

BBMB BULLETIN

The Biochemistry, Biophysics, Molecular Biology Department Newsletter

From the Chair...

Hello! Some of you old-timers may remember the newsletter of yesteryear "BBbb" (biochemistry and biophysics bulletin board). Well, we have decided to do an encore. This is the first issue of the new BBMB and, as you read this, we hope that it will rekindle some of the more pleasant memories you have of your alma mater. We are certainly excited about the goings on in BBMB. We are an eclectic mix of stalwarts who were the BBMB pioneers (you will enjoy reading about Drs. Beitz, Fromm and Robyt) and a whole bunch of younger faculty who are carrying the BBMB banner forward. We would like all of you to be a part of our present and our future. Let us know about yourselves and we will periodically feature your stories. We are proud that you are an alum of this department and we will take every opportunity we can to showcase your accomplishments. I recently sent out a letter introducing myself and several of you responded. We value your feedback. Knowing more about what the alumni of this Department have done since leaving provides us with fresh insights about how our educational programs can continue to be improved. Take a look at our departmental website as well (www.bbmb.iastate.edu). It continues to be a work in progress but I invite you to peruse through the various pages. You'll also notice that we have an active Seminar Series where researchers and scientists alike can share their work with others. Several of our faculty have celebrated momentous achievements. Enjoy "BBbb" and keep in touch.



Guru Rao, Chair



Donald Beitz and Herbert Fromm, distinguished professors, and John Robyt, professor, to be honored by the Biochemistry, Biophysics and Molecular Biology Department on Thursday, January 31

Professors to be honored on January 31

On Thursday, January 31, everyone is invited to attend the Department of Biochemistry, Biophysics and Molecular Biology reception honoring the contributions of Don Beitz, Herb Fromm and John Robyt.

The celebration will take place in the Molecular Biology Building atrium beginning at 5:30 p.m., immediately following the BBMB seminar. Appetizers and beverages will be served. A short program will be provided by Guru Rao, interim department chair. The highlights of these careers, which collectively span 125 years, will be showcased. It promises to be an evening of celebrating as well as reminiscing.

Please plan to attend this special event where we will honor the many contributions and achievements of these esteemed members of our faculty.

FACULTY PROFILES

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The BBMB Bulletin is a quarterly publication of the Department of Biochemistry, Biophysics and Molecular Biology at Iowa State University.

Departmental Chair:

Guru Rao
(interim)

Newsletter Editor:

MaryAnn Sherman

CONTACT US:

Please send your news, photos, ideas and suggestions to:
biochem@iastate.edu

Biochemistry, Biophysics,
Molecular Biology Department
Iowa State University
1210 Molecular Biology Building
Ames, IA 50011
Phone: 515.294.6116
Fax: 515.294.0453
web: www.bbmb.iastate.edu

Herbert Fromm

Herb Fromm is a distinguished professor in the Department of BBMB. He is well-known for his contributions to enzymology, having pioneered the use of kinetic methods to discover chemical mechanisms of enzyme action. His career spans a period of science-time during which our concepts about proteins and enzymes advanced from vague ideas about structure and active sites to a high-resolution, dynamic picture of catalysis and regulation. At each step of the way, Fromm's research has stayed at the cutting edge of advances in chemistry and technology, resulting in continuous funding from the NIH for over 40 years. How did Fromm end up at Iowa State, in BBMB, having accomplished these things?

A boy from the city learns chemistry in the Midwest

Fromm grew up in the Bronx in the 1930s and 1940s. His father ran a factory that produced women's novelty neckwear. He was born into a family, with an older brother and sister, who never pushed him toward higher education. In fact, he was the first member of his family to attend college. The importance of education was instilled by his attendance at Stuyvesant High school, which had (and still has) one of the best academic reputations in the country. Studying in this environment cultivated the idea that college was a logical continuation of education, although this was by no means expected then as it is now. Knowing he had to find a way to pay for college, while standing in line to register for the draft in 1947, Fromm learned that he could attend Michigan State University for only one-fifth the cost of a college in New York City. In fact, it cost less than \$1,000 a year to attend MSU and live on campus.

He enjoyed chemistry at MSU, and upon graduation received an Office of Naval Research Fellowship to attend graduate school at Loyola Medical School in Chicago. With this handsome annual stipend of \$1,800, along with the promise to stay un-drafted during the buildup to the Korean war, Fromm moved to Chicago in 1950. His research was conducted under the guidance of Dr. Martin B. Williamson, and focused on the effects of amino acids on wound healing. Fromm received a master's degree in 1952, and a doctorate in 1954. Knowing that he would be drafted after graduation, Fromm enlisted in the Army Reserves, serving from 1953-1961.

The chair of the biochemistry department at Loyola was fond of Fromm and recommended him for a faculty position to his counterpart at North Dakota Medical School (NDMS) in Grand Forks. At the time, the biochemistry department at NDMS was expanding from two to three faculty (it now has 15), and Fromm was hired as an assistant professor in the department of biochemistry to continue the work he had started at Loyola.

How does one become an enzymologist?

A new research center was being dedicated at NDMS, and the department invited Fritz Lipmann, who had just won the 1953 Nobel in Physiology and Medicine for his work with coenzyme-A, to open the ceremonies. Fromm had the honor of picking him up and dropping him off at the airport in Fargo (several hours each way) and was treated to an inspirational discussion of biochemistry, leading to an interest in enzymology that has continued to this day. Lipmann suggested that if Fromm wanted to study enzymes, he should do a "postdoc", which was a foreign concept to him at the time. Lipmann suggested he consider either Paul Boyer, or Efraim Racker. Boyer, who at the time was at the University of Minnesota, was Fromm's first choice. He took a leave of absence without pay from NDMS to spend four months in the fall and winter of 1956 to study glutamine synthetase with Boyer in Minnesota. In essence, he learned the state-of-the-art at the time, which was enzyme purification.

Back to North Dakota with a mission

Fromm's research from this point (1957) has focused on using kinetic methods to understand enzyme mechanisms. He was a contemporary of W.W. Cleland in developing and implementing these methods, and received a prestigious Career Development award from NIH in 1961, at the age of 32. During this time, his work focused on the tetra-homocysteine transmethylase and adenylosuccinate synthetase. The latter enzyme is a three-substrate system, for which he demonstrated for the first time the use of equilibrium isotope exchange for mechanistic studies in 1958.

In 1961, Fromm started his work with hexokinase that, as with adenylosuccinate synthetase, has continued to this day. A controversy about whether the mechanism of hexokinase was random or ordered led to several visits back to the Boyer laboratory

in Minnesota, and then UCLA, to pursue a collaboration to resolve this question. In the end, Fromm developed the use of dead-end competitive inhibitors to show without doubt (in 1962) that the mechanism is random.

Viva Las Vegas

In 1964, Fromm returned to Los Angeles and the Boyer laboratory for six months to study the hexokinase back-reaction (and enjoy the difference in weather). It was on this visit that Fromm met an “attractive young coed” named Katherine who was washing dishes in the Boyer laboratory. Sparing the details of what was surely an exciting courtship, it suffices to say that the young couple married in Las Vegas and moved back to North Dakota where they started a family. His first son, Stephen, and daughter, Ethel, were born in the following years.

Another connection made through the Boyer laboratory was a young postdoctoral student named Don Graves, who would impact the Fromms in the near future.



Herb and Kathy Fromm in North Dakota

Moving to Iowa

Kathy had family in Iowa, and Herb was experiencing some of the limitations of NDMS (mainly limited access to graduate students) when he was contacted (though



The Department of Biochemistry and Biophysics, early 1960s (just prior to the arrival of Dr. Fromm). **Top: (L to R):** Scott Allen, Don Graves, David Metzler, Jon Applequist, Dean Clark, Dexter French. **Middle:** Unknown, Byron Thomas, Jack Horowitz, Evans Roth, Mal Rougvie. **Bottom:** John Foss, Walter Hearn, Sam Aranoff, Carl Tipton.

his connection to Don Graves) to interview for a job at the relatively new Biochemistry and Biophysics Department at Iowa State University. This department was formed in 1960, and by 1966 was home to many young chemists and physicists interested in studying biological systems. Fromm’s quantitative, mechanistic work with enzymes was a perfect fit for the physical and chemical approach to biochemistry that served as the foundation the department.

The Fromms moved to Ames in 1966 and bought a house at 225 Beedle Drive. Over the next few years their second round of son and daughter, Jonathan (1968) and Rachel (1970) were born. In 1973 the Fromms moved to their current home in (what used to be) the “country”, just north of Ames on George Washington Carver Avenue. Up until just a few years ago, Fromm farmed 14 acres of corn and beans “with his own hands”.

Fromm continued working with adenylosuccinate synthetase and hexokinase throughout the 1970s and 1980s.

In addition, the textbook description of another enzyme, fructose-1,6-bisphosphatase (FBPase), motivated Fromm. Books at the time (late 1970’s) described the fundamentally important reaction catalyzed by FBPase as “irreversible”. Whether this was really true, and the location of the binding site for fructose-2,6-bisphosphate, became important questions in the Fromm laboratory. Fromm’s early use of P31 NMR to demonstrate binding at the active site predated the eventual confirmation by X-ray crystallography by five years.

In the late 1980s, a new BBMB faculty member, Richard Honzatko, solved the structure of adenylosuccinate synthetase in collaboration with the Fromm laboratory, leading to the formation of what is now known by all the graduate students as the “FrommZatko Nation”. The combination of mechanistic enzymology and structural analysis brought by these two researchers has resulted in over two decades of NIH and NSF supported research and nearly 60 peer reviewed publications.

FACULTY PROFILES

Don Beitz

You tend to think of distinguished professors as staid, stuffy academic types, but when you talk to Don Beitz this image immediately disappears. His energy, his enthusiasm, and his incredible range of interests overwhelm you. Excitement bubbles up when he discusses animal science, biochemistry, teaching, research, students, collaborations, Iowa State University, sports and his many other activities. When you examine his record of accomplishments you realize that he has an amazing ability to translate this enthusiasm and energy into accomplishments.

Beitz grew up on a dairy farm and this early interest in farm animals has never left him.

Beitz received his bachelor's degree and master's degree from the University of Illinois and his doctorate from Michigan State in 1967. He was preparing to accept a position at the University of Nebraska when Iowa State called. This was the beginning of a long and incredibly productive career in biochemistry and animal science at Iowa State University. Starting as an assistant professor in 1968, he has risen through the academic ranks becoming professor in 1977 and a Charles F. Curtiss Distinguished Professor in 1989. Beitz credits much of his success to the great mentors he has had, specifically mentioning Norman Jacobson, who invited him to ISU and supported him for many years. In 1968, Beitz and Jerry Young joined Jacobson and Dare McGilliard, to form the nutritional physiology group in the Department of Animal Science. Young and Beitz initiated a professional career as colleagues sharing research resources and a laboratory. They were collaborators on each other's grants, members of program of study committees for each other's graduate students, travel mates for scientific meetings, co-authors on many papers, and the best of friends throughout their professional careers. Beitz is a firm believer in group research, thriving in projects involving multiple faculty and students and he credits much of his success to the synergism in this group of collaborators.

The simple facts of Beitz's career are nothing short of astounding. His CV lists 266 research publications, 97 funded research grants and 317 seminars .

Beitz has taught numerous biochemistry and nutrition courses since 1968, classes which he estimates have included about 9300 students. He takes great joy in advising, both undergraduate and graduate students. Beitz has mentored 88 graduate students and he maintains a relationship with each former grad student. This may seem like an unlikely possibility until he shows you the current issue of the newsletter he puts out for all of the alumni and friends of the nutritional physiology group, complete with personal and professional current events.

Beitz's research revolves around basic questions in animal and human nutrition, investigated using biochemistry/genetics/animal science approaches. His general theme has always been the use of modern science to improve animal and human diets and to discover how diet can influence disease and long-term human health. Within this broad area, Beitz has had a number of specific research projects. These include things such as the study of the etiology and prevention of fatty liver and ketosis. Technology is being developed to use glucagons to treat and prevent fatty liver and ketosis in dairy cattle. Studies on fatty liver disease now are being focused on nutraceutical and pharmacological control of fatty liver disease in humans using rats as models. A major project is the use of dietary vitamin D and its metabolites as a method to improve the tenderness of meats. The cellular mechanisms by which such effects occur are being studied. The focus is on use of 25-hydroxyvitamin D to improve tenderness of a variety of muscles of feedlot cattle, cull cows, and pasture-fed cattle.

Another major project is the evaluation of regulators of fat deposition in beef cattle and of milk fat synthesis by dairy cattle. This includes the study of nutritional and genetic impacts on milk and meat composition with emphasis on fatty acids and the subsequent eating qualities of dairy and meat products. FTIR spectroscopy is being evaluated as a tool for a rapid assay of milk fatty acid composition. Another major project involves the development of a cholesterol reductase-containing microbe to decrease blood cholesterol. This includes studies of the role of bile acids and lecithins on the absorption of lipids.

Another ongoing project is an evaluation of ghrelin and other gastrointestinal hormones on growth of cattle and human obesity.

An additional project is the investigation of the impact of conjugated linoleic acid (CLA) enriched foods to improve human health. Past projects have been equally wide ranging, including studies of cholesterol metabolism, the genetic control of fatty acid synthesis, the impact of mitochondrial genetics on milk production, and the mapping of acupuncture points in goats.

Beitz's CV lists some 176 service activities, including departmental, college, university committees and many national organizations. For example, he is president of CAST: the Council for Agricultural Science and Technology. CAST is a nonprofit 501 (c)(3) organization composed of 38 scientific societies with many individual, student, company, nonprofit, and associate society members. CAST's Board of Directors is composed of 38 representatives of the scientific societies and individual members representing over 170,000 member scientists. CAST was established in 1972 as a result of a 1970 meeting sponsored by the National Academy of Sciences, National Research Council.

Given all of these activities, you would think that there is no time for a personal life, but Beitz has a great love of sports. He is a longtime supporter of little league baseball, and cheers for a wide range of ISU sports. All in all the picture that emerges is incredibly productive individual who has devoted himself to making all around him better, and this unselfish approach to life has paid great dividends.



John Robyt in 1953

FACULTY PROFILES

John Robyt

John Robyt grew up in Moline, Illinois where went to grade school. During the war years, 1942-1946, he spent part of his summers in Chicago with his grandparents, where he would go to see the Cubs play at Wrigley Field and would swim at Lake Michigan beaches that were close by. During the summers in Moline, he fished in the Mississippi, played baseball and basketball, participated in the Parks and Recreation Competitive Swimming Program, and worked cutting grass for money. During the winter, he was a member of the American Turners and participated in gymnastics, where one year, he obtained a "First Place" in the overall competition at a regional meet in Clinton, Iowa.

He went to Alleman High School in Rock Island, Illinois and was a member of the first graduating class to complete four years. Robyt had an early interest in chemistry and by the age of seven started to 'mix' various things together to 'see what would happen'. When he was about 8 or 9, he went up the hill to play with an acquaintance. This boy was the son of a professor and had his major interests in music. While in the basement of this boy's home, John saw a Gilbert Chemistry Set and asked if he could do some experiments. The friend agreed and played his violin, while Robyt made up some 'mixtures'. Robyt then went home and told his mother that he wanted a Gilbert Chemistry Set for Christmas. He got one and an apron that his mother made so that he would not get 'holes' all over his clothes, and his 'career' in chemistry began. When in high school, he was fortunate to have a hard, but great teacher for physics and chemistry. She realized early that Robyt seemed to already know more chemistry than most of the other students and she made him her assistant for the 'after school lab' where the students could come and repeat the experiments they had done in class. Robyt credits her for having a major influence on his career.

After graduating from high school, Robyt went to St. Louis University to major in chemistry. In 1957, he had a summer internship at the USDA Northern Regional Research Center in Peoria, Illinois and developed an interest in biochemistry and in working with microorganisms as subjects for biochemical studies.

After having some really great teachers and mentors, he received a bachelor's degree in chemistry from St. Louis University in 1958. He then came to Iowa State University to pursue a doctorate in biochemistry, under the guidance of the late Professor Dexter French. Robyt received his doctorate degree in 1962 and then held a NIH postdoctoral fellowship at the Lister Institute of Preventive Medicine, London, England, where he continued research on carbohydrates, working with Professor William Whelan. Robyt returned to Iowa State University in the fall of 1964, as a research associate and instructor in the Department of Biochemistry and Biophysics. He was promoted to assistant professor in 1967, associate professor in 1973, and professor in 1983. After 43 years at Iowa State University, now in the Department of Biochemistry, Biophysics, and Molecular Biology, Robyt remains active in research, teaching, and service.

Robyt is a renowned leader in carbohydrate chemistry and carbohydrate enzymology. He has published more than 200 peer-reviewed papers, 14 patents, and two books. His accomplishments in research on carbohydrates are reflected by the prestigious awards that he has received. The awards include, "The Award of Merit" from the Japanese Society for Glycoscience in 1994, the "Wolfram Award" from the Division of Carbohydrate Chemistry of the American Chemical Society in 1998, and the "Alsberg-Schoch Award" from the American Association of Cereal Chemists in 2001. These are the three most prestigious awards for carbohydrate research given throughout the world.

Robyt's research activities include studies on the reaction mechanisms of various alpha-amylases and glucosyl transferases. He developed the subsite-binding hypothesis of alpha-amylases to explain the specificity of the formation of different sized oligosaccharide products, produced by the different kinds of amylases. He also developed the concept of multiple attack that occurs after the productive binding of starch chains with alpha-amylases. He found that alpha-amylases from different sources have different sized subsite binding-sites and display different degrees of multiple attack and, thus, form specifically sized maltodextrin products. The concepts and techniques developed by Robyt are actively used today in understanding the differences in starch structures from different sources and the viscosities of

starch-pastes that are produced by the action of different enzymes used in the wet milling, pharmaceutical, and ethanol production industries. Robyt also discovered a special amylase produced by the bacterium, *Pseudomonas stutzeri* that hydrolyzes starch to exclusively produce maltotetraose, a carbohydrate that contains four glucose residues linked alpha-1,4 to each other. Robyt also likes to develop new techniques and has developed and refined the separation of carbohydrates by thin-layer chromatography (TLC) for both qualitative and quantitative analyses; he has studied and refined reducing value methods for the quantitative determination of reducing carbohydrates and developed a very sensitive micro method, using microtiter plates; he has also developed a fast, micro methylation method for the determination of different kinds of linkages in polysaccharides, using quantitative TLC; and he has developed various specific radioactive labeling techniques that he uses in his mechanism studies.

In addition to starch and amylase research, Robyt is also an authority on other polysaccharides, including dextrans and alternan, the latter having alternating alpha-1,6 and alpha-1,3 linkages in the main chains and alpha-1,3 branch linkages. He demonstrated an insertion mechanism for dextransucrases that biosynthesizes dextrans by the addition of glucose to the reducing-end, without the need of a primer. He also developed a technique to produce oligosaccharides that have a variety of new structures through transglycosylation, acceptor reactions, using glucansucrases. Robyt is currently investigating mechanisms involved in the biosynthesis of starch and in the enzymatic glycosylation of pharmaceuticals and other non-carbohydrates to make them more water soluble.

Robyt also is an accomplished teacher that has rapport with his students. He, however, is a teacher who holds his students to high standards. Students who sign up for his classes have to work and study hard to get good grades. After passing the class, students realize that they really have learned the material, whether it be biochemistry, enzyme mechanisms, or carbohydrate chemistry and enzymology.

3rd Annual Undergraduate Stupka Symposium May 7-8

The Undergraduate Biochemistry Club would like to extend an invitation to all ISU students, faculty, and alumni to the 3rd Annual Undergraduate Stupka Symposium. The Stupka Symposium was established in order to educate undergraduates about their options for graduate studies and also honor our good friend and colleague Rob Stupka, who died in a tragic accident in November 2005.

The Stupka Symposium provides an atmosphere where elite professors from various illustrious fields are accessible to undergraduates. Some of the best professors and researchers from across the country will be presenting their fields of study at this year's symposium. The Stupka Symposium also offers students the opportunity to be recognized for their own efforts in undergraduate research. Students will also have the opportunity to receive one of numerous scholarships for displaying exceptional undergraduate research efforts. Since several of the most prestigious researchers in the country will be in attendance, arrangement of internships or research fellowships is also a possibility.

This year, the main focus of the symposium will be drug design. This theme encompasses aspects of viral, bioinformatics, and cancer research. The symposium will be held March 7-8 in 1414 Molecular Biology. The symposium is free for all attendees, as it is funded by the generous support of BBMB faculty, staff, and alumni. To assure the continuance of the Stupka Symposium, donations are welcome. If you would like to donate, please contact Haitham Alabsi at alabsi88@iastate.edu

Olga Zobotina joins BBMB



Olga Zobotina joined the department on January 2 assuming an appointment as assistant professor in the Department of Biochemistry, Biophysics and Molecular Biology. Zobotina completed her Ph.D. in 1987 at the Institute of Biology, Russian Academy of Sciences (Kazan, Russia). Prior to coming to ISU, Zobotina worked as the group leader in the Institute of

Biochemistry and Biophysics, Russian Academy of Sciences (1990-2002), later as research associate in the Raikhel lab at the Department of Botany and Plant Sciences, UC Riverside. Zobotina will teach biochemistry (plant biochemistry). Her research focuses on the studies of the plant cell walls: compositional analysis of polysaccharides originated from different plants, molecular mechanisms of their biosynthesis (in particular hemicelluloses) and the role of oligo and polysaccharides in the plant adaptive responses to abiotic stresses.

Nilsen-Hamilton named AAAS fellow



Marit Nilsen-Hamilton, professor, has been newly awarded the distinction of being named fellow by the American Association for the Advancement of Science. Nilsen-Hamilton is recognized for distinguished contributions to the fields of biochemistry, cell biology and mathematical biology. Election as a fellow is an honor bestowed upon AAAS members by their peers.

This year, 471 members were awarded this honor by AAAS because of their scientifically or socially distinguished efforts to advance science or its applications. New fellows will be presented with an official certificate and a gold and blue (representing science and engineering, respectively) rosette pin at the Fellows Forum during the 2008 AAAS Annual Meeting in Boston in February.

Terry Meyer receives Floyd Andre Award

Terry E. Meyer has received the 2007 Floyd Andre Award from the Iowa State University Alumni Association for his service to agriculture.

This award was established in 1978 and is presented annually during Iowa State University's Homecoming Weekend. This citation is intended to honor an Iowa State University alumnus who has made an outstanding contribution to production agriculture, agricultural business or in a position to have a significant influence on Iowa agriculture. Nominees need not be current residents of Iowa at the time of recognition but should have been living in the state, or in close proximity, during the period in which they had a significant influence on Iowa agriculture.

Meyer is currently program manager for the Optimum GAT Trait at Pioneer Hi-Bred, a DuPont business. His position includes development and planning provisions for crop producers with expanded weed management options and related economic benefits. During his career he has co-authored 26 scientific publications, received 23 patents and has nearly 40 pending patent applications to improve agricultural crops and production practices.

Meyer received his bachelor's in 1981 in biology and chemistry from Gustavus Adolphus College and his doctorate degree in 1987 in biochemistry and biophysics at Iowa State. Meyer and his wife, Constance, live in Urbandale and have four children.

Mike Davis (1999)

I graduated with a B.S. in Biochemistry in 1999. I was accepted into a Medical Scientist Training Program (full-ride M.D./Ph.D. program) at Case Western Reserve University in Cleveland, OH. In 2006 I completed my Ph.D. in Pharmacology and will graduate with my M.D. in spring of 2008.I feel that my training at ISU helped me get accepted and thrive in a challenging graduate program, and am very grateful for the experience I had. BBMB course experiences that stood out for me included learning enzyme kinetics from Dr. Fromm, biochemistry laboratory techniques from Dr. Huiatt, and the basics of NMR and X-ray crystallography from Drs. Andreotti and Hargrove.

Keith Tardiff (2000)

I graduated in the summer of 2000 with a PhD in Biochemistry. Under Dr. Jack Horowitz, I not only learned the role of transfer RNA structure and function in protein synthesis, but, most importantly, I learned some very essential fundamental principles of science. Currently, I am a scientist at Myriad Pharmaceuticals. The education that I received at Iowa State University has been absolutely invaluable to my career. It is the foundation for all of my work. The science that I learned especially under Jack Horowitz has really provided me with the skills to not only improve the virology group that I work within, but also the drug development studies going on downstream throughout the company. Thanks for the outstanding education.

Gregory Grant (1971)

Professor of Biochemistry and Medicine, Washington University, St. Louis

It has been 36 years since I left. I always take special note when I see something from ISU. In particular I follow the work of Herb Fromm and Rich Honzatko quite closely since they are working in a closely related field to my own... Dr. Fromm was my undergraduate advisor. Obviously my education at ISU and particularly in BBMB has had a major impact on my career. It gave me a very solid foundation for advancement to graduate school at the University of Wisconsin-Madison and all that followed.

Rukmani Viswanath (1988)

I think the website is wonderful. It gives the viewer a comprehensive look at all aspects of the Department. I obtained my Master's degree from Iowa State University in 1988 and my Major Professor was author and professor emeritus, Dr. David Metzler. My master's thesis was "Spectrophotometric studies of Tryptophanase from E. coli". I consider myself fortunate to have studied in Dr. Metzler's laboratory. I am extremely grateful to the faculty for all the practical research and theoretical experiences that I gained from my studies at Iowa State University. Since 1995, I have taught at Laredo Community College in Laredo, Texas. I teach undergraduate Biology, Chemistry and Anatomy&Physiology. The college granted me tenure in 1998. Currently, I am writing a Laboratory Manual for undergraduate biology students and hope to have that published early next year. My education and experience continue to hold me in good stead as I teach my students the importance of science and research in their lives.

Jack M. Gallup (1987)

Department of Veterinary Pathology, College of Veterinary Medicine, Iowa State University

I had the good fortune of earning my Masters (in Biochemistry) under Dr. James Allen Olson between the years of 1984 and 1987 in the Department of Biochemistry and Biophysics. Dr. Olson was chair of the Department during a portion of that time. Jim was to Vitamin A and Retinoids, what Linus Pauling was to Vitamin C. He was a giant. I was also able to work with Dr. Olson and Dr. Arun B. Barua again for several months between 1999-2000 for a short time (until Dr. Olson passed away unexpectedly) Dr. Arun B. Barua carried on Jim's mission until his retirement almost 2 years ago and many of my "thank you's" go out to him for his endless hours of kind and patient guidance through many intricate retinoid-resolving HPLC procedures I also worked with the distinguished, Dr. Marit Nilsen and Dr. Richard T. Hamilton research team in 1989-90.

In addition to recording 28+ musical CDs between the years of 1989 and 2002, the last 3 of which I recorded in conjunction with the London Symphony Orchestra, I have recently finished writing a qPCR assay development and refinement software program named "PREXCEL-Q". PREXCEL-Q took me about 10 years to write and without my experiences in, and the people from the Department of Biochemistry and Biophysics throughout the years, this invention would not have come to be. There are causative probabilities, and there are improbable plausibilities, but by the surest-footed events, BBMB led me to my present.

Recently, I was invited as a guest speaker to the Cambridge Health Institute's (CHI) 4th Annual international conference on quantitative real-time PCR (qPCR) to unveil my invention (technically known as ISURF case # 3407) in the forum of a pre-conference 2-3 hour short-course on Sunday, April 20th, 2008 in San Diego. During the course, people will have a temporarily-licensed copy of the program on their lap-tops as I walk them through it. It is my hope that my present to the world, this program, receives serious intensive review and goes on to be used as a helpful tool in every lab in the world that performs qPCR. The program offers a standardized approach to qPCR -- something that is still sorely lacking in this technique worldwide - and something very much needed since qPCR is still the weapon of choice in validating gene micro-array and other data. The program is free for academic institutions.

WE WANT TO HEAR FROM YOU!

We would appreciate receiving news about you. Please send your news via email to biochem@iastate.edu or mail your news directly to the editors:

BBMB Bulletin
1210 Molecular Biology Building
Ames, IA 50011

UPCOMING EVENTS

Thursday, January 31

BBMB Seminar - 1414 MBB 4:10 pm
Yaping Feng, Iowa State University
"New protein potentials for improved threading"

Thursday, January 31

Reception - MBB Atrium 5:30 pm
Honoring BBMB Professors:
Donald Beitz, Herbert Fromm and John Robyt

Thursday, February 14

BBMB Seminar - 1414 MBB 4:10 pm
Dr. John Koland, University of Iowa
"Structure and dynamics of epidermal growth factor receptor kinase domain"

Thursday, February 21

BBMB Seminar - 1414 MBB 4:10 pm
Dr. Anne Simon, University of Maryland
"Plant virus RNA structure and translation/replication"

Thursday, March 6

BBMB Seminar - 1414 MBB 4:10 pm
Lie Min, Iowa State University
"Tyrosine kinase substrate recognition in T cell signaling"

Friday - Saturday, March 7 - 8

Symposium - 1414 MBB
3rd Annual BBMB Undergraduate Stupka Symposium

Thursday, March 13

BBMB Seminar - 1414 MBB 4:10 pm
Nathaniel Ginder, Iowa State University
"The structure and enzymatic properties of SAICAR synthetase"

Thursday, March 20

Spring break – no seminar

Thursday, March 27

BBMB Seminar - 1414 MBB 4:10 pm
Dr. Wonhwa Cho, University of Illinois at Chicago
"Spatio-temporal regulation of protein networks by lipids and lipid-binding proteins: Proteomics and single-molecule studies"

Thursday, April 17

BBMB Seminar - 1414 MBB 4:10 pm
Dr. Leonid Chernomordik, National Institutes of Health
"Fusion of cell membranes: From early intermediates to syncytium"

Thursday, May 1

BBMB Seminar - 1414 MBB 4:10 pm
Dr. Eran Pichersky, University of Michigan
"How Plants Evolve To Make So Many Scent Compound"

Thursday, May 15

BBMB Seminar - 1414 MBB 4:10 pm
Dr. Joe Noel, Salk Institute
"Quantitative exploration of the catalytic landscape separating divergent plant sesquiterpene synthases"

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IOWA STATE UNIVERSITY

Department of Biochemistry, Biophysics and Molecular Biology
1210 Molecular Biology Building
Ames, Iowa 50011

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