallas.edu)

Audrey Kelleman, Senn Chemicals, [audrey.kelleman@sennchem.com](mailto:audrey.kelleman@sennchem.com)

### **More About SAC**

SAC programs are open to student, postdoctoral, and independent researchers who are APS members, and at the time of the Symposium are less than four years beyond their graduation/postdoctoral research training. New members are always welcome. On behalf of the Student Affairs Committee, we look forward to seeing you in Bloomington.

–Jung-Mo Ahn and Audrey Kelleman



## Upcoming Council Elections

There will be an election in the spring of 2009 to select the next APS President-Elect and Treasurer, along with six Council Members and five Nominating Committee Members. The current APS Nominating Committee has developed a slate of candidates for these positions which will be presented electronically to current APS members in the spring.

Just a reminder that petition nominations for the Council receiving the signature support of 25 Active Members and received by March 1 will automatically be placed on the ballot. In addition, write-in votes for Active Members not on the ballot shall also be accepted.

These positions are very important in the leadership of the Society and in determining our future direction. We thank you for your nominations and participation in the process.

—*Deborah Heyl-Clegg*  
*Chair, APS Nominating Committee*  
*debbie.heyh-clegg@emich.edu*

Nominating Committee Members:  
Deborah Heyl-Clegg, Roger Freidinger,  
Antonello Pessi, Michael Pennington,  
Robert P. Hammer, Claudio Mapelli,  
Maria Bednarek

## 2009 Merrifield Award Recipient: Stephen B. H. Kent

The American Peptide Society is very pleased to announce that Stephen Kent of the University of Chicago has been chosen to receive the R. Bruce Merrifield Award for 2009. Dr. Kent is cited for “the development and application of innovative and robust methods for the total chemical synthesis of enzymes.” This award will be presented during the 21st APS Symposium to be held in Bloomington, Indiana on June 7 to 12, 2009.

Stephen Kent has pioneered modern methods for the total chemical synthesis of proteins, and has used these novel synthetic methods for unprecedented studies of protein structure and function.

Dr. Kent’s early work focused on fundamental studies of methods for the chemical synthesis of peptides, and on the application of chemical peptide synthesis to studies of the hepatitis B virus and the human immunodeficiency virus. In 1989, this work culminated in the use of total chemical synthesis to prepare protein used for the determination, by crystallography collaborators, of the original X-ray structures of the HIV-1 protease molecule. These data were made freely available and formed the basis for the highly successful worldwide programs in structure-based drug design that culminated in the development of the “protease inhibitor” class of AIDS therapeutics.

The total chemical synthesis of proteins, especially enzymes, was one of the grand challenges in 20th century chemistry. In 1992, Dr. Kent effectively solved this problem by introducing the “chemical ligation” principle, the use of chemoselective reaction for the covalent condensation of unprotected peptides in aqueous solution. In 1994, Dr. Kent and his colleagues at The Scripps Research Institute extended this concept to “native chemical ligation,” the amide-forming thioester-mediated covalent condensation of two unprotected peptides at a cysteine residue. Chemical ligation methods are a break-through in protein science and for the first time have led to practical, reproducible, and general synthetic access to the world of proteins.

In 2003, Dr. Kent and his industry colleagues reported the systematic design and total chemical synthesis of the neoglycoprotein “synthetic erythropoiesis protein,” an improved version of erythropoietin. Synthetic EPO contained a polypeptide chain of 166 amino acid residues and had two covalently attached branched glycan-mimetics, homogeneous polymer entities of defined molecular structure each carrying four negative charges. Synthetic erythropoiesis protein is the largest synthetic protein construct ever made, with a molecular mass of 50,825 Daltons; it displayed full biological activity and improved duration of action in vivo.

The principal focus of the Stephen Kent laboratory at The University of Chicago is to



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## Stephen B. H. Kent

(continued from page 4)

understand the chemical basis of protein function, particularly enzyme catalysis, and to demonstrate that knowledge by the design and construction of protein molecules with novel properties. Dr. Kent and his colleagues have continued to develop improved synthetic chemistries for the study of proteins. These include “one pot” methods (2004), and novel catalysts for native chemical ligation based on detailed mechanistic studies (2007). In 2006, the Kent lab introduced “kinetically controlled ligation,” a method that has enabled the fully convergent total chemical synthesis of large protein molecules, including the crystalline fully active enzyme molecules human lysozyme and a covalent-dimer form of the HIV-1 protease containing a 203 amino acid residue polypeptide chain. In 2008, the Kent laboratory reported the use of racemic protein crystallography for the determination of novel molecular structures, using mirror image proteins prepared by total chemical synthesis to enable crystallization of difficult-to-crystallize proteins and to facilitate the determination of their X-ray structures by direct methods.

The Merrifield Award was endowed by Dr. Rao Makineni in 1997, in honor of R. Bruce Merrifield (1984 Nobel Prize in Chemistry), inventor of solid phase peptide synthesis. Previously, this award had been called the Alan E. Pierce Award and was sponsored by the Pierce Chemical Company from 1977 to 1995.

## 2009 Makineni Lectureship Award Recipient: William DeGrado

The 2009 Makineni Lectureship is meant to recognize a recent scholarly contribution of broad significance, and Bill DeGrado's 2008 Nature paper entitled “Structural basis for the function and inhibition of an influenza virus proton channel” is a stellar example of high-impact peptide science. The M2 protein from influenza virus self-assembles in a host cell membrane to form a tetramer, which enables protons to cross the membrane. DeGrado's lab (and many others) have studied this protein for some time. The 2008 Nature paper reports the crystal structures of two 25-mer peptides that correspond to the membrane-spanning alpha-helical segment of the M2 protein. In both cases the peptides form a four-helix bundle that represents the proton channel region of the native M2 tetramer.

This work is highly significant because of insights regarding M2 channel assembly, function and inhibition (in one of the two crystal structures an antiviral agent blocks the center of the channel). Perhaps even more important, however, is the fact that this work represents the first example in which the transmembrane segment of an integral membrane protein has been structurally characterized at atomic resolution via crystallography. This monumental achievement is likely to inspire related studies in many groups, which will ultimately bring our understanding of membrane protein structure and function to new levels of sophistication. The first crystal structure of a membrane protein led to the award of the 1987 Nobel Prize, because this accomplishment was viewed as leading the way to many more structures of membrane proteins. Water-soluble peptides of medium length (10-40 residues) are typically much more difficult to crystallize than are full-length soluble proteins. This trend is likely to apply as well to medium-length membrane-embedded peptides, relative to membrane proteins. Thus, DeGrado's goal of growing high-quality crystals of M2 transmembrane peptides was extremely courageous (one might have said “foolhardy” at the time he began); this goal would probably not even have been imagined by most workers in the field because success seemed so unlikely.

The importance of acquiring high-resolution structural data for self-associating transmembrane segments of embedded proteins cannot be overstated. Interactions among such segments play crucial roles in determining the identity, geometry and stoichiometry of membrane protein assemblies. These assemblies play vital roles in normal and pathological cellular physiology and in the behavior of infectious agents. Many integral membranes involved in signal transduction, for example, contain single-pass helical segments that link an extracellular receptor domain to an intracellular effector domain (e.g., a tyrosine kinase domain). There is good evidence that such helical segments have intrinsic propensities for homo- and/or heteroassociation, and these association phenomena play a crucial role in normal signaling as well in aberrant signaling that can lead to development of disease. Our understanding of physiologically important interactions among intrinsic membrane proteins has been hampered by our lack of high-resolution structural information for the associated states. DeGrado's stunning success with M2-derived integral membrane peptides suggests that this deficiency of structural data will soon be remedied.

The Makineni Lectureship honors Rao Makineni, a longtime supporter of peptide science, peptide scientists, and the American Peptide Society. Presented at the biennial symposia, this award recognizes an individual who has made a recent contribution (within two years of the nomination deadline) of unusual merit to research in the field of peptide science and is recognized as an accomplished speaker. This award is intended to recognize original and singular discoveries rather than cumulative or lifetime contributions.



## American Peptide Society Member Benefits

- A subscription to *Biopolymers – Peptide Science*.
- Discounted subscription rates for the following journals:
  - Chemical Biology and Drug Design*
  - International Journal for Peptide Research and Therapeutics*
  - Protein and Peptide Letters*
  - Current Protein and Peptide Science*
  - Current Proteomics*
- Free professional position and resume posting on the website.
- Membership in the Federation of American Societies for Experimental Biology (FASEB).
- Reduced membership rates for students and postdocs.
- Travel grants to symposia for qualified graduate students and postdocs.

For more information, please visit our website at <http://www.AmPepSoc.org>.

Please note that our mailing address has changed to:

American Peptide Society  
P.O. Box 13796  
Albuquerque, NM 87192

## Call for Papers: *Biopolymers – Peptide Science*

*Biopolymers – Peptide Science* wishes to invite your submission of both original research articles and current trend reviews. With our meeting quickly approaching, this is an excellent time to submit your work to the journal.

As we all know, research in all areas of peptide science has dramatically increased as a multitude of disciplines are newly discovering the utility of peptides. The recent surge in developing peptides as novel therapeutics, biomaterials, and as general tools where precise folding and function is needed is driving a revolution in this field. These are very exciting times and *Biopolymers – Peptide Science* will continue to build knowledge, promote communication and facilitate innovative ideas that expand the science of peptides.

Visit <http://www3.interscience.wiley.com/journal/106586621/home> to submit your articles. The success of our Journal depends on your involvement.

—Joel Schneider, Editor-in-Chief

## Worldwide Events

Biophysical Society 53rd Annual Meeting

February 28 - March 4, 2009

Boston Convention/Exhibition Center

Boston, Massachusetts

For more information: <http://www.biophysics.org/2009meeting>

2nd Annual Protein and Peptide Conference: Life, Knowledge and Bio-Economy

April 2 -4, 2009

PepCon 2009, Seoul, South Korea

For more information: <http://www.bit-pepcon.com/>

21st American Peptide Symposium: BREAKING AWAY

June 7 - 12, 2009

Indiana University, Bloomington, Indiana USA

For more information: <http://www.21stAPS.org>

VIII European Symposium of The Protein Society

June 14-18, 2009

Zurich, Switzerland

For more information: <http://www.proteinsociety.org>

## 8th Australian Peptide Symposium Couran Cove, Queensland, October 11-16, 2009

With only nine months to go before the 8th Australian Peptide Symposium, preparations are well under way. The meeting will be held at Couran Cove, Queensland, October 11 to 16, 2009, providing a relaxed atmosphere for scientific exchange, in keeping with the tradition of this meeting. We have confirmation from over 15 of our invited speakers, which ensures an outstanding scientific program within our major theme "Peptides - Tools, Targets and Therapeutics." The meeting will cover not only broad peptide (and peptide-related) research, but will also have a particular emphasis on emerging technologies such as proteomics, biosensors, applications of venoms and toxins, recent advances in solid phase synthesis, fluorescent technologies, and identification of new biomarkers, as well as novel applications of the more established techniques in peptide science.

On-line registration and abstract forms submission will shortly be available on the conference home page (<http://www.peptideoz.org/>).

We recommend those of you who will be attending the symposium to make your flight bookings as soon as possible, as prices are extremely reasonable at this time of the year. Couran Cove is situated in Queensland on South Stradbroke Island and has received numerous awards as a leading Ecotourism resort, combining beach, bush and top quality facilities. It is accessible from the mainland by a short ferry ride and is conveniently located close to Brisbane and Coolangatta airports. It provides a superb location from which to congregate with old colleagues, make new friends and discuss all aspects of the many exciting discoveries and rapid advances in peptide-related research.

We look forward welcoming you to Couran Cove in October.

—*The Conference Organizing Committee*  
[Jackie.Wilce@med.monash.edu.au](mailto:Jackie.Wilce@med.monash.edu.au)

## Neuropeptide Festival 2009: July 20 to 23, Salzburg, Austria

### Joint Meeting of the European Neuropeptide Club and the Summer Neuropeptide Conference

It is our great pleasure to invite you to participate in the Neuropeptide Festival, the Joint Meeting of the European Neuropeptide Club (ENC) and the Summer Neuropeptide Conference (SNP) to be held in Salzburg, Austria from Monday July 20th to Thursday July 23th, 2009.

The neuropeptide conference will cover several different aspects of neuropeptide function. Topics will include: neuropeptides and metabolic regulation; neuropeptides and cancer; neuropeptides in immunoregulation; pepper, pain and peptides; neuropeptides in CNS disease; neuropeptides and sleep.

We cordially invite you to attend and participate in this inspiring meeting and to present your scientific work as an oral or poster presentation. Young investigators will have the opportunity to apply for a travel fellowship. Further information on the meeting is available at the web site [www.salk.at/neuropeptides](http://www.salk.at/neuropeptides), and on the Salzburg Summer Music Festival, following on July 25 to August 30, at <http://www.salzburgerfestspiele.at/Home/DASPROGRAMM/HOMEPAGE/tabid/55/Language/en-US/Default.aspx>.

We are looking forward to meeting you in Salzburg.

—*Barbara Kofler, Meeting Chair*



## American Peptide Society Newsletter

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We are always seeking items for your society's newsletter – either scientific or personal, as long as they are relevant to the field of peptide science, the Society, and its members. Please email your news items, along with any photos or graphics, to Editor Ellen Brenner at [apsnewsletter@americanpeptidesociety.org](mailto:apsnewsletter@americanpeptidesociety.org). Items should be either Microsoft Word document attachments, or plain text included in the body of the email. Photos should preferably be in either JPEG or EPS format, and not embedded in a Word document.

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for their on-going support:



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