The two words that best describe what has been happening in the Department this year are “growth” and “change.” As with any vibrant entity, an academic department that does not change and grow is destined to die (metaphorically, of course). We have seen significant change in two important areas of the Biochemistry and Molecular Biology Program: The office staff has completely turned over in the past two years, and we are undergoing significant changes in the Molecular and Radiological Biology (MRB) building which we share with the Environmental and Radiological Health Sciences.

In terms of growth, we completed the successful recruitment of three new faculty members this year, each will be arriving on the CSU campus in stages. A profile of our first new arrival (Dr. Tom Santangelo, who arrived in July) can be found in the “Highlights” section. The other new hires include Dr. Steven Markus (arriving in January 2014) and Dr. Timothy Stasevich (arriving in October 2014). We will highlight Steve and Tim in the future.

The MRB building is undergoing some major renovations this summer, after nearly four years of planning, thanks to funds from the University, the two Colleges, and two Departments. When I first arrived at CSU, the major issues concerning the building that I wanted to address were the shortage of space to grow the program, the lack of academic identity for the building, and the embarrassing seminar room. This year, we made some small and large steps towards addressing these problems (these are described in the “Highlights” section, along with description of new instrumentation added to the facilities).

We received some sad news this year, which included the passing of Winslow Caughey, a member of the BMB faculty until 1995, and former Chair.

I would like to use this opportunity to thank Yvonne Bridgeman (former Assistant to the Chair), Marti Stokes (former Assistant to the Undergraduate Program), and Sharon Gale (former Assistant to the Graduate Program) for their years of service to the Department - we will miss each of you. I would like to welcome Barb Houser (Assistant to the Chair), Stasi Brazil-Engleman (Assistant to the Undergraduate Program), and Neda Amidon (Assistant to the Graduate Program, who we introduced to the BMB community in the 2012 newsletter).

Brian Kalet was recently hired as the new Academic Support Coordinator. Brian will serve as a key advisor for our undergraduate majors, helping during the summer and academic year advising sessions for new and continuing BMB majors. He will also contribute to our teaching mission, in the non-majors biochemistry course as well as our majors’ laboratory course.
Faculty News

Members of the BMB faculty in the past year have been highly productive in research, instruction and advising. It is always satisfying to see their accomplishments and efforts recognized.

James Bamburg: Dr. Bamburg will officially “retire” this fall, although it will be a retirement in name only, since he just received a new grant from the NIH and will serve as the Director of the new interdisciplinary undergraduate degree program in Neurobiology.

Chaoping Chen: Dr. Chen co-authored a paper in the Journal of Virology describing the role of the nucleocapsid in the budding process of retroviruses, including HIV. She has also been collaborating with Prof. Nyborg to study the role of the HTLV tax protein in transcription regulation.

Robert Cohen: Dr. Cohen and his group published a paper in Nature Methods that described a new sensing technique to monitor the localization of ubiquitin signaling in the cell.

Norm Curthoys: Dr. Curthoys was nominated by students and alumni for the 2012 Best Teacher Award, sponsored by the Colorado State University Alumni Association. He will be going on transition appointment starting this summer, but will continue his research and contributing to teaching BC 403.

Jennifer (Jake) DeLuca: Dr. DeLuca published an invited review for Current Opinion in Cell Biology, which described the most recent and exciting research in the organization of the kinetochore-microtubule interface, an important structural feature required for chromosome segregation in the nucleus.

Santiago Di Pietro: Dr. Di Pietro had his first two PhD students successfully complete their degrees this year. He was also nominated for the College’s Early Career Teaching/Mentoring Award.

Jeff Hansen: Dr. Hansen and his group published a very interesting paper in Nucleic Acids Research, which showed that the linker histone H1 interacts with an extensive network of proteins in the nucleolus, including a large number involved in RNA processing.

P. Shing Ho: Dr. Ho’s group published a chapter in the International Tables of Crystallography (the crystallographer’s “bible”) and coauthored the official definition of halogen bonds for the IUPAC (the chemist’s dictionary).

Paul Laybourn: Dr. Laybourn received a new grant from the NSF to transform undergraduate education in the STEM fields. He will apply this research to a new section of Introduction to Cell Biology.

Karolin Luger: Dr. Luger continues to gain national recognition for her work on chromatin structure and function. She was named the National Lecturer at the 57th Annual Meeting of the Biophysical Society (the Society’s highest honor) and was co-organizer for the 2013 Gordon Conference on Nucleic Acids, in addition to speaking at many other national conferences.

Jennifer Nyborg: Dr. Nyborg continues to manage the NIH P01 grant on chromatin structure and function. She was invited to present a talk on leukemia virus as a model to study cancer to the Achievement Rewards for College Scientists.

Olve Peersen: Dr. Peersen was invited to join an international group involving six institutions to establish a Center for Translational Research, which focuses on developing vaccines against RNA viruses.

Eric Ross: Dr. Ross coauthored an interesting paper in Nature describing the application of methods developed in his lab (published in PNAS) to predict prion-like proteins in humans, including some that are related to human diseases, such as ALS. His work on prions resulted in new grants being funded by the Muscular Dystrophy Association and the NIH.

Thomas Santangelo: We would like to welcome Dr. Tom Santangelo as an Assistant Professor in the BMB Faculty (profiled in the Highlights section on page 3).

Aaron Shoulder: Dr. Shoulder received a Special Teaching Appointment, which recognizes instructors who have contributed significantly to teaching and advising at CSU.

Laurie Stargell: Dr. Stargell, along with Dr. Ross, published a peer-reviewed paper in Genetics, describing the “Biochemistry is Elementary” outreach program that she developed to bring the joys of research to 5th graders (see Spring 2010 newsletter). Dr. Stargell was also successful in renewing her NSF grant to study the regulation of poised genes in yeast.

Tingting Yao: Dr. Yao received a new grant from the NSF in 2012 to study the regulation of interactions in chromatin by ubiquitin modification.

Emeritus Faculty

David Fahrney: We enjoy seeing Dr. Fahrney at various annual departmental functions. Our condolences to David, whose wife, Eileen, passed away this summer.

Marv Paule: Dr. Paule gave a series of three very well attended lectures last year to celebrate his retirement. Marv is scheduled to give a series of lectures scheduled at the University of South Dakota Medical School.

Anthony Tu: We were saddened by the passing of Dr. Tu’s wife, Kaz, in 2012. Dr. Tu remains very active, traveling around the world (including Sweden, India, Japan, and Taiwan) to give talks on bioterrorism.

Robert Woody: Dr. Woody continues to remain active, publishing a paper in the Journal of Physical Chemistry on the origins of the visible spectrum of bacteriorhodopsin.
Highlights: Faculty Growth and Building Renovations

Thomas J. Santangelo (Ph.D.) joined the faculty as an Assistant Professor of Biochemistry & Molecular Biology starting July 1, 2013. Dr. Santangelo received his bachelor’s of science degree in Biochemistry in 1996 from the State University of New York in Buffalo, NY. He earned his doctorate in Biochemistry, Cellular & Molecular Biology at Cornell University in 2003, under the direction of Dr. J. W. Roberts.

Tom’s research focuses on the mechanisms of transcriptional regulation in Thermococcus kodakarensis, a thermophilic Archaea. The system is unique in that the RNA polymerase is very similar to that of eukaryotes, but the chromatin structure is built around a dimer of H3-H4 histone dimers. Thus, the system represents a “minimum” nucleosome from which a eukaryotic chromatin could perhaps be recapitulated - the studies complement the strong core of research already established in the areas of eukaryotic chromatin and RNA polymerase at CSU. In addition, Dr. Santangelo has been working to engineer T. kodakarensis to become a platform for biofuel production, particularly of biohydrogen and biodiesel.

Tom is joined in Fort Collins by his wife, Kelly, who has accepted a position as an Assistant Professor in the Department of Microbiology, Immunology, and Pathology in the College of Veterinary and Biomedical Sciences.

What’s new in the MRB

Students in the Department since the 1980’s may remember reading an interesting journal article, having lunch with a seminar speaker, or even catching a quick nap in the Reading Room on the third floor of MRB. They also may recall sitting on the floor or straining their necks to see the bottom of the screen during seminars in the seminar room on the first floor of the MRB. Both of these have now changed. With the availability of journals now mostly online, the reading room/library became obsolete, which provided us with the opportunity to remodel and repurpose that room into a new seminar room. The new seminar room comfortably seats 50 and, with a bright 90” LED monitor for presentations, maintains the ambient lighting that is unique to that room.

The other major changes in MRB that are near completion include a new department office on the first floor of MRB to give the building an academic identity (you will see the new BMB office as you enter the main east-side entrance) and the old seminar room is being remodeled to become a general use classroom.

The research capabilities of the department have been greatly enhanced in MRB. We now essentially have a mini-synchrotron in the building (with the installation of a new X-ray diffractometer, thanks to Prof. Luger) and a Typhoon FLA9500 for gel imaging (thanks to Prof. Nyborg).
Graduating Seniors:  The department conferred Bachelor of Science degrees to 27 students in 2012 and 24 in Spring 2013. Of these 51 students, 5 graduated summa cum laude, 1 magna cum laude, and 5 cum laude (over 21% graduating with honors)

Spring 2012 graduates were: Sarah Benjamin, She Chen (summa cum laude), Benjamin Dodd, Joshua Fainsod, Andrew Gardner, Frederick Smigiel, Amanda Hardison, Xiaoxiao Huang, Michael Hughes, Harrison Huntoon, Azin Pishkenari, Lauren Klimpke, Colleen Lanza (magna cum laude), Dustin Long, Anthony Rau, Ashanti Robinson, Kelsey Smith, Ryan Vonfeldt (cum laude) and Paul West.

Summer 2012 graduates were: Daniel Lee and Wahidu Zzaman.

Fall 2012 degree recipients were Carl Dernell (cum laude), Christopher English, Darcy Fletcher, Jeffrey Holt, Gilman Plitt, and Logan Winne.

Spring 2013 degree recipients were Rhett Allen, Alyssa Ball, Nicholas Bodmer, Adlei Carlson, Colleen Fennelly, Crystal Ford, Kaylyn Jacek, Jae-Ook Kim (summa cum laude), Logan Lightfoot, Zacharuh Linder, Irene Lui (summa cum laude), Satoshi Machihara (cum laude), Parker Malenke (summa cum laude), Charisse Ongie, Eric Ron, Caleb Schmidt, Benjamin Schmitt (summa cum laude), Joseph Schmidt, Jacqueline Sitko (cum laude), Matthew Stolzberg, Keifer Walsh (MIP major, BMB minor), Jeffrey Wischhusen (cum laude), Alaine Ziegler, and Nihad Ziga.

Congratulations to the newest classes of BMB alumni!

BMB Majors: There are currently 184 undergraduate majors pursuing a degree in Biochemistry. Majors who have received special recognition this year include:

David Fahrney Scholarship: This scholarship was established by Dr. Fahrney to recognize outstanding juniors or seniors who have excelled in higher level biochemistry classes. The David Fahrney Scholarship was given to Tysha Medeiros and Hillary Minich in 2012 and to Connor Heinrich and Molly Plehaty in Spring 2013.

Frank X. Gassner Scholarship: This award is presented to an undergraduate student who excels in research in biochemistry and molecular biology. In 2012, the award was given to Erin Renfrew, while was Caitlin Kalmbach was the 2013 recipient.

The Alok Mehta 9-11 Scholarship, established by Dr. Gopal and Sneh Mehta, parents of Alok Mehta, to honor the victims of the 9-11-2001 terrorist attack on the World Trade Center. The award is to be given to a student majoring in either Economics or Biochemistry with a GPA of 3.0 or better. The 2013 Alok Mehta Scholarship was awarded to Nicholas Bodmer in 2012 and Brittany Kemp in 2013.

The Charlotte and Gordon Myers Undergraduate Scholarship was established through the generosity of Charlotte and Gordon Myers, residents of Fort Collins, to support students in Biochemistry and Molecular Biology. The 2012 recipients were Tina Lynch, Irene Lui, and Benjamin Schmitt, while the 2013 recipients were Zach Dickerson, Victor Gallegos, and Eric Webster.

Natural Sciences Undergraduate Scholarship: This scholarship was established to provide financial assistance for committed and talented students to attend CSU. The 2012 recipients were Lauren Barry, Molly Plehaty and Xiaoye Wang. Zachary Dickerson, Deanna Olson and Eric Webster were recipients of the scholarship in 2013.

Achievement Rewards for College Scientists (ARCS): Carl Dernell received this award in 2012, given to academically outstanding students in the fields of natural sciences, medicine, and engineering. In 2013, the award was given to Irene Lui and Molly Plehaty.

Undergraduate Research Institute Fellowship: This fellowship was funded through a grant to encourage undergraduate research to prepare students for research careers in physical and mathematical sciences. Irene Lui and Tina Lynch were the 2013 recipients.

Biochemistry Undergraduate Research Fellowship: Ryan Henderson was the fellowship recipient this year. In 2012, the recipient was Carl Dernell.

Molly Plehaty also received an Anschutz Scholarship, a Briggs-Kerst Scholarship, and a Green and Gold Scholarship.
Graduate Students

**Ph.D. Program:** The BMB faculty is currently training 35 graduate students in the BMB Ph.D. program. The recipients of the Department’s awards for graduate students include:

**Mauricio X. Zuber Award** recognizes outstanding first- or second-year graduate student(s) who have best demonstrated a passion for learning, an unbounded scientific curiosity, an infectious enthusiasm for discovery, an openness and ability to synergize with others, and a commitment to protect the environment. These are the attributes which Mauricio Zuber demonstrated as an Assistant Professor of Biochemistry and Molecular Biology (1990-1994): The 2012 awardees were Jacob Herman and Matthew Scholfield; Francesco Scavone and Crystal Vander Zanden received the 2013 award.

**Professor Parviz Azari Graduate Fellowship.** Established by Dr. Dean and Mrs. Ping Ping Tsao to honor Dr. Azari who was a CSU Biochemistry professor for 39 years and who was Dr. Tsao’s adviser. The 2012 Azari award was given to Gina Caldas, while the 2013 awardee was Ada Ndoja.

**Preecha Kownin Award.** Established by friends of Preecha Kownin to honor a student who demonstrates a devotion to fundamental research, a reluctance to accept shoddy data and a willingness to help fellow students. Whitney Luebben: 2013 The 2012 Preecha Kownin award was given to Marie Yearling.

**BMB/CMB/MCIN Graduate Student Poster Symposium:** Graduate students in the BMB program continue to receive recognition at the annual molecular life sciences poster competition. During the Spring 2013 competition, Francesco Scavone (Cohen) and Matthew Scholfield (Ho) received the two Highest Honors distinction; Ling Zhang (Luger), Daniel Feliciano (Di Pietro) and Daniel Krzizike (Luger) earned Honors recognition; while Lindsey Long (Yao) received Honorable Mention recognition.

**Recent Ph.D. Graduates:** In 2012-13, the BMB faculty graduated nine Ph.D.’s. They are:

**Jarred Bultema** (Spring 2013): Jarred completed his degree with Dr. Di Pietro in the spring of 2013 and currently is a postdoctoral fellow at the Karolinska Institutet in Sweden.

**Megan Carter** (Summer 2012): Megan completed her degree with Prof. Ho in the summer of 2012, and was awarded a Postdoctoral fellowship to work with Dr. Pål Stenmark in the Dept. of Biochemistry & Biophysics at Stockholm University in Sweden. You may have noticed the Sweden connection with Jarred Bultema.

**Nicholas Clark:** Nick completed his degree with Prof. Luger in the fall of 2012 and is now an NIST/Amgen postdoctoral fellow at the National Institute of Standards and Technology.

**Daniel Feliciano:** After completing his Ph.D. with Dr. Di Pietro in the summer of 2013, Daniel plans to continue briefly as a postdoc with Dr. Di Pietro.

**Dana Freund:** Dana received her Ph.D. with Prof. Curthoys and Dr. Prenni in Spring 2013 and is currently a postdoctoral associate in Adrian Hegeman’s laboratory in the Department of Horticultural Sciences at the University of Minnesota.

**Theresa Russell (Fall 2012):** Theresa is currently an Associate Service Fellow at the Centers for Disease Control and Prevention.

**Courtney Springer** (Summer 2013): Courtney just successfully defended her thesis, as we write this. She is waiting to hear about opportunities at the CDC.

**Marie Yearling** (Summer 2013): Marie successfully completed her degree with Dr. Stargell this summer. She is remaining in Fort Collins as a postdoctoral associate at the CDC.

**Ling Zhang** (Summer 2013): Ling plans to defend her thesis this summer.

**Lynsie Sundin:** Lynsie completed her Ph.D. with Dr. DeLuca in 2012 and is currently a postdoctoral fellow in the Clinical Cytogenetics Program at the Mayo Clinic in Rochester, MN.

**Recent M.S. Graduates:** In 2012-13, the BMB faculty graduated ten master’s degree students. They include:

**Sean Cascarina:** Sean will continue in the Ph.D. program, working with Dr. Ross.

**Luke Hartje:** After completing his M.S. in the Department, Luke started towards earning his Ph.D. with us and is a member of our Fall 2013 entering class.

**Aparna Jorapur:** Aparna has accepted a position as a research technician at the University of Southern California to help with studies on leukemia.

**Jianjie Mie:** Jianjie completed her M.S. degree with Dr. Bamburg and accepted a research position at Weill Medical College, Cornell University in New York City.

We would also like to congratulate the following students who earned their MS degrees in the BMB Program:

**2012 degree recipients:** Venkata Charepalli and Jordan Speidel

**2013 degree recipients:** Megan Basila, Sarah Benjamin, Kyle Martin, and Kevin Schauer.
Staff & Postdoc News

BMB continues to very well served by, and highly dependent on, its office staff. Neda Amidon continues to assist with the graduate program, Justine Barela keeps the department fiscally sound, and we greatly appreciate the work that Nancy Reeves has done and continues to do in the remodel projects throughout the building.

Yvonne Bridgeman has moved up to serve as the Coordinator in the office of the University Provost/Executive Vice President. We wish her the best as she takes on more responsibility at CSU.

We welcome Barb Houser who replaced Yvonne as the Office Manager and Assistant to the Chair. Barb comes to us from the University of Oklahoma, where she served as the Managerial Associate in the Women’s and Gender Studies Program.

Marti Stokes retired this year from her position as the Undergraduate Program Assistant. We are thankful to see her at our Departmental functions that recognize students.

We welcome Stasi Brazil-Engleman, who has joined the Department to fill Marti’s position as the Assistant to the Undergraduate Program. She previously worked as a Service Dispatcher at the Key Desk in the Facilities Department. Stasi recently marked her 15 year service anniversary with CSU.

Serge Bergeron, in Prof. Luger’s laboratory, was awarded a Ruth Kirschstein postdoctoral training grant from the NIH. Congratulations Serge.

Alumni News

Karin Dillon (B.S. Class of 1996) “left Pfizer after a successful 11 year career in sales, sales training, and managed care account management to join Genentech. I have been at Genentech for the past 3 years in Managed Care Marketing focused on the oncology drug, Avastin. I have recently been promoted to a new position where I will be leading the alliance development strategy with key societies Genentech BioOncology interacts with, including leading oncology cooperative groups and physician societies such as American Society of Clinical Oncology (ASCO).” She returned to the Department to give a talk in the Freshmen Seminar series and to the Biochemistry Student Association about her career after leaving CSU.

Azin Kheirandish Pishkenari (B.S. Class of 2012) was accepted to the University of Colorado School of Medicine. Congratulations, Azin!

Chelsea Sax (B.S. Class of 2011) wrote to tell us that she had moved back to St. Louis after graduation.

Michael Himmel (Ph.D., 1980, Dr. P. Squire) was named the 2011 Battelle Memorial Institute Distinguished Inventor. Dr. Himmel is a Principal Scientist in the Energy Sciences Center of the National Renewable Energy Laboratory (NREL) Biomolecular Sciences Group. In 2004, he was an R&D 100 Award for “Advanced Cellulase Systems for Biomass Conversion.”

Kevin Flynn (Ph.D. 2009, Dr. J. Bamburg) has accepted a position in the Department of Molecular Medicine, Max Planck Institute of Biochemistry, Am Klopferspitz 18, 82152 Martinsried, Germany.

If you have news to include in the next newsletter, please feel free to send them to us.

The department will be gearing up for a comprehensive review of its programs in 2014, so be prepared to receive a request from us to fill out a survey on how your BMB degree has helped your career. It’s also a good way for us to reconnect.

Development News

Thanks to generous gifts from the friends and alumni of BMB, the funds available to the Department have been growing. These funds have allowed us to support students, bring world-class scientists to campus, and recruit a new member to the faculty.

The University had successfully completed its first capital campaign this year. Looking forward, our fund raising priorities include establishing more fellowships and scholarships to help the undergraduate and graduate students fulfill their dreams of earning a degree from the Department of Biochemistry & Molecular Biology, and additional endowed positions as we continue to build on the outstanding faculty in the Department.

Marilyn and Ron Tuttle Fellowship for Undergraduate Research: The Department was fortunate to have received funding for a fellowship to help support the research efforts of an undergraduate student over the summer. The fellowship is supported by a generous gift from Marilyn Tuttle (alumna from Biology) and Ron Tuttle (formerly with Agilent) to the College of Natural Sciences.
What’s Happening on the CSU Campus

Both CSU and the College of Natural Sciences put forth Strategic Plans to help guide the growth of the institution. The CSU 2020 plan is highlighted by an aggressive strategy to grow the total student population from the current ~27,000 to ~35,000, focusing that growth on non-resident students. In order to align with the CSU 2020 goals, the College has developed its CNS 2020 Strategic Plan around five central themes: Student Success, Faculty and Staff enrichment, Research Excellence, External Engagement, and Continuous Improvement. The Department will be engaged in developing its own strategic plan to align with the goals of the University and College, and in preparation for its comprehensive 5-year review (scheduled for 2015).

There is a significant amount of construction going on in and around CSU, and no, this is not the controversial on-campus stadium. Besides what is happening in our MRB building, the Lory Student Center is undergoing a major renovation and Moby Arena has recently completed a four-week renovation of the floor. A new on-campus housing project (Laurel Village) is slated to welcome 615 new undergraduates, primarily from the College of Natural Sciences, integrating academics with residence space.

Near campus and around Fort Collins, the Mason Corridor (a mass transit bus line that runs north-south along Mason Street) has disrupted traffic into and out of campus from the east side, but promises to eventually relieve automobile traffic throughout the city. Two major apartment building projects are near completion south and southwest of campus, presumably in anticipation of significant growth at CSU.

The women’s volleyball team won its fourth consecutive Mountain West Conference title and advanced to the NCAA tournament. However, they lost to Purdue in the first round.

The campus was particularly excited this winter as the men’s basketball team finished second in the Mountain West, and beat Missouri in the first round of the NCAA tournament. They played tough against Louisville in the second round, but lost in the end to the number one seed and the eventual tournament champions.

To end on a winning note, the CSU Men’s lacrosse team won its second consecutive Collegiate Lacrosse Association National Title (sixth title overall), beating Colorado 7-2. Not to be outdone, the women’s lacrosse team took its number one seed and won the Women’s Collegiate Lacrosse Associates National Championship, beating the University of California at Santa Barbara 14-4.

Go Rams!