



# EXCELLENCE



Newsletter of the Alliance of Distinguished and Titled Professors

## Brater new VP for life sciences

### Dean of IU School of Medicine assumes additional role

**Dr. Craig Brater, Walter J. Daly Professor** and Dean of IU School of Medicine has become the newly created position of Vice President for life sciences as of January 1. His appointment was approved by the IU Board of Trustees after being recommended by IU Adam Herbert. Dr. Brater's new responsibilities will include coordinating the university's life sciences strategic plan, in collaboration with the dean of the College of

Arts and Sciences at IU Bloomington, the vice president for research and the chancellor of IUPUI. He will also be working with university lobbyists to represent IU's life science interests within the Statehouse, in Washington, D.C., and with potential private-sector partners.

In the May/June 2006 issue of the *Indiana Alumni Magazine*, he states that at the top of all researchers' lists of requirements is space. He goes on to say that to double the research funding by 2013, they need to add 1 million square feet of lab space in Indianapolis and 500,000 square feet of lab space in Bloomington.

IUPUI Chancellor Charles R. Bantz.

The **general business meeting will begin at 5 p.m. in Room 231.**

The reception and dinner will be in a different location within the University Place Conference Center & Hotel. **The reception will be at 6 p.m. and dinner at 6:30 p.m. in the second floor Bistro Lobby.**

Please mark your calendars now and plan to join us for a delightful evening. You will be receiving more information about the event later this summer.

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### Mark your calendars

This year's fall meetings and dinner are scheduled for **Monday, September 25, 2006**, in Indianapolis at the University Place Conference Center & Hotel and will be hosted by

### Faculty honored

Indiana University honored their faculty and students on Founders Day, April 2 at Assembly Hall in Bloomington.

Among those recognized were the Alliance's **Denis Sinor**,

**Distinguished Professor Emeritus** in the Department of Central Eurasian Studies, IUB with the *John W. Ryan Award*

**Dennis Peters, Herman T. Briscoe Professor** of Chemistry, IUB, was awarded the *W. George Pinnell Award*.

## Distinguished Professors for 2006

Also, at the April Founders Day program, six new Distinguished Professors were announced.

They are:

**J. Peter Burkholder**, Professor of Music, IUB

**Marion E. Broome**, Professor of Nursing, IUPUI

**Ellen Ketterson**, Professor of Biology, IUB

**V. Alan Kostelecky**, Professor of Physics, IUB

**Robert M. Nosofsky**, Chancellor's Professor of Psychology, IUB

**Joseph Steinmetz**, Eleanor Cox Riggs Professor of Psychology, IUB

## NIH Grant studies sugars

the National Institutes of Health (NIH) recently announced that it will provide IU Bloomington chemist **Milos Novotny, Distinguished Professor and Lilly Chemistry Alumni Chair**, and his colleagues in the IUB Department of Chemistry, the IU School of Medicine and the IU School of Informatics with \$3.2 million over three years to establish a new National Center for Glycomics and Glycoproteomics. The NIH award adds to an existing \$2 million grant in support of IUB glycomics research from the Indiana 21<sup>st</sup> Century Research and Technology Fund.

Glycomics is the general study of sugar chains, while glycoproteomics examines differences in the way the sugar chains are attached to proteins. The Center staff will develop new technologies that improve the ability of scientists to investigate biological sugars, allowing a better understanding of sugar biology.

The NIH grant is part of an \$18.2 million initiative by the National Center for Research Resources (NCRR) to create two "resource centers" for new biomedical technology.

Co-investigators include **David**

**Clemmer, Robert and Marjorie Mann Chair in Chemistry**, James Reilly, Steve Jacobson, Randy Arnold and Yehia Mechref, IUB Department of Chemistry, Haixu Tang (IU School of Informatics) and Robert Hickey and Meei-Huey Jeng (IU School of Medicine). Collaborators include **Linda Malkas, Vera Bradley Chair of Oncology**, William McBride and J.-T. Zhang (IU School of Medicine), **Thomas Kaufman, Distinguished Professor**, IUB Department of Biology, Karel Bezouska (Charles University, Prague, Czech Republic) and P. Pahlsson (University Hospital, Linkoping University, Sweden).

For more information on the Center go to:

<http://newsinfo.iu.edu/news/page/normal/2730.html>

## Special Honors and Awards

The Alliance wishes to congratulate those receiving special honors, recognition, and awards within the past year.

**Diane Billings (IN), Chancellor's Professor of Nursing**, is the recipient of the Indiana Partnership for Statewide Education Award for Innovation and Leadership.

She was honored for her initiatives in teaching with technology in her development of an online critical care course, offered for academic credit or continuing education units.

**Marilyn Bull (IN), Morris Green Professor of Pediatrics**, received one of three national awards presented by Castle Connolly Medical Ltd., publisher of the *America's Top Doctors* series, for Physician of the Year.

**Richard DiMarchi (BL), Jack and Linda Gill Chair in Biomolecular Science**, is the recipient of the 2006 Gustavus John Esselen Award for Chemistry in the Public Interest. The award, given by the Northeastern Section of the American Chemical Society, recognizes a chemist whose scientific and technical work has contributed to the public well-being and has thereby communicated positive values of the chemical profession.

**DiMarchi** also has been honored by the American Association of Pharmaceutical Scientists with the 2005 Research Achievement Award in Biotechnology. The award honors his contributions to the discovery and development of a number of protein-based drugs.

**Mark Estelle (BL), Miller Chair in Plant Developmental**

**Biology**, is the recipient of the 2006 Kumbo International Science Prize for his research on plant growth and development, including the identification of the receptor for the plant hormone auxin. The award comes from the Kumbo Cultural Foundation of Seoul, South Korea.

**Harvey Feigenbaum (IN), Distinguished Professor of Medicine**, was named a Distinguished Scientist by the American Heart Association during the organization's 2005 Scientific Sessions in Dallas. The designation, created two years ago, recognizes AHA members who have made major and independent research contribution that advance the understanding of heart disease and stroke. Feigenbaum led the development of echocardiography, a major advancement in cardiac care.

**Kirsten Grøbjerg (BL), Efroymsen Chair in Philanthropy**, was awarded the 2005 Award for Distinguished Achievement and Leadership in Nonprofit and Voluntary Action Research from the Association for Research on Nonprofit Organizations and Voluntary Action. The award for distinguished lifetime achievement is given for significant and sustained contributions to the nonprofit and volunteer action research

field through research and leadership.

**George Kuh (BL), Chancellor's Professor of Higher Education**, is the recipient of the Lifetime Achievement Award from the American College Personnel Association. The Award honors a member who has a recognized level of scholarly productivity and leadership sustained over two decades or more. It also recognizes other long-term involvement and service to the field of student affairs. Kuh is only the fifth person to receive the award.

In a separate recognition, **George Kuh** was one of three experts asked to comment on the Carnegie Foundation for the Advancement of Teaching's revised system for classifying institutions during a media event at the National Press Club in Washington, D.C.

**James Lemons (IN), Hugh McK. Landon Professor of Pediatrics**, has been named the 2005 March of Dimes Medical Honoree for the Indiana Chapter at the organization's annual award ceremony. He was recognized for his contributions to perinatal medicine, which have changed the lives of thousands of critically ill babies and their families through direct clinical care, for his education of other

health-care professionals and for his research in neonatal-perinatal medicine impact.

**Marjorie Lyles (BL), OneAmerica Chair in Business Administration**, has been named a founding member of the international development advisory board for the Indiana Economic Development Corporation. She will provide strategic counsel on Indiana's opportunities for international trade and investment.

**William Newman (BL), Ruth Halls Professor of History and Philosophy of Science**, has received the History of Science Society's Pfizer Prize for an outstanding scholarly publication for his book, *Alchemy Tried in the Fire: Starkey, Boyle and the Fate of Helmontian Chymistry*. The Pfizer Prize was established in 1958 and consists of a medal and \$2,500. To read more go to: <http://www.iuinfo.indiana.edu/homepages/1031/text/alchemy.htm>

**Bernice Pescosolido (BL), Chancellor's Professor of Sociology**, has been awarded the 2005 Leo G. Reeder Award for Distinguished Contributions to Medical Sociology from the Section on Medical Sociology of the American Sociological Association. The Reeder Award recognizes scholarly

contributions, especially a body of work displaying an extended trajectory of productivity and encompassing theory and research.

**Ora Hirsch Pescovitz (IN), Edwin Letzter Professor of Pediatrics**, is the recipient of the 2006 Leading Light Award for Outstanding Contribution to Health, Life Science, Physical Science or Agri-Science.

**Richard Shiffrin (BL), Distinguished Professor and Luther Dana Waterman Professor of Psychology**, received the IU School of Informatics Hermes Award for advancing the school's mission.

**Susan Sutton (IN), Chancellor's Professor of Anthropology**, has been elected to the executive committee of the Association of International Education Administrators.

*Note: If you have received an award within the past year and would like to have it mentioned in the June issue of Excellence, please contact Janet at the Alliance Office (855-8279; [jlblack@indiana.edu](mailto:jlblack@indiana.edu)).*

## New Members

We welcome the following new members to the Alliance since the December 2005 issue of Excellence. Some may already be members of the Alliance with new titles.

**Anthony V. Ardizzone (BL)**, Chancellor's Professor of English

**Stephen P. Bogdewic (IN)**, Dr. George W. Copeland Professor of Family Medicine

**Marion E. Broome (IN)**, Distinguished Professor, School of Nursing

**J. Peter Burkholder (BL)**, Distinguished Professor, Jacobs School of Music

**Muricio Fuks (BL)**, Rudy Professor, Jacobs School of Music

**Robert L. Goldstone (BL)**, Chancellor's Professor of Psychological and Brain Sciences

**Jan Harrington (BL)**, Chancellor's Professor of Music

**Alexander Kerr (BL)**, Linda and Jack Gill Chair in Violin

**Ellen Ketterson (BL)**, Distinguished Professor,

Department of Biology

**Alan Kostelecky (BL)**,  
Distinguished Professor,  
Physics Department

**Diana Lambdin (BL)**, Martha  
Lea and Bill Armstrong Chair  
in Teacher Education

**Frank K. Lester, Jr. (BL)**,  
Chancellor's Professor of  
Education

**Anne P. Massey (BL)**, Dean's  
Research Professor in  
Information Systems

**Robert Nosofsky (BL)**,  
Distinguished Professor,  
Department of Psychological  
and Brain Sciences

**Frederick J. Rescorla (IN)**,  
Lafayette F. Page Professor of  
Pediatric Surgery

**Bradley Ritts (BL)**, Robert R.  
Shrock Professor of  
Sedimentary Geology

**Joseph Steinmetz (BL)**,  
Distinguished Professor,  
Department of Psychological  
and Brain Sciences

**Munirpallam A.  
Venkataramanan (BL)**,  
Lawrence D. Glaubinger  
Professor of Business  
Administration

**Eric A. Wiebke (IN)**, J.  
Stanley Battersby Professor of

Surgery

**Yan Xu (IN)**, Hulman-George  
Family Professor of  
Gynecologic Cancer

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## In Memoriam

**Karl Schuessler (BL)**,  
Distinguished Professor  
Emeritus, Department of  
Sociology

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## Profiles in Excellence

The Alliance wishes to thank  
the members profiled for  
agreeing to be interviewed.

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### Member Profile I

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**David E. Clemmer (BL)**,  
Robert and Marjorie Mann  
Chair of Chemistry. Professor  
Clemmer's research involves  
the development of novel  
instrumentation and methods  
for studying the structures of  
complex low-symmetry systems  
in the gas phase.

*Q. What are your research  
interests? Your mission?*

*A. Broadly, over the last few  
years, I have become very  
interested in signals and noise*

and how each is measured in  
biological systems. For  
example, how do signals  
associated with disease differ  
from noise associated with  
normal aging? At the  
molecular level we would like  
to follow how normal systems  
evolve and find the earliest  
stages at which disease signals  
emerge. To this end, we have  
been working on technologies,  
that people would call  
biotechnologies, to begin to  
measure signals in humans as  
well as in model organisms to  
better understand what is the  
difference between aging and  
the onset of disease.

My mission changed when I  
understood the importance of  
sequencing genomes. Humans  
now have the first draft of what  
several organisms (including  
ourselves) look like at the  
blueprint level. So, with this  
understanding I guess my  
mission is to train students  
about how we might take  
advantage of this information.  
My expertise is now in  
measurement and there is an  
opportunity for a new  
generation of technologies that  
would map molecular make up  
to whole organism changes.  
With such information, many  
new fields of science may open  
up. One of the difficulties of  
biotechnology is that it is so  
filled with opportunity that  
there is a problem of choosing a  
focus. I would hope that we as

educators are guiding our students into what will become the best areas. It is very hard to see a bad area at the moment.

*Q. Talk about your department and where it fits into your research.*

*A.* Indiana University, has a fantastic chemistry department – so does Purdue by the way. Right now, the state has two of the top 25 programs (and each is positioned to move up in the rankings) – very impressive for the midwest. The excellence of my colleagues at IU is really is quite amazing. On a national scale, our dept is very small (yet ranked 24<sup>th</sup> nationally). Some programs, such as Analytical Chemistry are in the top five. In terms of my research, I can basically walk down the hall and talk to a leading expert in essentially any area of chemistry. This allows us to make very rapid progress. Additionally, because many excellent people have been here, there is an infrastructure of support. For example, we almost certainly have the best instrumentation facilities of any school in the Big 10 – probably top few nationally. Thus, we can design and build new systems having advantages over faculty at other universities.

*Q. Do you work with Purdue?*

*A.* Absolutely. I have close collaborations with Graham Cooks and Fred Regneir and Scott McLuckey, all of whom are in Chemistry. Together with my other colleagues at IU (driven by Gary Hieftje) we formed the Indiana Instrumentation Institute, InProteo, and suggested structures and supported the formation of InCAPS at the IU medical school. Several of us have written proposals together, published joint papers, and formed small biotechnology companies. We also work closely with people at the medical school.

As I've spoken about life sciences and IU's plan for life sciences it is important to also consider other initiatives that are missing and how Chemistry can help the State (and Nation) – specifically the issue of energy. The US is entering a new era. We desperately need national initiative in energy research. This need could become so apparent that it dwarfs other needs for some time. Chemistry, Physics and Biology are key places that we must invest in if we will be players in national initiatives of basic energy research. Without wanting to sound alarms imagine another bad hurricane season and a following year of gas prices that top \$10 a gallon. This may significantly shift funding priorities and put

significant pressure on our state. IU needs to include in its life sciences plan, or create in parallel, a serious plan that will position us with other institutions for energy initiatives.

*Q. Speak to the meaning of excellence in your work.*

*A.* I have a number of colleagues who simply create new areas. As they describe their data I realize that I've not heard anything like it (and I had not imagined it). To me, this is excellence. In truth, I think few of us have more than a few good ideas that we are working on in any depth at one time. Any excellence that I have displayed comes about from interactions with my students and colleagues – many people have challenged, encouraged, changed and nurtured my ideas (mostly my students). The few ideas that have worked well, and that came as a surprise, are very special to me (and those around me). Along with my students, I would still happily lose a night's sleep to run a good experiment (and this still goes on a few times a year). Returning to excellence, there are some things in science that simply don't exist until someone thinks about them and tries them. At that point, a new field opens up for all of us. Several of my colleagues at IU have done this (and it is rare to

do it...I've certainly not done it...yet, smiling). It is hard for me to view my colleagues who have done this in the same way after I start understanding what they've contributed.

*Q. Mention any special honors.*

*A.* This year I was awarded the Biemann Medal in Mass Spectrometry. I will give a lecture to some of my closest friends in Seattle at the national meeting at the end of May. Several years ago, I was awarded a teaching excellence award, when I taught first year Chemistry with Distinguished Professor Dennis Peters. These are special honors.

*Q. What are your interests outside of research?*

*A.* I have three daughters and a wife who is a scientist, and we certainly spend a lot of time being a family. My parents live in Bloomington, moving here to be close to the grandchildren. We have interests in farming, music, and art. I'm certainly not an expert in any of these areas, but, my family enjoys them.

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## Member Profile II

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**Henry R. Besch, Jr. (IN),**  
Showalter Professor of

Pharmacology, School of Medicine. The studies he and his colleagues have focused on remain at the forefront of research endeavors to develop therapeutic ryanoids for use in treatment of human disease.

*Q. What are your research interests? Your mission?*

*A.* Our research interests center on heart strength and rhythm. The broad questions we seek to answer are: How are they controlled? Is there collusion between multiple bodily factors that regulate both? What goes wrong within the system when normal corrective regulation becomes overzealous, such that heart failure and sudden cardiac death result?

Our mission is to define the molecular insults that initiate these disease processes, and to devise – with the help of colleagues and students -- new drugs to treat emergent cardiac diseases.

The burden of heart disease is huge, not only to the patient and his family who suffer directly but also to society in general. Fully 50% of American deaths each year –and those of nearly half the population in all developed countries – are secondary to cardiac disease. Billions of lives are at stake worldwide and the incidence is increasing as the world's

population grows.

Calcium is a central key to regulation of both strength and rhythm of the heart. Our research over the last half-century has been devoted to drugs that improve faulty handling of calcium by diseased heart cells. The chemicals underlying our most important results are natural products from plants, including quinidine (from *Cinchona succirabra*), digitalis (from *Digitalis purpurea*) and ryanodine (from *Ryania speciosa*).

In the 1960s we studied the clinically effective anti-arrhythmic drug quinidine. We were able for the first time then to pinpoint the precise heart protein where quinidine acts. Quinidine is one of two major commercial chemicals derived from the bark of an evergreen tree indigenous to the Andean highlands. (The other is quinine, which was introduced into European medicine in 1640 to treat malaria, and is still in use today).

In the early 1970s our research was first to locate the molecular site of action of digitalis in the heart. Harvested directly from the tea of leaves of the common garden flower, foxglove, digitalis had been used clinically for over 200 years but until our studies, there had never been a sound

pharmacologic rationale underpinning its clinical use.

Beginning in 1971 and more intensively in the last two decades, our research efforts have focused on another of Mother Nature's potent creations. This time we began not with a drug but rather with a pro-drug, that is, a chemical whose identified pharmacologic actions hint at therapeutic promise. Ryanodine is currently useful to mankind only as an organic insecticide. If our research is successful it will become a drug. First classified and given its name in 1796 by a Jesuit sacerdote in tribute to his English physician, John Ryan, ryanodine was patented in 1946 as a protectant of crops like cotton, corn and apples. Hints from our early pharmacologic results with ryanodine strongly suggested that this chemical could produce unique medicines for human therapeutics.

One cause of our hope echoed the fact that about half of all current medicines derive from plant sources. An interesting side question here is: Why do plants make chemicals that successfully treat human diseases? For the *Ryania* tree, ryanodine is simply a survival product, crafted by evolution over many millennia. Its "purpose" is to promote the tree's survival by impeding the appetites of hungry insects. For

defense, a tree can do little more than concoct noxious chemicals. Those that improve the plant's survival are evolutionarily passed along to progeny and given further strength in the tree's cellular factories as time goes on. Eventually repetitive refining may produce a chemical that precisely homes in on only a single, life-sustaining protein.

Ryanodine's is such a targeted evolutionary chemical. Its prospects as a drug to treat heart failure derive from the unique means by which it works its lethal strategy. Whereas most poisons kill by weakening the host in one way or another, ryanodine kills by over *strengthening* the muscles. In effect, every muscle throughout the insect's body becomes permanently clenched, as in a charley horse. The muscles cannot relax; they then cannot contract once again. Rhythmic breathing fails and the bug suffocates.

What does insect killing have to do with human drug development? Our most recent research has centered on this question. We have sought to harvest the unique muscle strengthening power of ryanodine so as to improve the strength of failing human heart muscle. For this purpose we have had to chemically coax ryanodine away from its

original lethal intent and toward our therapeutic ends. First we had to dissect out which parts of *Ryania*'s original ryanodine product are key to the precision of its killer actions. Having partially discerned that, we next devised chemical modifications to (i) tone down the poisonous effects on breathing muscles and then (ii) redirect the beneficial effects only toward diseased heart muscle cells.

Fortunately we now have fourth generation chemical cousins of ryanodine that begin to meet human therapeutic requirements. In our early testing in laboratory animals, these latest ryanodines seem poised to produce success as a drug for human heart failure and sudden cardiac death.

The National Institutes of Health, the American Heart Association and Glaxo Pharmaceuticals have funded the fundamental cardiac research studies described above. Sustained funding of my Showalter Professorship of Pharmacology by the Ralph W. and Grace M. Showalter Trust has been key to allowing us flexibility to follow our hunches about the new drug development. We are indebted to these sources and especially to the Showalter Foundation for their generous support.



*Q. Speak to the meaning of excellence in your life and work and how you foster excellence in your associates and colleagues.*

*A.* Most likely grounded in both genetic and environmental factors, that is, both “nature and nurture”, excellence is the highest level of achievement resulting from an indefinable trail to the top of one’s game. At its base there surely must be conviction, passion, persistence and patience. Somewhat akin to evolution, excellence results only when presaged by continuous, repeated iterations of incremental endeavors producing successful outcomes. Fostering success among one’s collaborators, including students at all levels, requires building group consensus. Thereafter, excellence can flow forward as a proactive result of communities of colleagues who create, support and share an environment of the highest expectations with uncompromising attention to details. A third vital component is a willingness to encourage individual innovation. High risks can pay off with high returns. Even disappointing results must be accepted within the group not as failures but rather as new challenges for future opportunities.

*Q. What are your interests outside of research?*

*A.* For relaxation, my wife Frankie and I cruise the White River that runs just 50 yards from our front door. Porte Renaissance, our century old house, owns us rather than the other way around. Having been an automobile mechanic and then a machinist before my doctoral studies, I am a consummate tinkerer with little things that constantly seek our attention to preserve the age-old Italianate ambiance of Porte Renaissance. I play at golf whenever the opportunity arises. To sweep mental cobwebs, Frankie and I have recently started Spanish language classes in preparation for a trip to the Galapagos Islands, where Charles Darwin formulated the theory of evolution in 1859. We are also learning a little Chinese to augment our French and German and we continue to volunteer in numerous projects in the community.

*Q. Finally, is there anything of human interest to share with the members?*

*A.* Our family histories are not untypically American: second generation Americans of Germanic origin. Our son, Kurt graduated from IU School of Medicine in 1998 and practices internal medicine in Tampa.

He and our daughter-in-law Renae gave us our first grandchild, Sophia Grace on Thanksgiving last year. Sophia now occupies center stage in our currents interests.

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## Letters to the Editor

The Steering Committee invites the general membership to contribute “letters to the editor.” The topics should be related to the mission of the Alliance. Given our sparse publication schedule, the letters ought to address concerns that will be of relevance after a delay of weeks or months. Such letters provide a means for members not on the Steering Committee to play a role in setting policy and priorities, and we encourage you to make such a contribution. Please send letters to the Alliance office, Poplars 823, IUB, Fax: 812-855-5767 or E-mail to [alliance@indiana.edu](mailto:alliance@indiana.edu).

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