

FROM THE CHAIRMAN: H.F. DeLuca

For me, the newsletter from the Department to its alumni is a wonderful time to reflect on the past year and what it has meant to Biochemistry, its faculty, students, staff, and ultimately, its alumni. We certainly have had a sobering year, with the advent of 9/11, although it really did not affect Biochemistry directly a great deal. Of course, we did have the expected changes in security with regard to chemicals and possible manufacture of toxins, but the ripple has been rather minor.

In almost every respect Biochemistry has had a great year. First of all, the X-ray crystallographers have moved over to the Biochemistry facility following a major remodeling in the 1985 wing. This wing now houses all three of our crystallographers, in addition to the faculty members already there, namely Tom Martin, John Suttie, Tom Record, Colleen Hayes, and Heinrich Schnoes. The crystallography facilities are truly beautiful, and of course, we anticipate that the Biochemistry Phase II building that will replace the 1912, 1939, and 1956 wings will be on schedule for move-in during 2007. In the meantime, the following physical changes have occurred in the 1985 wing. The ground floor that housed many of the nuclear magnetic resonance spectrometers will ultimately be replaced by the instruments of our Biophysical Instrumentation Facility, directed by Ron Raines and operated by Darrell McCaslin. The 1st floor, which housed Heinrich Schnoes' labora-

tory, is still used for synthetic organic chemistry for the department, but is largely used by my group. As the crystallographers moved into the 1985 wing, we began development of the 1st and 5th floors of the new Biochemistry Addition, which now has been completed. The first floor now houses Brian Fox, formerly in the Enzyme Institute building, and our recently-acquired staff member Sam Butcher, who works on NMR of nucleotides, and is quite at home in the facility adjacent to John Markley. The 5th floor has now been outfitted into a beautiful suite of laboratories, one of which will be named the Walter Frautschi Laboratories in honor of a WARF trustee who long served WARF and who had a special connection with the Biochemistry Department. Similarly, another laboratory suite on the fifth floor will be named the Russell Cleary Laboratories, in honor of another trustee that greatly valued Biochemistry. The 5th floor will house Wes Pike, who is a new faculty addition that I will describe below, and Alan Attie, who will move up to the 5th floor from the 4th floor. This floor will also house Dave Nelson and Brook Soltvedt.

Thus, I am very proud to announce that J. Wesley Pike was brought to the Department of Biochemistry because of his stature in the steroid hormone field, and his interest in vitamin D. It has been a great boon to the DeLuca laboratories, and many collaborative projects are currently in progress. Wes, for



those of you who are not familiar with the vitamin D field, received his training at the University of Arizona, where he got his Ph.D. with Mark Haussler, working on a vitamin D project area that was in direct competition with the DeLuca group. Wes then became associated with the O'Malley group in Texas, then served as Director of Biochemistry at Ligand Pharmaceuticals, when he decided that it was time to return to the academic world. He became a member of the Molecular and Cellular Physiology Department at the University of Cincinnati, and we were fortunate to attract him to our department at UW-Madison. Wes brings with him his wife, who is a well-recognized bone cell biologist, and who truly is a great addition to the Biochemistry Department. Her name is Nirupama Shevde. We welcome both of them to the department!

We also were fortunate to attract Christiane Wiese, who was hired as a replacement for the vice-Gorski position. Chris has moved into the 4th floor suites, which she shared for a short time with Wes Pike, until the 5th floor became operational. Chris now operates the west end laboratory on the 4th floor.

In connection with the University's Interdepartmental Cluster Hires, we were also able to recruit Aseem Ansari from Mark Ptashne's lab to join Biochemistry in the area of chemical molecular biology. Aseem actually has just begun his work, and will be housed in the 4th floor space previously occupied by James Ntambi. James Ntambi will then move into the space vacated by Alan Attie. The remaining space on the 4th floor, which was occupied by Dave Nelson's laboratory, was used to attract Elizabeth Craig to Biochemistry from Biomolecular Chemistry. Betty was about to move to the University of Michigan after they made a very attractive offer to her. When we heard about that, we offered the possibility that she might join us in Biochemistry and remain at the University of Wisconsin. We are very fortunate indeed that Betty has agreed to become a faculty member in Biochemistry (starting May 1, 2002), and has thus turned down the opportunity at Michigan. Our space in the new Biochemistry Addition is now fully committed, as is all of the 1985 wing space. We do have temporary laboratories available in the old Biochemistry building, but we are unlikely to hire a faculty member who will have to vacate that laboratory during construction of the new Biochemistry Phase II building that's scheduled from 2005 to 2007. In the meantime, the old Biochemistry space will be used by Bacteriology and some elements of the Medical School to help them in this time of tight space on the campus. Bacteriology will have a new building constructed

on the site of the E. B. Fred building, and that is scheduled to begin in 2003. Again, that building is part of the Biostar program. It is evident, therefore, that Biochemistry facilities continue to improve and be heavily utilized. With these new facilities we have been fortunate to attract some truly outstanding faculty additions.

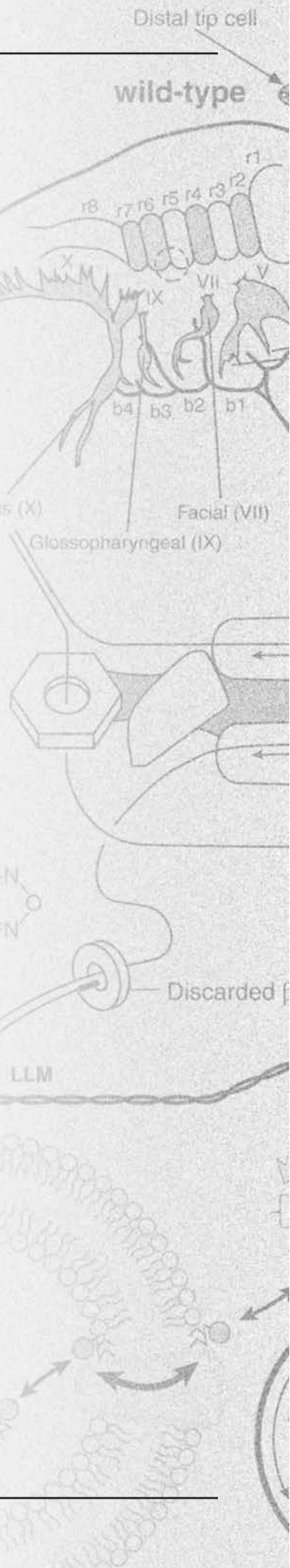
Speaking of outstanding faculty, many of you might know that two of our stalwart faculty members retired this year. Heinrich Schnoes retired on July 31, 2001 and John Suttie retired December 31, 2001. We will miss their steady faculty input, but we will see them frequently because they retain their offices and are on emeritus status. John will continue to be editor of the Journal of Nutrition. I know we haven't heard the last of either of them.

In the meantime, Perry Frey, Henry Lardy, Helmut Beinert, George Reed and Mo Cleland are still housed in the Enzyme Institute building. The Enzyme Institute faculty is now integrated into the Biochemistry Department, and although officially there is no Enzyme Institute, functionally the Enzyme Institute still continues. It is certainly very much alive in spirit within the members of that Institute.

The Biochemistry faculty remains as colorful as it has ever been. I receive daily communications from a wide variety of faculty providing advice on how the Department ought to be operated. Most of them are excellent suggestions and are incorporated into our everyday way of life. There is a spirit of accomplishment and achievement in this department that is a continuation of the time when you were here. It certainly represents the same spirit that I knew as a graduate student in the 1939 building. The students are now well organized, and are integrated into the governance of the department. The Student-Faculty Liaison Committee is certainly listened to by the faculty, and furthermore students are integrated into a number of the important committees of the department. They are very important as recruiting agents for the department when we recruit graduate students, and we have done very well in this area. Our departmental ranking, I am told, has gone up four places (to 6th place) during the last year in the U.S. News evaluation of graduate departments in biochemistry.

Last year, I made light of some of the funny characteristics of our faculty, but this year I want the alumni to know that I think that we have a positively first-rate faculty in a lot of ways. Most of them are very busy with their own research programs, which

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FROM THE FRONT OFFICE:

Cheryl Adams

As in the past, we have had a busy year in the front office. We have been trying to keep up with the recent additions to our faculty - Wes Pike, Christiane Wiese, and Aseem Ansari - all new additions in the past year! We are happy to have them on board and try to find ways to make their lives easier. In addition, there have been some changes in the department office as well. Let me give you a brief overview of our current set-up.

The biochemistry graduate program remains very strong and was recently ranked as 6th in the nation! We are very proud of the faculty and staff that have helped us achieve this outstanding goal! Carol Marth has dedicated many years of service and hard work to the department in this area and has certainly played a major role in why this program is run so well. Colleen Clary is an extremely dedicated and hard-working part of the equation as well. She focuses on the needs of the graduate students and does a fantastic job during the recruitment season and making the students comfortable once they arrive in Madison. Carol's group also includes the valuable services of Angela Trentadue and Carolyn Kunen. Angela's work focuses on the faculty recruitment and award activities, while Carolyn provides overall administrative assistance to the faculty and staff. Shirley Bredlau comes in about once a week to help us out; she still provides great service to the department while enjoying her retirement years.

The accounting group has faced some challenges during the past year, but has done a great job of keeping the finances in order. We lost one of our reconcilers, Barb Prigge, in March 2002. We are working on a replacement for that position. Kelly Young and Alan Rudrud continue to manage the departmental grants and funds in a highly effective manner. Charlene Entwistle handles the chargeback activities for the department in a very competent manner. Jule Pauls has been managing the purchasing area for 10 years and really adds a lot of leadership and professionalism to the office; she does a great job of handling the myriad of purchasing orders that come in daily. Polly Reott contributes a lot to the purchasing area as well; she is always ready and willing to help out the next customer. The students - Jan, Tiffany, and Dena - provide valuable support to the accounting group as well.

Jim Shurts is kept busy with various construction and remodeling projects related to space in our new building and the 1985 wing. The unfinished portion

of the first floor and all of the fifth floor of the new building are finally completed and fully occupied. He is also active in planning for the new facility, Biochemistry Phase II, which is tentatively scheduled to begin during the 2005-07 biennium. Biochemistry Phase II will be located at the site of our old building (1912, 1937, and 1956 wings). There is usually a steady stream of people lined up outside his door. Through it all, Jim does a great job of keeping track of our facilities and making sure the contractors are doing a good job. The old vacated Biochemistry building space is now fully "claimed" by various departments and staff looking for temporary lodging until other campus facilities or remodeling projects are completed. Jim also works on a number of projects for Hector and the other faculty.

The payroll/front office staff that I manage has continued to offer valuable support to me and the other faculty and staff in the department. Carol Peterson has really helped ease my load by assisting me with some of the payroll and personnel duties. Of course, these duties are completed in a highly accurate and friendly manner. Kay Fitzgerald is a loyal and dependable employee who always manages to meet the weekly payroll deadline. Dan Barnish continues his duties as undergraduate advisor and really does a great job dealing with the students; they are very pleased with the help that Dan provides. Janice Carberry is quite efficient in managing the departmental seminars and receptions; she is well prepared and always seems to know what is necessary to plan a great party or event.

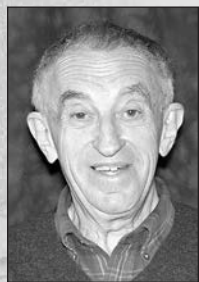
Marcia Bubrick maintains her station at the front desk and does a wonderful job of greeting the faculty and staff. She is always willing to help and has a smile for everyone who comes through the front door. Steve Nofle has also joined Marcia at the front desk. Steve joined us in September 2001 to provide administrative support to three of our faculty members after the previous incumbent, Sara Hunter, made the big move to Eau Claire. Steve is stationed down at the front office so that he can also assist us as time allows. He has done a great job of learning his new duties and helping the professors so that they can focus on their research and teaching duties.

In conclusion, we really have a wonderful office staff that adds a lot of variety and spice to the everyday tasks that we complete. We would be happy to have you stop by and see us, or drop us a line and let us know how you are doing.

BIOCHEMISTRY DEGREE LISTING: 2001

Degree	Name (Major Professor)	Thesis Title
PhD	Chandran, Kartik (Nibert)	The reovirus outer capsid: studies on its assembly <i>in vitro</i> and disassembly during viral entry into cells
MS	Dickey, Carrie Ellen (Bednarek)	Elucidating the role of AtCDC48p during cell-plate assembly
PhD	Gerratana, Barbara (Cleland)	Determination of the transition state structures and mechanisms of enzymatic and nonenzymatic reactions through kinetic isotope effects
PhD	Haas, Jeffrey Allison (Fox)	Substrate selectivity and kinetic mechanism of stearoyl-ACP delta ⁹ desaturase
PhD	Hegeman, Adrian Daniel (Frey)	The mechanism and catalysis of water elimination in the reaction of <i>Escherichia coli</i> dTDP-glucose 4,6-dehydratase RffG
PhD	Heo, Jongyun (Ludden)	Mechanistic studies of carbon monoxide dehydrogenase from <i>Rhodospirillum rubrum</i>
PhD	Holbrook, Jill Anne (Record)	Calorimetric studies of DNA helix formation and integration host factor-DNA interactions: contribution of coupled processes to observed thermodynamics
PhD	Johnson, Laura Ellen (DeLuca)	Investigations into the role of vitamin D in female reproduction
PhD	Magnusson, Olafur Thor (Frey)	Characterization of radical intermediates in the reactions of lysine 2,3-aminomutase and diol dehydrase
PhD	Nadler, Samuel Todd (Attie)	Molecular determinants of obesity and type 2 diabetes mellitus
PhD	Naumann, Todd Alan (Reznikoff)	Catalysis in the Tn5 synaptic complex
PhD	Olson, Victoria Ann (Friesen)	Functional analysis of the mechanism of transcriptional regulation by the baculovirus IE1 protein
MS	Pedersen, Laura Beth (Hayes)	1,25(OH) ₂ D ₃ Treatment reduces chemokine expression, and monocyte trafficking into the inflamed CNS during experimental autoimmune encephalomyelitis
PhD	Rudel, David James (Kimble)	The evolution of notch receptor function and regulation in nematodes
MS	Watkins, Richele Lin (Raines)	Measuring the binding of ribonuclease A to its cytosolic protein inhibitor
PhD	Werner, Elizabeth Ann (DeLuca)	The metabolism of vitamin A in the vitamin A-deficient rat
PhD	Zhao, Qin (Markley)	Solution NMR studies of ATT, an <i>Arabidopsis thaliana</i> trypsin/chymotrypsin inhibitor

2002



Julius Adler
Lab 457

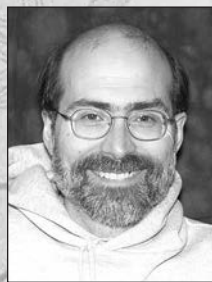
Dear friends,

I'm now working on the behavior of fruit flies (after thinking about the behavior of people and after trying the behavior of mice, to which I hope to return)! It is very exciting for me! I have a number of undergraduates working with me on this. The past work on bacterial behavior is very useful to me for studying animal behavior.

It was great fun to see Sandy and Alice Parkinson here recently, and soon I will see Jerry and Lin Hazelbauer.

It's been a wonderful pleasure to hear from a number of you this year. I look forward very much to such e-mails (adler@biochem.wisc.edu) and letters.

My best wishes to each of you.



Rick Amasino
Lab 207

Our lab continues to focus on how flowering time is controlled, and the talent and dedication of the people in the lab has led to much progress.

Scott Michaels and Fritz Schomburg, the masters of mutant screens, have created an enormous number of mutants for the lab to study. Si-Bum Sung, Yoo-Sun Noh, Mark Doyle, Isabel Bezzera, and Colleen Bizzel are all making great progress with these mutants. Hopefully, these studies will reveal a great deal about how flowering is regulated.

Mark Doyle and Yoo-Sun Noh continue to drag us into the field of circadian rhythms. Mark's collaboration with the group of Andrew Millar in the U.K. has led to our first submission on this topic.

Fritz and Colleen have completed one phase of their study of dwarf mutants that affect the metabolism of the plant hormone gibberellin and will submit this work soon.

A new postdoc, Yuehui He, has joined us from the group of my former post-doc, Susheng Gan at the University of Kentucky, and I am sure there will be much to report about his work in the next newsletter.



Kelly Buono helps to keep the lab running smoothly and is also doing a fantastic job of identifying interesting mutants in a rapid-cycling type of cabbage for classroom use (see some of these mutants at the website Adam Steinberg helped Kelly to create: <http://www.biochem.wisc.edu/brassicaclassroomgenetics>). Kelly and I believe that “hands-on” exercises in genetics should be in grade school classrooms, and we hope that these mutants will do just that.

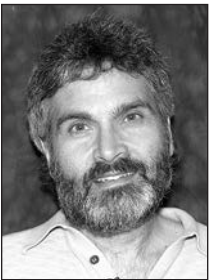
We also have a great group of 6 undergraduates: Anu Elegbede who works with Scott, Norman Sartono and Utthara Nayar who work with Yoo-Sun,

Melissa Keller who works with Mark, Karen Piton who works with Fritz, and Bryan Farley who works with Si-Bum.

Si-Bum and his wife Yoonmi had their first child, a girl they named Lianne.

Alumni News:

Betania Quirino and Katia Scortecchi have accepted faculty positions in Brazil. I am used to having Brazilians in the lab so it is time to recruit another because Isabel Bezzerá will finish soon. Ed Himeblau began an Assistant Professor position at Southampton College on Long Island.



Alan Attie
Lab 407

This has been a really adventurous year in the lab. We've seen new developments on all fronts. People in the lab keep telling Alan that the lab needs more students and post-docs. Yet, the lab has already outgrown its space and will soon move to the newly-outfitted 5th floor of our new building. There, we'll have a diabetes/obesity lab and a cholesterol lab. As all the programs grow, Alan wonders if there is anything he would drop in order to limit growth. So far, there isn't anything he wants to not do!

Sam Nadler graduated in June and became a 3rd-yr Medical Student; he'll have the combined degree completed by next year. He still hasn't chosen a specialty and is testing the waters as he goes from one clinical rotation to the other. **Jonathan Stoehr** is next in line, with plans to graduate this June. Jon is very hot on the trail of both an obesity and a diabetes QTL. He hopes to have at least one of them cloned before he defends his thesis. He will follow Sam into the clinic. **Phil Raess**, another MD/PhD student will join the lab in July and likely join **Pete Leland** on our protein kinase project.

Once again, **Trine Ranheim** came back to Madison from the University of Oslo, Norway. Trine thinks that she's addicted to the Biochemistry environment and the attractive scientific and social atmosphere she always finds there. As usual, her visit was too short, just 3 months, and she was just in the middle of many exciting experiments when she had to go home and join the rest of her family.

Angie Tebon continues to fill her time outside of the lab doing as much as possible. In addition to her frequent travels and sports activities, she has taken up sign language, the cello, swing dancing, and hockey playing/spectating (thanks to her new found love). And if that isn't enough, she spends time with her new little sister, through the Big Brothers Big Sisters Program. Needless to say, sleep is not a priority. In the lab, she continues to juggle as many projects as possible, in hopes of one day being given an honorary PhD.

Igor Boronenkov joined the lab this year. Igor comes from Ekaterinburg, a city in the Ural Mountains of Russia, a center for heavy industry and rich in history of gemstone mining. After getting his BS in chemistry from Moscow State University he pursued his PhD studies on phosphoinositide kinases here in Madison. He is about to complete his crash course in physiology of diabetes and obesity now and is determined to apply his molecular biology skills in this field. He is an avid music listener (with a sweet tooth towards more electronic flavours) and is somewhat of a film buff. He enjoys that he gets to stay after bed time a lot lately, but regrets that he does not have time enough to think more about what he's reading.

Susie Clee joined the lab this past fall after a highly productive PhD in Vancouver studying ABCA1. She was eager to move away from her past cholesterol work so she took the plunge into obesity/diabetes and is helping us to positionally clone our QTL's.

It has been a year of milestones and setbacks for **Matt Flowers**. Now in his third year of graduate school, Matt has passed his preliminary exams and finished classwork and now has no excuse why he doesn't have any new data. Fortunately, the dynamic duo of Matt and Jake Mulligan have brought the WHAM chicken out of the closet, dusted it off, and are in the process of making it a superstar in the world of ABCA1 and cholesterol metabolism. The chicken is currently holding out for a multi-year contract, but Matt is negotiating with the chicken's agent to settle for a one year deal. In the non-scientific world, Matt is facing the reality of becoming old. Formerly the youngest in the lab, he has now been displaced and is holding the third-youngest position until Phil joins in the summer. Currently in denial his 26 long years, Matt is attempting to regain his youthful figure by spending long hours at the Natatorium and may attempt his second marathon of his life in Chicago

in October, trying to shatter his Madison debut of 3:30, assuming his legs don't fall off due to recurrent injury. In the spirit of Salt Lake City 2002 and the return of olympic skeleton racing, Matt has invented a new sport coined "lab skeleton." Currently in the qualifying rounds and gaining interest with each passing day, it may become the new yardstick for true achievement in the scientific community.

Donnie Stapleton worked in the lab as an undergraduate student. His hobbies include playing indoor/outdoor soccer, running, reading, and he is currently learning how to play the guitar. He currently works with Mark Gray-Keller and also with Paul Bates and Don Gillian-Daniel on the LDLR project.

Scott Lowe remains at Cold Spring Harbor Laboratory, where his lab continues to focus on various aspects of tumor suppressor gene function. Mila now functions as his lab manager and keeps everyone in line. James and Kira are now 4 and 2, respectively, and occupy most of the little spare time Scott has. Last fall, the whole family finally moved into a 4 bedroom house on 2 acres on the water (no, they don't own it, but they have plenty of space for visitors!).

Dawn Brasaemle is making progress convincing the world that, "no, lipid droplets are not inert." and, "yes, they really do have proteins!" Most of her lab continues to work on perilipins, giving her a little freedom to explore other lipid droplet-associated proteins. She is looking forward to a 6 month sabbatical in 2003, when she will travel across the Hudson River to the laboratory of her collaborator, Larry Shapiro, at Columbia University, to push a new project on characterizing the adipose lipid droplet proteome forward. She has expanded her lecture circuit to include foreign countries like Texas, where she caught up with her old pal Joyce Repa (sorry, Joyce, but it IS foreign), and Argentina. Of course, once she got to the Southern hemisphere, she couldn't resist taking a trek in Chilean Patagonia. Another highlight of the last year was the visit of Alan to Rutgers; but all

of you Attie lab alumni, be forewarned! He brings photos...and uses them!

Pat Uelmen and Greg Huey commemorated their dog Eleanor's second hip replacement surgery with the birth of their second son, Robert Joseph, on June 15, 2001. Since Ellie only had two hips to begin with, this presumably is the last addition to their family. Pat is currently dividing her time between Emory University, Georgia State University, and the Atlanta VA Medical Center, where she is finishing up a VA Research Career Development Award and an AHA Beginning Grant-in-Aid this year.

Dan Gretch continues to work as an Assistant Professor in the Department of Biological and Physical Sciences at Montana State University-Billings. He and Darla moved to a new house in Billings which they share with their two Golden Retrievers and two sons, Brice (now 11 years old) and Brad (now 8). Evenings and weekends are usually spent with elementary school homework and projects... football, wrestling, baseball and basketball practices or games... or enjoying the outdoors in wide-open Montana. If you are passing through Billings, let them know. They would love the visit.

Kimberly Dirlam-Schatz just started her fourth year at UW-Fox Valley where she teaches introductory chemistry and biochemistry. The big news for Kim and husband Todd last year was the birth of their daughter, Natalie Claire, on June 30, 2001. They really enjoy being parents and are constantly amazed at how much Natalie can grow and change in such a short period of time.

Scott and Amy Cooper continue to enjoy the "quiet life" on their property in western Wisconsin. Last year saw several construction projects, including a 20 x 40 foot pole barn roof over Amy's dog kennel and additions to the gardens. They are now down to nine dogs, two new puppies were added in the fall and a few other dogs were sold. Scott has been doing well at the university and was awarded **tenure** this year. Now he just need to work on Full Professor.



Peter Belshaw
Lab 6201 Chem

The Belshaw lab has been quietly growing since beginning in Madison in the Fall of 1999. The lab focuses on using chemistry to investigate biological systems, and Peter also holds a joint appointment in the department of Chemistry. The lab currently has 9 graduate students and 2 undergraduates. Four of the graduate students are from the department of Biochemistry, including Brock Binkowski, Konstantin Levitsky, Casey Krusemark and Russell Miller. Our first Biochemistry undergraduate,

Talha Shekhani has now graduated and is currently in the MD/PhD program at the Medical University of South Carolina. Additionally, congratulations go to Casey Krusemark who won a Biotechnology Training Program fellowship and received an Honorable Mention in the NSF graduate fellowship competition. In 2001, Peter received a Research Innovation Award from Research Corporation and was also selected as a 2001 Burroughs Wellcome New Investigator in the Pharmacological Sciences.



**Margaret
Clagett-Dame
Lab 249**

Another busy year of discovery (and growth) has flown by in the Clagett-Dame lab as we continue to elucidate and characterize new retinoid-responsive genes, expand information gained from the study of our vitamin-A deficient animal model, and investigate the mechanism of action of retinoids used in cancer treatment. Former student **Lori Plum**, after obtaining her PhD in 1999 and doing a short postdoc in the lab, has now moved on to work in vitamin D with Hector, along with directing research on osteoporosis for Deltanoid Pharmaceuticals, Inc. Lori and husband Tom recently purchased a home in the Arena area, which should prove a handy launching site for all those weekend hikes and canoeing (at least when Tom can drag her away from the lab!). Can kids and dogs be far behind?? Our current "senior" graduate student (meaning you're out the door soon, buddy), **Ron Merrill**, continues his characterization of the RAINB1 (retinoic-acid induced in neuroblastoma) gene and its functions. He and Lori recently published initial information on the relationship of RAINB1 to *unc 53*, and Ron is investigating the gene's actions using a worm model (never thought we'd be interested in an organism that doesn't require vitamin A). Ron continues to be the lab coordinator for many a social function, that is, as long as it involves the intake of food, his seemingly favorite hobby aside from hockey, soccer and harassing his coworkers. Fourth-year student and resident lab curmudgeon **Jason Chapman**, when not out running marathons, is busy studying the mechanism of



action of a number of chemotherapeutic compounds, including the retinoic acid analog 4-HPR and its unhydrolyzable analog, 4-hydroxybenzylretinone. Collaborative work on these compounds has yielded initial biological information and publications, and Jason is now discovering the fun of putting together his first paper on the subject. He recently celebrated the removal of his braces and was greeted by the lab with a frightening volume and array of cheese popcorn for the occasion.

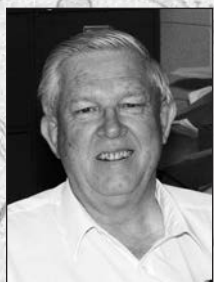
The lab has expanded quite a bit this year, we've seen the addition of two new graduate students, **Danielle Knutson** and **Angela See**. Danielle is following-up on one of Lori's discoveries, the RAISN-1 (retinoic-acid induced in sympathetic neurons) gene, as well as investigating the promoter region of the RAINB1 gene. Angela is jumping into the investigation of yet another novel retinoid-responsive gene, starting off with studying its expression in response to retinoid administration as well as in vitamin A deficiency. Both of them are great additions to the lab - Angela is now known as the reigning queen of gadgets (just check out her desk and computer sometime) and Danielle has proven adept at condo shopping while running experiments and keeping Ron and Jason in line! The arrival of **Parag Muley**, late of the Animal Science department, as a postdoc in our lab, has further expanded our number and intellectual capacity. Parag is busy picking up where Lori left off, looking at the *in vivo* regulation of the chick RAISN-1 gene and developing new methodology for the investigation of retinoid action in the developing chick embryo. His wife Sheetal is a graduate student in the Pharmacy department, and they like to do a lot of movie-watching, when Parag can pull himself away from the embryology texts, that is!

Jamie Ahrens continues to be a cornerstone of organization and sanity on all fronts, whipping the real-time PCR system into submission, maintaining crucial cell lines, investigating new receptor ligands and generally trouble-shooting as needed. She and husband Mark recently moved to Mt. Horeb, and are enjoying life "out in the country" when not busy spoiling their pet rat Ally (short for ali-quot). As every yin has its yang, the order created by Jamie is nicely balanced by the entropic forces and near state of insanity generated by **Mary Kaiser** (affectionately described as "mercurial" by husband Mike!). When not wading through the organized mess on her desk, she is staining bones or studying the embryonic expression of new retinoid-regulated genes. At the end of the day Mary and her husband (a scientist at Third Wave Technologies) keep themselves busy playing piano with their daughter Lizzy and starting their son Matty's soccer career. Recent comeback artist **Maggie Highland**, who in years past helped establish our vitamin A deficient rat model in conjunction with Jeff White, took a couple of years off from the lab to engage in a bit of Bohemian-style travel and fun. After returning for a year to work both with Margaret and Hector, she will soon be off to earn her Veterinary degree here at the UW starting in August 2002. **Congratulations!!!**

Alum **Vishal Sikri**, remains at Abbott Laboratories, and **Jeff White**, alum and progenitor of the mighty vitamin A deficiency rat model in our lab, moved from Proctor and Gamble to Merial (Pharmaceutical R&D) recently, and is now enjoying the weather in sunny Georgia. He and wife Andrea (a school teacher) were a bit surprised by all the growth in Madison on a recent visit back, and are still plugging away at settling in and making GA (pronounced "Jeoh-Juh") and the southeast their home. We wondered if it's possible for Jeff to truly be happy in a state that never serves beer in a boot.....? Clagett-Dame lab alum **Joyce Repa** has been unendingly busy with her prolific work and publication on orphan receptors, LXR and lipid metabolism. She is currently setting up her new lab at the University of Texas Southwestern Medical Center, when not running around at meetings or giving talks! Her recent visit to the UW to give the Everson Lecture gave us a chance

to catch up on what she and husband Tim have been up to, as well as the best of Texas cuisine. It's gotten to the point that anytime you want to know what Joyce has been up to in the lab, just peruse through the latest issue of Science, JBC, etc.!

Margaret is busy keeping the lab afloat and is really looking forward to her research sabbatical during the next academic year! She plans to spend time in a number of labs on campus to learn several new techniques and to re-acquaint herself with things in her own lab (look out – the first thing she will want to do is clean and reorganize everything)! At home the children (Martin, now 4 1/2 and Adriana, 2 1/2) are doing great, as is Hector, who is looking forward to another growing season as well as keeping busy running the department, his lab and inventing things! We wish all of you the best for the coming year!



Mo Cleland
Labs 304 & 308
Enzyme Institute

Several people left the Cleland lab this year. Mark Rishavy, who graduated with his Ph.D. in 2000 and then worked here as a postdoc, moved to a post-doctoral position at the Cleveland Clinic. Barbara Gerratana received her Ph.D. in April and is now a postdoc at Johns Hopkins University in the lab of Craig Townsend. The lab now consists of Laurie Reinhardt, Mark Anderson (both Asst. Scientists) and Kirk Wright, a postdoc. We are looking for another postdoc.

Mo had a busy year travelling, starting with the Enzyme Mechanism Conference on Marco Island in Florida in January (the rest of the lab came, too). He went to the National Academy meetings in Washington in April, and the Enzymes Gordon Conference in New Hampshire in July. At the end of September he went back to Australia to the meeting of their Biochemistry Society in Canberra, where he stayed several days with his long-time friends John and Pam Morrison. On the way back he stopped in New Zealand to visit Matt Templeton, who is collaborating with Mo on measurement of isotope effects on ornithine transcarbamylase and

has visited Madison several times. On the weekend, Matt and Mo drove down to the volcanic region where there are geysers and the place smells like Perth Amboy, NJ. A great chance to see a good bit of New Zealand!

This January Mo visited Nigel Richards in Florida; Nigel sent his grad student here in the fall to work with Laurie on the isotope effects on oxalate decarboxylase. We measured both C-13 and O-18 isotope effects on the conversion of oxalate to CO₂ and formate and the results suggest an electron removal to give a radical that then decarboxylates to CO₂ and a formate radical.

Mo continues to serve on the Scientific Advisory Board of Triad Therapeutics in La Jolla, CA, and this entails four trips a year to San Diego.

As this is being written, the entire lab is off to Ventura, CA, to attend the Isotopes Gordon Conference. All three people (not Mo) are showing posters, and Laurie was chosen to give a 10 minute oral presentation on the oxalate decarboxylase work.



Mike Cox
Lab 3337

Comings: Two new graduate students, Julie Eggington (Brigham Young University and University of Utah) and Julia Cox (College of Wooster), joined the Cox lab in December. Julia Cox was reported to have said "I'm very pleased about my lab choice." However, confusions have arisen concerning the similarities of last names in the lab. Mike Hobbs says "Occasionally I accidentally start talking to Julia about my project instead of Mike Cox, but after a few moments I realize that I have made a mistake." "I'm glad I'm not working with someone who has a similar last name" was Ms. Egger's

comment. Ms. Eggington, Ms. Egger's bay neighbor, was unavailable for questioning.

Nami Haruta (Kyoto University and Graduate University of Advanced Studies) joined the lab as a postdoc in April 2002. All lab members, including Mike C., Mike H. and Mike M., are pleased to welcome Nami to the group.

Erika Shor, who our New York correspondent says is currently a fifth year graduate student in the laboratory of Rodney Rothstein at Columbia University,

will be joining the Cox lab this summer. Her PI will remain Rodney Rothstein, but she is moving to Madison to follow her husband who has joined the UW faculty. Although she will remain a Rothstein graduate student, it is believed that she reconsidered changing PIs when the Cox lab won the Biochem 2002 Egg Drop Contest with their latest scientific development, The Eggevator. "It definitely crossed my mind" was Shor's only comment. The Cox lab is pleased to welcome Erika.

Goings: Jong Il Kim completed his sabbatical and returned to Korea and his position as Associate Professor at Seoul Women's University this past fall. Following him was Jong Moon Kim who left the lab December 2001 to return to Korea and a Senior Scientist position. Both Kim and Kim felt that the highlight of their Cox lab stay was winning the Ornament Competition at the Biochemistry 2001 Holiday Party. "I never thought we would win," says Jong Moon Kim, "but deep inside I really hoped we would." Undergraduates working in the Cox lab, Mike M., April, Lena and Jeff all agree that nothing will ever surpass this victory for them.

After receiving an NIH Fogarty International Award, Russian postdocs Yuri Kil and Dmitri Baitin of the Vladislav Lanzov lab in St. Petersburg joined the Cox lab for three months to carry out experiments that will be continued in St. Petersburg. They left the lab to return to Russia in November 2001. Mike (Cox) plans to visit St. Petersburg either this summer or next to consult with Dr. Lanzov on the grant. "We want to propose greater funding for further development of the Eggevator" says Dr. Cox, "but we need to discuss the international implications of such a proposal."

Awards: Selley Lusetti was awarded the Biochemistry Scholar and the Wharton Postdoctoral Fellowship. Aimee Egger was awarded the Peterson/Wharton Predoctoral Fellowship. Mara Robu was awarded the Steenbock Fellowship.

Current Lab News: Shelley Lusetti has scheduled her thesis defense in May 2002. She plans to continue working in the Cox lab as a Senior Scientist. When questioned concerning her choice to stay in the lab, Shelley said, "I love these people too much. They are too dear to me. I simply cannot leave them. I have found my utopian society, and I want to stay."

Dave Dwyer's wife, Karen, is also scheduled to defend her thesis in May. She and Dave plan to take a three-month trip in Europe afterward to celebrate. Karen disclosed that Dave was offered 0.75 million British Pounds by the UK Secret

Service for the design plans of the Eggevator, but he declined out of principle. "I will not support an imperialistic monarchy" were Mr. Dwyer's words. Stephen Abbott, a graduate student in the Cox lab, eloquently summarized how the lab will feel when Dave leaves. He said, "we'll miss him." Liz Wood, the other technician in the lab, declined an interview. Rumors persist however, that Ms. Wood will also miss Dave Dwyer. "It makes sense," says Mara Robu, another graduate student in the lab, "we're all going to miss him, I think Liz will too."

Aimee Egger plans to defend her thesis this fall. After getting her Ph.D. she'll also take an extended trip; possibly to Costa Rica. After performing at Cowpalooza II earlier this year, Aimee and her fellow band members became overnight mega-stars in Costa Rica. "Gen X here in Costa Rica just can't get enough of their music" says San Jose correspondent Miguel Rodriguez. "Tickets go on sale on May 16th for their Costa Rican tour, and people have already started camping out for tickets at both Nicoya and San Isidro. We expect the riot police to begin controlling the crowds within the week." Sergei Saveliev, expressing the excitement and feelings of the Cox lab for Aimee, says "We plan to give her a bronzed pipette to take on stage with her to remind her of us. We are very proud of her."

Michael Hobbs and his fiancé, Melinda will be married this summer 2002 in Louisville, Kentucky. Local authorities predict that at least 300 people will attend the celebration. "We don't know quite what to expect" says Officer McNally, "but we are prepared for almost anything." Michael Hobbs declined response. "Congratulations to the both of you, I guess" says Michael Cox.

Past Lab News: Paul Sims, a former Cox lab member and currently a George Reed lab member with be defending his prelim in April 2002. One report estimates that the list of Paul's nicknames for his associates now exceeds 1.2 million.

Sarita Jain will be finishing her MBA at UC Berkeley, Hass School of Business in May 2002. She plans to look for a job with a biotechnology company after graduation.

Lisa Iype and her husband Varugis Kurien will be moving into their first home March/April 2002. Lisa says that they're both doing well in their respective jobs.

Li-chun Huang and Jim McMahon were married in December. Jim is an electrical engineer from New Brunswick, Canada. Congratulations Li-chun and Jim.



Hector DeLuca
Lab 259, 265
& 275

Julie Bork stopped by for a visit while in Madison during Christmas break. She wanted everyone to know of her engagement to Todd. The Cox lab is reported to wish Julie and Todd many happy years together.

Although Paul, Sarita, Lisa and Julie were not present for the victories of the Cox lab in both the Ornament Contest and the Egg Drop Contest, they are reported to have all expressed their kindest regards and congratulations.

I am really pleased to be able to write to you all once again from the vitamin D laboratory. My birthday of 72 is now behind me as I work on the next year. As far as I know, my health is excellent and I am still having fun doing research and running the Department of Biochemistry. In addition, as many of you probably know, Margaret and I have started a company devoted to the development of raw university inventions to a point where pharmaceutical companies will develop the final product. Needless to say, the initial effort of this company will be devoted to certain vitamin D compounds that show great promise for treatment of a variety of diseases, but especially osteoporosis.

The noise level has diminished considerably in the laboratory with the graduation of Beth Werner last August 2001. She has taken a job as Licensing Manager at PanVera Corporation in the intellectual property area. We have had other graduations of considerable importance as well. Laura Johnson received her Ph.D. in May 2001, and more recently Cindy Rohde completed her degree work in January 2002. Laura has taken a postdoctorate in the Medical School, and Cindy is currently deciding the direction of her professional career, and in the meantime is working on a project in our vitamin D lab. We have added a couple of wonderful people to our group. Galina Kutuzova transferred into our research group from Vet Medicine and is currently working on the role of $1,25\text{-(OH)}_2\text{D}_3$ in the intestine. She has been a wonderful addition. Besides working hard, she brings wonderful vodka and caviar from Russia when she visits her mother. From the undergraduate research workers, we have attracted two outstanding graduate students--Katie Lois received her undergraduate degree from the Department of Animal Science and is working on a Ph.D. in nutritional sciences in my group. Katie is addressing the role of vitamin D in phosphate transport. Ehron Rudoph is another undergraduate who worked with Julia Zella on the diabetes project and won an important undergraduate award for his work on the role of vitamin D in the islet cells. He is joining the laboratory as a graduate student in September, 2002. We were also able to attract one

Carol Pfeffer, speaking on behalf of the entire Cox lab, invites any former Cox lab member that happens to be in the Madison area to please stop by. "We'd love to see you and catch up on news," Pfeffer says. The Cox lab reports agreement with Pfeffer's statement. It remains to be seen if any past lab members will take Carol Pfeffer up on her offer.

Mike Cox disavows any knowledge of the process that led to the accounts above.

of the floating graduate students from the incoming pool this year. Her name is Jenifer Wozniak, and she has decided to work on the aryl hydrocarbon receptor ligand and its biogenesis. As you can see, I have not given up working with graduate students.

The laboratory has been able to score a couple of important breakthroughs during the last year. Most important is in a joint venture between Margaret's and my lab in which Jason Song has been able to isolate and chemically identify an endogenous ligand for the aryl hydrocarbon receptor. To accomplish this, we isolated $20\text{ }\mu\text{g}$ from approximately 35 kg of lung tissue. The chemical identification proved to be quite difficult and finally, with the help of Milo Westler of the Nuclear Magnetic Resonance Facilities here on campus employing a new Cryoprobe™ for the high resolution NMRs, the correct structure was deduced. Upon reaching that conclusion, Rafal Sicinski, who was with us this past year, together with Pawel Grzywacz, chemically synthesized the ligand in four days over a weekend. We were truly astounded with both achievements. We are currently writing up all of this important work for publication. Another important breakthrough has been the realization that we have successfully prepared an osteoblast selective analog of $1,25\text{-(OH)}_2\text{D}_3$, and the selectivity of this analog is now being rapidly developed in collaboration with Wes Pike and Rupa Shevde, who have joined the Biochemistry faculty and staff.

In short, the scientific efforts are still a lot of fun in the lab, which keeps me around Biochemistry despite the fact that I should have retired by now. Pat continues to operate the office and intellectual property work of my laboratory, and is someone I greatly depend on as I always have. Pat is still Pat, and I am sure she will never change. Wendy Hellwig is doing a great job of managing the lab facilities, bench work, and finances of our research group. Claudia Zierold has two children, is a very busy lady but still manages to do some very important research work in our group, especially on the mechanisms of regulation of the hydroxylases by parathyroid hormone and $1,25\text{-(OH)}_2\text{D}_3$ itself.



Jamie Mings, Pat's daughter, assists Claudia and has developed into a first-rate molecular biology technician. My nutrition student, Laurie Schubert, has made a great deal of progress in figuring out whether vitamin D plays a role in muscle function or not. She will likely receive her Ph.D. some time later this year. Jeff Larson manages all of our transgenic and specialty mice. He also assists Terry Meehan, who is doing a great job on the animal model of multiple sclerosis and has now prepared two manuscripts that further our understanding of how vitamin D regulates the immune system to prevent this disease. Kevin Healy is trying to understand the regulation of the vitamin D receptor gene. Jon Goldstein is attempting to clone the liver microsomal vitamin D 25-hydroxylase. As I mentioned above, Julia Zella has shown very clearly the effectiveness of vitamin D compounds in preventing Type I diabetes in NOD mice. She has also made great progress in our understanding of how vitamin D carries out this function. We are fortunate to have Janeen Vanhooke, who is directing our efforts in the area of structural biology of the vitamin D receptor and its interaction with the analogs. Wanda Sicinska has developed our progress in computational structure of the receptor and NMR of its ligand binding domain. Our synthetic chemistry efforts are still spear-headed by Dr. Rafal Sicinski with his frequent visits here, as well as Pawel Grzywacz, and we have Sumithra Gowlugari and Mai Li who are contributing to our synthetic efforts. Ellen Lake transferred to our lab

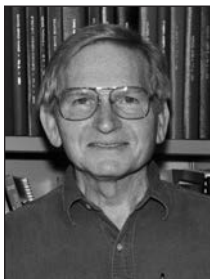
from Julius Adler's, and is now working on the selective analogs directed to the osteoblast. Jean Prahll is still giving me trouble; she directs the cell biology and transgenic work in my lab. Lori Plum has joined our laboratory in part and directs the study of the osteoblastic-specific ligand and another ligand that appears to be non-calcemic *in vivo*. Xiaohong Ma is a great animal technician who works with Lori on the osteoblast-specific ligand. Connie Smith has retired from active work but does come in on an hourly basis to help us out, as does Mary Phelps who comes in during the summer to help us with some of our synthetic efforts. The lab is still a lot of fun although we did not have a pig roast this last year, but I think we probably will have one this next year.

The most important job I do is at home with little Martin (4.6 years) and Adriana (2.5 years). I have the opportunity to play father once again. It is a terrific experience. Martin is very verbal and Adriana has a very sunny personality. They have given my life a great boost!

We are often contacted by Hisham Darwish (in Jerusalem). If you think your life is hectic, think of his—only 1-1/2 miles from Premier Arafat's headquarters. Deneen Wellik is doing well and manages to call us periodically. Margherita Cantorna bugs us from PENN State so we can exchange choice comments on a regular basis. What do you expect from 2 Italians! Kato Perlman drops by with delicious goodies every so often.

I send my greetings to all alums from my lab and hope you are all doing well! I hope to see many of you at the Jack Omdahl organized vitamin D meeting scheduled for June 15-19, 2002 in Taos, New Mexico. This had been scheduled last October but since it was so close to the September 11 tragedy, we decided that it should be delayed to allow people to feel comfortable in traveling to the meeting.

Have a great year!



Perry Frey
Lab 546B
Enzyme Institute

The Frey lab has gone through a myriad of changes in the past year, and we continue to work on. Our newest addition is Kaisheng Huang, a postdoc from Norman Lewis' lab at Washington State University. We welcome him and his family to the fold. Between July and February we welcomed visiting graduate student Alejandro Yévenes from the lab of Emilio Cardemil, Universidad de Santiago, Chile. Chia-Wen "Cleo" Chang, a dynamic and ambitious undergraduate, recently joined our lab and is working on her Senior thesis.

Ab Arabashahi and Frank Ruzicka continue as the foundation of our research program. Dawei Chen remains among our group as a postdoc on a variety of projects. Glen Hinckley and Philip Schwartz passed their prelims in 2001 and are making significant progress. Kuo-Hsiang Tang continues as a graduate student and working his way towards defending.

This year a number of members of the lab moved on to next steps in their careers. Jeff Gross took a position with Glaxo-SmithKline in his hometown

of Philadelphia and moved his family back there this past fall. Yaoming Wei left in August to take a position at Metabasis Therapeutics in San Diego. Barbara Gerratana, Adrian Hegeman, and Oli Magnuson completed their Ph.D. requirements and relocated to continue their careers. Barbara Gerratana is at Johns Hopkins in Craig Townsend's lab. Oli Magnuson, after a brief visit to his home in Iceland, is now a Miller Postdoctoral Fellow in Judith Klinman's lab at UC Berkeley. Adrian Hegeman is a postdoc in the lab of Mike Sussman in the Biotechnology Center here at UW Madison.

Many Frey lab members/alumni are in the process of expanding their families. Sandy Geeganage and Kristin Johnson gave birth to their twin boy and girl David Ruwan and Grace Norman in May. Oli Magnuson and Selma Karadottir had a baby boy Kjarten in April. Jeff and Rosalee Gross had another baby girl Megan Elizabeth on January 2nd. Kuo-Hsiang and Joyin Tang are expecting a baby boy June 20th. Glen Hinckley also recently was engaged to be married to Michelle Benton. No date has been set but stay tuned. Congratulations to them and best wishes to all of the Frey lab alumni.



Paul Friesen
Labs 729
Molecular
Virology

reetings to all! I hope that this update on recent happenings in the PDF lab finds everybody safe and in good health. The lab is functioning well from the confines of the 7th Floor of R.M. Bock Laboratories. The building was recently renovated and is better than ever. Our main research interests continue to focus on baculovirus replication and on the novel interactions between AcMNPV and its insect hosts. We are investigating mechanisms of early transcriptional control and the regulation of baculovirus-induced apoptosis, a fast-moving field full of excitement.

There are many new and enthusiastic faces in our laboratory. Two new Biochemistry Ph.D. students include Angela Basile from Syracuse University (New York) and R. J. Smith from Hanover College (Indiana). Both Angela and R.J. are first-year students who are focused on getting through their class work this semester. In addition, we have Erica Lannan (Iowa State University) and Rebecca Cerio (Indiana University, PA), both second-year students in the Microbiology Ph.D. program who are focusing on research for their prelim exams this summer. Running the lab is the job of our most senior research specialist Justin Wetter, who is assisted by Diccon Fiore and Melinda Brady-Osborne, who are also research specialists. Another worker in the lab is Josh Theisen (from Milwaukee), a Biochemistry senior who is deciding among several medical schools that have offered him admission next fall.

Our group has been affected most significantly by graduation. Whereas graduating students are a sign of a successful lab, it is difficult to say farewell to students who have become friends and colleagues. We did so most recently to Vicki Olson who received her Ph.D. in Biochemistry in December, 2001. Vicki is now a postdoc at the Center for Disease Control (Atlanta, GA) working in the Damon lab on poxviruses. Vicki and Peter will be married this coming fall! Next in

line was Gulam Manji who graduated in September, 2000 with his Ph.D. in Biochemistry. Gulam took a postdoc position at Millennium Pharmaceuticals (Boston) with John Bertin's group and is now working on the other side of the country in the Proteomics Group at Elan Pharmaceuticals (San Francisco). Next is Steve Zoog who received his Ph.D. in Biochemistry in May, 2000. Steve is working as a postdoc in the Department of Biology at Boehringer-Ingelheim (Connecticut). Steve and wife Holly (Ph.D. - DeLuca Lab) always have an open invitation for PDF lab members to visit them on the east coast. Then, there's Rebecca Hozak who graduated in July, 1999 with her Ph.D. in Biochemistry. Rebecca went on to obtain an M.S. degree in Biostatistics here at U.W.-Madison and recently moved to Indiana (with husband Dan) to take a scientist position at Eli Lilly. Jenny Schiller (a previous postdoc in our group) recently finished a postdoc position at Eli Lilly and is now a staff scientist working closer to home at the Blood Research Institute in Milwaukee, WI. We have also heard recently from Doug LaCount and wife Susan Mendrysa, who are both postdocs out in Seattle and enjoying the outdoor opportunities in the mountains of God's country. Kathy Hajek (Ph.D. 1977) is teaching in Georgia and will be getting married (to Roland) this summer too. Kathy and Vicki will almost be neighbors near Atlanta.

Anna and I are doing well. I continue to accumulate administrative responsibilities, much to my dismay since research is where it's at. For the past two years, I have been the Chair of Graduate Admissions for the Dept. of Biochemistry, a year-long task that is extremely important but consumes one's time like you wouldn't believe. Nonetheless, our Admissions Committee has been very successful, having recruited 25 to 30 top students from around the country each of these last two years. Graduate student recruiting will be greatly stimulated by the

recent ranking of Biochemistry's Ph.D. program as sixth in the nation, up from tenth last year, according to U.S. News and World Report! Grant writing and teaching virology consume the rest of my time, save the occasional canoe trip up on the Wisconsin River with our brittany spaniel Petie.

This past summer as many of you know, Madison hosted the 25th Annual Meeting of the American Society for Virology. Except for the 100 degree heat wave that hit that week in July, the conference went off brilliantly at the relatively new Monona Terrace Convention Center next to the Capital Square. The meeting set a record for attendance with over 1500 participants. It was good to see old friends - seems like half of the virologists in the world have trained or worked in

Madison at one time or another. The meeting's success was due largely to the herculean efforts and organizational skills of Ann Palmenberg and Ann Gordon-Walker who were our local hosts. Speaking of AGW, life will change dramatically here in the IMV since she announced her retirement for this June - we are still trying to talk her out of it. Somehow in a moment of weakness Ann Palmenberg got me to agree to host the next Madison ASV meeting which will be held in 2006. Maybe I'll retire like AGW before then. If not, you can expect an invitation to work as volunteer at the 2006 ASV meeting. Please note that all current or previous baculovirologists will get in for free!!!

Until then, God Bless.



Brian Fox
Lab 141

Hello from 141B Biochemistry Addition. Here we are in a new lab space, mostly unpacked except for me.

Lab alumni now include Brian Hoffman, Eric Eberhardt, Jeremie Pikus, John Broadwater (now a post-doctoral with John Lipscomb in Minneapolis), Joe Studts (Senior Scientist at Boehringer-Ingelheim Pharmaceuticals, Inc.), and Jeff Haas (postdoctoral at Novozymes, Davis CA).

Cory Rogge, Karen Lyle, Enrique Gomez, and Bob White are working on desaturases. Cory is finishing up some work on reactions of acyloxy-ACP analogs and preparing to move her pteradactyl to Houston. Karen has been working on a number of topics including freeze-quench kinetics, peroxo complexes, and steady-state kinetic order of binding. Karen and Brandon bought a house on Helena Street, and the rumor is they are quite handy with tools, including use of the Rotozip 2000. Why, it's just amazing how efficient those are on recalcitrant Kryptonite bike locks. Enrique is in the process of Ph.D. outlining as the deadline of the second child looms near, or was that the other way around. Good luck to him, Monica, and Catalina, it will be different than it was believe me (see below). Bob is still on the thia compounds, now with success in synthesis, and working closely with Nic Ketchum on other analog studies.

Kevin Mitchell, Luke Moe, Marie Wiater, Todd Gierahn, and Lisa Ooi are working on moonooxy-genases. Kevin and Tracy got married last Fall and the T4MO alumni were all in attendance. It was a great time, first for the wedding at the Olin Park Shelter and then for the reception at Olbrich Gardens. I notice that the bulbs they provided in the gift boxes for the attendants are just now beginning

to peek through the ground in my garden. Kevin was the winner of the 2002 Sigrid Leirimo Award, which is a great honor and reflects the complementary influence Kevin has had on everyone around him. Luke is well on the way with some collaborative studies of radical clock reactions with "Mr. Rebound" himself, Prof. Jay Groves of Princeton University. As I write this, Marie is fine-tuning her oral preliminary exam presentation for the real show. Somehow, Marie has become the Mo Cleland-designated student questioner in Enzymology Seminar, rising to the position held for so long by Ken Woycechowsky. Lisa and Todd are now in the final stages of contemplating graduate schools. Each has more acceptances to high quality places than the next three of their peers will have, but this isn't that surprising.

Amanda Barry is finishing her M.S. on *Ferroplasma acidarmanus*. She will shortly be leaving us for Portland, OR to continue graduate studies at the Oregon Graduate Institute of Science and Technology. Rumor has it she will be working with Ninian Blackburn, hopefully on organisms that grow in culture.

Thomas Malone is a Ph.D. candidate in the Environmental Toxicology Program and has a Biotechnology Training Grant fellowship. He is busy working on TNT-reductase reactions by recovering new isoforms from natural environments capable of direct aromatic ring reduction.

Along with the new lab setting, a new association with the UW Center for Eukaryotic Structural Genomics has arrived. The new people that have joined the lab for this project include Russell Wrobel who came back to the Wisconsin motherland from UC Davis, Paul Blommel, who came



back to academia from a stint in industry as a chemical engineer, and Sandy Thao, who jumped straight from Biochemistry 651 into the structural genomics trenches. We also have a close association with Dave Aceti, Ronnie Fredrick, Dimitriy Vinarov, and Kate Zhao, who are situated in John Markley's lab space, and Mike Sussman, who is situated in another space altogether, besides his office in the Biotechnology Center. Structural genomics entails figuring out how to efficiently clone, express, and purify a sufficient number of proteins suitable for X-ray and NMR structures. Our favorite targets are called hypothetical protein

and putative protein along with their close cousin, unknown protein. The goal is to more thoroughly define the number of unique protein folds in all of biology. We have the cloning, expression, and purification efforts, with *Arabidopsis thaliana* serving as the main target organism. It is science marching to a different tune than the research projects I have been involved with in the past, but the resources, new technologies, and potential to improve aspects of protein expression have been interesting so far.

In my home life, Hans Christian Nielsen-Fox was born last April 19th. Hans is a slightly red haired, happy ball of vigor. He is just now testing the ability of feet to support him away from the hand hold provided by anything 18 inches high. Ian is nearly through his first year of kindergarten, which has brought a level of reading, writing, and arithmetic that I am pretty sure I didn't get until well into the second grade. Karen is the associate director of the Babcock Institute. She suspects that we will be going to China sometime soon: she for international agriculture; me and the kids for fun. One thing we have found, methods for getting children to sleep through the night from an early age are neither well-defined nor reproducible. We are still looking for the magic incantation that will give the result, but it just may not be there...

I hope you are happy in your current circumstances. Please plan to come back through Madison sometime to see us and look at how the lab has changed.



Jack Gorski
Lab 3306

The "Estrogen Club" at Wisconsin is growing with the addition this spring of a new assistant professor of Comparative Biosciences, in the College of Veterinary Medicine, Dr. Jyoti Watters. Jyoti was our last postdoc and is now finishing her postdoc in Paul Bertics lab in Biomolecular Chemistry. She is going to be very busy as she is also expecting a baby in the next few weeks! Another new faculty member, Dr. Wes Pike, joined the Biochemistry Dept., moving from the University of Cincinnati. Wes is best known for his Vitamin D work but also has developed an interest in estrogen action in bone. Dr. Dale Bjorling from the Vet School also joins our regulars of Linda Schuler, Reese Alarid, Fern Murdoch, Mary Ozers and Mike Fritsch as well as their associates.

It was nice to visit with many of you at the Endocrine meetings in Denver and also at the Women In Endocrinology Dinner. I had a great time. After the meetings I went up into the mountains for some hiking and horseback riding. I found out that my 70

years are making a difference. Hiking at the 9000 foot altitude was different than the same hike a few years ago. I managed to finish the hike I started but was worn out by the end. Horseback riding turned out to be beautiful, with nice views of the mountains, deer, etc., but by end of the ride I needed help getting off my horse! Harriet and I also had nice nostalgic trips back to Cal Poly where I did my first two years of college and WSU where I did my graduate work. My involvement in the bovine world resulted in our showing the Grand Champion Jersey at the State Fair.

Fred Stormshak retired from Oregon State, although he will maintain his research for awhile. He had a nice retirement dinner with former students and even some ranchers with whom Stormy had worked. Wes Gray and his wife had a new baby girl this past year. Jane Toft is recuperating from cancer surgery and treatment this past year. Parker Kelley completed his PA and took a position at a clinic in Stevens Point, WI. Scott

Lundeen has taken a new position with Johnson, and Johnson, and his group includes JZ Guo. Benita Katzenellenbogen has entered a new phase of her life as past president of the the Endo Soc. and more importantly, as a grandmother! Joannie Jorgenson, an Ex Officio member of the group, will start a faculty position at the U of IL this next

year after completing her Postdoc with John Nilson at Case/Western Reserve. Rita Manak is now working in the Office of Technology Transfer at UCLA.

We always look forward to visiting with or hearing from you during the year.



Laura Kiessling
Lab 471

This year marks Laura's Fifth year with a joint appointment in Chemistry and Biochemistry. Recently we said goodbye to Sue Genske and welcomed in Judy Peterson as the new Administrative Assistant. Judy is already doing a great job of keeping Laura (and everyone else) organized and efficiently coordinating nearly every aspect of the Kiessling operation. The disciplines studied in the Kiessling lab continue to be as diverse as the 27 chemists and biochemists working there. Graduate students, Post-docs, and undergraduates are involved in projects from organic synthesis to enzymology to *C. elegans* genetics.

Who's In:

In the biochem side of Laura's operation, there are currently fourteen members. We have recently increased from 5 to 7 biochemistry grads with the addition of two eager first-years in January, Eric Underbakke and Jack Borrok. Patricia Mowery, Michelle Soltero, Allison Lamanna, and Erik Puffer are the more senior biochem grads in the lab and Jessica Hollenbeck is our new postdoc. Brendan Orner, Chris Cairo, and Byron Griffith are our three resident chemists. (Brendan is the one with the PhD), and Chris and Byron are chemistry graduate students. Dave "Lord-of-the-Worms" Peal is a graduate student from the CMB department (and our lab DJ). We also have 3 undergraduates this year, Emmy Pagel, Beth Stadtmueller, and Steve Darnell.

In the Chemistry building we have a full house as well. Daniel Weicherding is the sole post-doc in Chemistry. As for graduate students, we had a few graduating last year. Not to worry though, there are 4 new first-years to fill in, Brandon Beyer, Ratmir Derda, Grace Jiarpinitnun, and Erin McElroy. Robert Owen and Bill Thomas are seeing the light at the end of the graduate school tunnel. John Phillips, Jason Pontrello, Yi He, and Erin Carlson round out the remaining chemistry graduate students. Julie Greschuk, Steve Brown, and Dan Wherrit are our undergrads in chemistry.

Who's out:

The last year was filled with departures from the chemistry lab. Allison Marlow, a former post-doc, is now working at Array Biopharma Inc. along with Ron Hinklin, a former grad student. Mike Shultz left with his Ph.D last year and is rumored to be working at Novartis in New Jersey. Travis Young is now in Oregon working on his law degree. Zhi Qiang Yang recently graduated and is currently in the Danishefsky lab at Sloan Kettering. Carina Poulsen, a visiting grad student from Denmark, returned there last spring. Fred Boehm, the former stellar undergraduate, is now attending graduate school at Berkley.

Over in Biochemistry, Jason Gestwicki will have graduated by the time this is in print; he will be doing a post-doc at Jerry Crabtree's lab in Stanford. Chris Cairo will be leaving us too. He will be post-doc'ing in David Golan's lab at Harvard Medical School. We also said goodbye to some undergraduates last year. Liesha Cook and Kay Oetjen have both graduated.

What's New?

Michelle Soltero did a summer internship for her Biotechnology Training Grant at the Bayer Corporation in North Carolina. Erin Carlson is currently shopping around for her Biotech internship coming up this summer. Byron Griffith and his wife Jennifer are expecting a baby in the middle of September. Eric Underbakke has a new addition to his household too, a cranky beast named Kitty-Witty-Pussy-Wussy.





Judith Kimble
Lab 341

002 – can it really be? Time flies when you are having fun. And when you are overly busy. But always nice to reflect over events of the past year, and there have been many.

In the lab, we have continued to make progress identifying genes that control organ formation and germ line fates. For example, FBF, which we first recognized as a regulator of the sperm/oocyte fate decision a few years ago, has also turned out to be required for maintenance of germline stem cells. This project has been the baby of Dr. Sarah Crittenden, who has really turned the story into a beauty. The Wickens lab and in particular Dave Bernstein has also been key to our understanding of FBF controls. And a new target for FBF – the *gld-1* mRNA has brought us back full circle to a gene that left the lab long ago and has been in the capable hands of Dr. Tim Schedl and Dr. Betsy Goodwin for over a decade. This *gld-1* repression by FBF appears to be important for both stem cells and sex determination. The *gld-2* gene has also become a winner! First worked on by Lisa Kadyk many years ago now, *gld-2* has recently been found to encode the catalytic subunit of a new cytoplasmic poly(A) polymerase. This discovery was the brainchild of Liaoteng Wang, a hardworking Biochemistry graduate student who trusted his instincts and will soon be Dr. Liaoteng Wang. And now postdoc *par excellence* Christian Eckmann has found *gld-3*, which appears to tie together the FBF and GLD-2 protein products into what we are now thinking of as a rheostat that controls germline fates. Lots of ideas, some data and more than ever to do.



As usual, some people have moved on from the lab and others have joined us. Dr. Shanping Wang, a postdoc who was working on molecular mechanisms of sex determination, decided to enter the legal profession and was sent off with a collection of silk ties, one for each day of the week. We hope they come in handy once he is practicing his art. Dr. Dave Rudel, a former Biochemistry graduate student, took the bold step of moving to Germany for his postdoc. He is now working with Dr. Ralf Sommer at the Max Planck Institut for Developmental Biology in Tübingen. And Dr. Eric Haag, a evo/devo postdoc who kept us straight on what percent homology really means (zero), has his own lab now at the University of Maryland so he can spread the word even more widely. Rumor has it that he has already recruited his first graduate student and is proud of his new school for being basketball champs!! Way to go, Eric! And Yongjing Li, our terrific EM technician, has also left us to take up a new position in the vet school. Although we are always sad to see people leave, it is bittersweet as these moves mean exciting new ventures in their lives.

And now to introduce the new graduate students and new postdoc who have joined the lab during the past year. Last fall, Dr. Kit Tilmann came to us from Duke University where he got his Ph. D. unraveling the early stages of mammalian gonadogenesis. Kit has started working on the genetic control of sexual dimorphism in the *C. elegans* gonad and seems to be thriving. Two students are from the Department of Biochemistry: Mike Chesney from UW-Madison has joined the gonadogenesis project with the help of Kellee Siegfried and Trey Kidd, and has adopted *sys-4*, which has a number of nice genetic handles and which Trey managed to clone in record time. And Nayoung Suh, who hails from South Korea, has embarked on the GLD-2 project with generous help from Liaoteng. One student hails from the Department of Genetics: Daniel Hesselson comes to us from Canada and has taken up the *gon-1* project, which had been sadly neglected since the departure of Robert Blelloch and Craig Newman. Dan has lots of ideas and energy and, it appears, luck, so this neglected area of lab is taking on new life quickly.

And so what has stayed the same? Not much really. Time does move on. Dr. Sarah Crittenden continues to be her wonderful supportive and knowledgeable self, an anchor in the lab. Peggy Kroll-Conner has proven herself to be a master of PCR as well as a master of worms. Her efforts have been incredible and generated deletion mutants in almost all the genes we wanted to knock out over the past year. Phil Balandy continues to make sure the lab

runs smoothly, which sometimes can be a major challenge. And Jadwiga Forster keeps us in worm plates, a job that she is so good at that we often wonder how she can stay so poised and still manage to be so effective. Anne Helsley-Marchbanks, our able administrative assistant, has become proficient in prairie burns in her spare time and has thoughts of becoming a firefighter!! What does this mean? Dr. Christian Eckmann has made great strides in his analysis of a new FBF regulator, which he calls GLD-3. Dr. Laura Mathies has several job offers and is figuring out what to do. From the Department of Genetics, Kellee Siegfried finally got her *pop-1*:

GFP construct to work and is starting to think about postdocs; from the Program of Molecular and Cell Biology, Jen Bachorik is starting to tame the *puf-8* gene and managed to make it through her prelim B; Trey Kidd also made it through his prelim B, cloned *sys-4*, and started to focus on *sys-1*; and Beth Thompson is writing her prelim and trying to conquer FBF-encoding transgenes. And last but not least, from the Department of Biochemistry, Liaoteng Wang is soon to defend his Ph. D. thesis, and Liana Lamont is psyching up for her prelim in just a couple of weeks. Life continues at a fast pace in the world of our lab.



Henry Lardy
Lab 303
Enzyme Institute

Greetings from Section II of what used to be The Enzyme Institute:

There is still a remnant of the Enzyme Institute/Biochemistry faculty in this building—Mo Cleland, Perry Frey, George Reed and the emeritus Henry Lardy. The first year of management by CALS has resulted in no fatalities, and I can assure you that Ag Dean Elton Eberle is far more capable, charming, and friendly than was Grad Dean Ginger Hinshaw.

Our group of Nancy Kneer, Padma Marwah, Ashok Marwah, and myself is still intact. We have many new basic findings in steroid metabolism and activity but still do not have any receptor-binding hormones. We have an exciting collaboration in progress with Brian Fox and his co-workers including student Enrique Gomez. They study lipid synthesis and the various enzymes of fat metabolism and have interesting differential responses to several steroids.

As a result of Ashok's recently published papers he has had more than 15 inquiries from companies and

"head-hunters" to ask whether he is available for hire. Happily, he likes it here.

I think our Military officials have failed the President and the American cause. They allowed the natives (Northern Alliance) to oust the Taliban and al Qaeda from power. But they failed to control events, and the N.A. allowed thousands of the Taliban and al Qaeda soldiers to escape to Iran and Pakistan *with their arms. They even escorted a large group of the enemy leaders to safety.* The result is that terrorism will continue. (This was written some weeks ago and a detailed letter with this message was submitted to the N.Y. Times on January 3, but they didn't use it. Now it has become reality).

We have enjoyed visits from many of the E.I. Alumni this year. Keep coming! Those of you who are far away may not know that Wisconsin is experiencing its warmest winter in recorded history. Lake Mendota didn't freeze completely and now it is frozen only along the edges. Skiing has been lousy! We look forward to a beautiful Spring.



John Markley
Lab 171
NMRFAM

John's contribution last year missed the newsletter deadline, so this report covers 2000-2002.

Highlights

The greatest satisfaction of 2000 was chairing the committee that led to the recruitment of the two new structural biologists who arrived in 2000. It is wonderful having Sam Butcher and George Phillips as new neighbors.

The biggest challenge starting in 2001 has been the structural genomics project, which was funded by the NIH last October. The grant funds the Center for Eukaryotic Structural Genomics, which involves other department members, other groups on campus, and external collaborators.

The greatest satisfaction this year was finally getting colleagues moved into the ground floor in the

Biochemistry Addition. Sam and Brian Fox have newly fitted out labs adjacent to the Markley wet lab.

The greatest relief for John was finishing out a tour of duty on the Physical Biochemistry Study Section. Eldon Ulrich and John have served on separate task groups for structural genomics sponsored by the NIGMS, RIKEN/MEXT, and the Wellcome Trust.

The longest process completed was the team effort (involving Milo Westler, Sam, John, and UW purchasing) that led to a contract for new NMR instrumentation. Varian emerged as the bid winner. New 600 and a 800 MHz spectrometers were delivered last October; both are to have cryogenic probes by next fall. A 900 MHz spectrometer should arrive later this year.

Family news

Andrew is a freshman in chemistry at Carnegie Mellon University. Jessamyn will start graduate school in biology next fall. Diane is looking forward to a sabbatical starting this June. John will be on a research leave over the coming year. A milestone was the death of John's father at the end of January 2000; he was 96. John, Diane, Andrew, and Jessamyn spent a month clearing out the home in Denver, where the family had lived since 1935.

Former lab members

Ken Prehoda finished out his postdoc at UCSF and accepted an Assistant Professorship at the University of Oregon. In the fall of 2001, John visited **Bin Xia** in Beijing, where he is a Professor at Peking University and director of the largest NMR lab in China. John visited in Seoul **Young Kee Chae**, who is an Assistant Professor at Sejong University, and **Gyung Ihm Rhyu**, who has a position at the Korean Bureau of Standards, and in Pohang, **Byung Ha Oh**, who is a Professor at Postech and runs a beam line at the synchrotron there. **Andy Hinck** has received new NMR spectrometers for his lab at the University of Texas (San Antonio). Andrzej Krezel and coworkers at Vanderbilt have a new 800 MHz spectrometer, so we won't be seeing him here in Madison collecting data. **Brian Volkman** accepted an Assistant Professorship at the Medical College of Wisconsin, where he has a new 600 MHz spectrometer system with cryogenic probe.

From **Jane Caldwell** we learned that Tim is an Asst. Professorship in Philosophy at Washington & Jefferson College in Pennsylvania; Jane is teaching middle school life science and physical science at The Ellis School in Pittsburgh.

Recent Ph.D. recipients are **Steve Wilkens** (postdoc with Peter Schultz at the Genomics Institute of the Novartis Research Foundation), **Chele DeRider**

(postdoc with Paul Agris at North Carolina State), and **Qin Zhao** (postdoc in the Center for Eukaryotic Structural Genomics).

Look for a PBS special on "The Secret of the Genome" where you may see lab members, **Fariba Assadi-Porter**, **Ronnie Frederick**, **David Aceti**, **Sonay Kuloglu**, and **Hamid Eghbalnia**.

Travels

John's peregrinations have taken him to places like Bozeman, Breckenridge, CO, Budapest, Copenhagen, East Lansing, Florence, Hiroshima, Honolulu, New Northfield, MN (Carleton College), York City (CCNY, Einstein, Rockefeller), San Francisco, and Tokyo. And, yes, he was in NYC on 9/11.

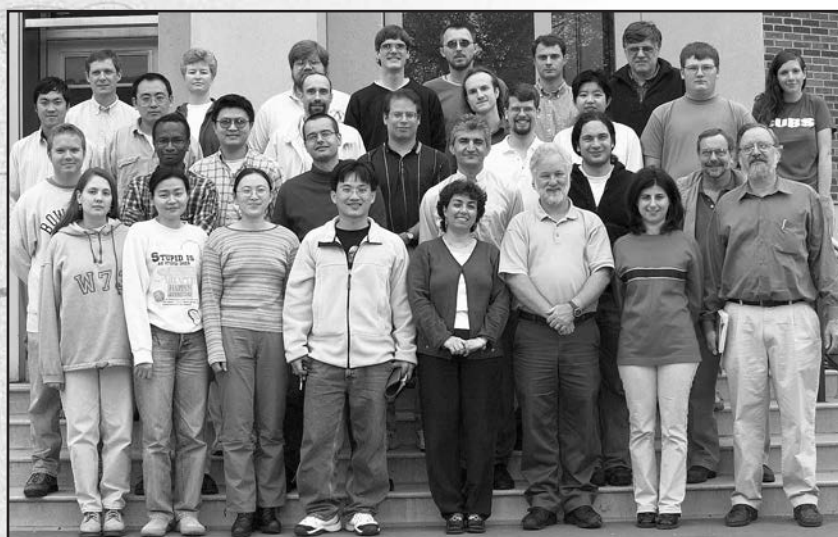
Eldon Ulrich is close to achieving his goal of visiting every place in North America doing structural genomics by NMR. Milo visited a lab in Budapest and was there for the thousand-year celebration of Hungary as a state.

In memorium: Mike Chapman

Michael R. Chapman, who was our close colleague and friend for ten years at the University of Wisconsin-Madison, died suddenly and unexpectedly of a heart attack on August 30, 2000. He was only 41 years old. Mike was the public face of the National Magnetic Resonance Facility at Madison and also helped out with other laboratory operations. Mike's qualities were perfect for this job. He had a good background in biochemistry and biology. He was skillful in dealing with people. He understood the machinery of the University of Wisconsin and had a healthy dislike for bureaucracy. Mike was well-organized and anticipated problems; he accomplished tasks efficiently. His abilities served us well on countless occasions. Mike was always there to work his magic when we had grant or report deadlines. He was a superb typist--something of a lost art in this computer age--and could enter text at lightning speed. Mike organized the annual meetings of our Advisory Committee and our site visits. He attended these and occasionally made presentations describing his contributions.

Mike provided wonderful assistance to all lab members and visitors. He hosted the visiting scientists who come in each month to use the instruments, as well as visiting professors. He carried out the delicate job of scheduling the instruments and dealt competently with those who were disappointed by the amount of data collection time available or breakdowns in the hardware.

Over the past ten years, Mike grew steadily with the job, developing new skills and expertise. His inter-



est in computers proved particularly valuable. Mike took responsibility for the large collection of personal computers in the lab and their networking. He developed the specifications and set up all the new personal computers in the lab. This was a job that he loved and carried out in a masterful way.

Mike helped develop the two generations of web-based software used to reserve time on the instruments. He debugged the software, wrote the user documentation for it, and taught people how to use it. Mike designed the latest version of this software to capture the information needed for the Annual Report of the Facility. This was to be the first year that the preparation of this onerous report would be automated. This work will endure as Mike's memorial.

Most recently, Mike began to teach himself Java, the computer language. He created a web site for the lab and took over operation of the web site for the Graduate Program in Biophysics. Mike took a course in the language and began working with Zsolt Zolnai and Peter Lee on the development of a powerful computer program that would greatly simplify purchasing operations within our group and department.

Mike was a special and unique individual. We enjoyed his sardonic humor and irreverent nature. His loyalty to our group was steadfast. He was a true professional. His loss is huge. We, along with the many others who worked with him, will never forget him or his massive contributions.



Anant Menon
Lab 473

Several changes have taken place in the Menon Lab since our last newsletter entry. Jolanta Vidugiriene is now employed with Promega Corp. in Madison. Cedric Simonot took a job in Lyon, Dee Sharma is currently in the laboratory of Richard Pagano at the Mayo Clinic, having flown a jeep back and forth across the Atlantic. Sneha Komath took a research position in UW Vet Med, until she returns to her faculty position in India. Two graduate students, Dave Rancour and Sigrún Hrafnadóttir received doctoral degrees in 2000. Dave is doing postdoctoral work two floors down with Sebastian Bednarek, and was recently married to Laura Johnson (PhD 2001, DeLuca). Sigrún is doing a postdoc with Gerrit van Meer in Utrecht,

the Netherlands. She and Siggi are expecting their second child.

The current members of the lab are:

Niki Baumann (grad student) – Ms. Baumann is planning to defend this spring, and will enter the Clinical Chemistry Fellowship program at the Washington University School of Medicine. Her dissertation is on the intracellular trafficking of free glycoposphatidylinositols and sterols. She plans to continue work on sterol transport when she moves to Washington University.

Anita Pottekat (grad student) – Anita came to us from Texas last year. She passed her prelim on April 2.

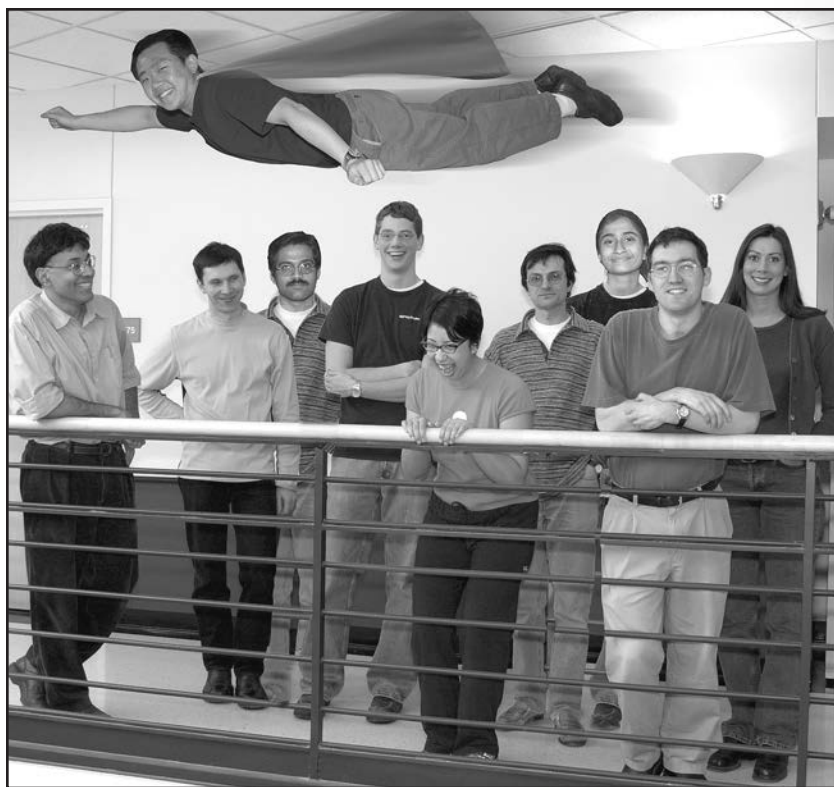
Bill Watkins (grad student) – Bill was married in September to Richele Abel (MS 2001, Raines) while continuing to be engaged to a Mycoplasma flippase.

Roberta Schwartz (technician and Bacteriology MS candidate) – Roberta joined our group from Bact this year.

Giovanni Miranda (postdoc) – Giovanni joins us from Milwaukee. He is currently the newest member of the lab but will relinquish that distinction when Mychailo Kazachkov arrives from Ukraine.

Sathya Gummadi (postdoc) – Sathya comes from a chemical engineering background and finds our microscale equipment amusing. He has been offered a faculty position at the Indian Institute of Technology.

Saulius Vainauskas (postdoc) – Saulius joined us from Vilnius, Lithuania. He is an expert in protein expression as well as in the identification of edible wild mushrooms. Roberta says 'he walks on water'.



Henry Kuriawan (senior undergraduate) – Henry is doing a senior thesis in the lab, working closely with Saulius. He would like to continue his education in an MD/PhD program.

Caleb Cresswell (undergraduate) – Caleb is getting research experience doing a project with Anita.



James Ntambi
Lab 407

The Ntambi lab has been kept busy this past year in our continued research on the Stearoyl-CoA desaturase (SCD) gene family. This work includes looking at the role these enzyme has in fat metabolism.

Dr. Ntambi is currently teaching Biochemistry 501 while also keeping the lab in working order. Additionally, he is keeping ties with the rest of the scientific community on all things related to the regulation of “fat” genes.

Post-doc fellow Makato Miyazaki is currently investigating the role that SCD1 has in different tissues using a mouse that has a null mutation in the gene. At this current time he is looking at the sebaceous family of glands which include the sebaceous, hardarian and preputial glands.

Another post-doc, Hyounju Kim, is currently investigating the SREBP protein in mice liver cells. This protein acts as a transcriptional activator of SCD and is therefore key to the organism’s ability to control fat mass.

Yeonhwa Park, an assistant scientist, is working on the different expression levels of the enzymes of lipid metabolism comparing SCD1 knockout and wildtype mice. Specifically she is studying the enzymes of gluconeogenesis in the liver. Additionally, she is in the lab as a joint study with the Food Research Institute as she studies

conjugated linoleic acid and its effect on body fat regulation.

The lab research associate Mizanoor Rahman Shaikh studies glycogen synthesis and management in the SCD1 knockout mice. This includes general gas chromatography analysis to determine which sugars are present and at what amounts in order to determine the overall effect of SCD1 on the cell.

Enrique Gomez, a graduate student from Brian G. Fox’s lab, during the last three years has been studying SCD regulation and expression, using the mouse 3T3-L1 preadipocyte cell line as a model system. He studies the effect that different compounds like thiazolidinediones (drugs used to treat type diabetes), steroid hormones (DHEA and its derivatives) and fatty acid analogs (cyclopropene fatty acids) have on the mRNA levels, the protein content and the enzyme activity of SCD. These compounds affect SCD at different levels and result in characteristic adipocyte morphology, which can be studied by flow cytometry. Enrique seeks to graduate this semester and return to Mexico with his wife, his daughter and his son (expected to arrive in May) to start his own line of research at the National Institute of Nutrition in Mexico City.

Next up is Weng Chi Man who wants to know where SCD1 is located within cells. Given the fact that SCD1 is a membrane bound protein, it is hard to identify which of the cell’s many membranes could possess the protein, and beyond that how much of the cell’s total is located there. As such, each membrane compartment must be isolated and categorized. Outside of lab she likes to cook and play the piano.

There is the newest graduate student Mark Jacobson. He will be working on the SREBP system and will use cell cultures to investigate the impact that SCD1 gene expression has on other genes.

Then there are the lab’s three undergraduates: Mike Cullen, Nick Ansay and Yudi Soesanto. They currently investigate the relationship between SCD expression and breast cancer. Mike is leaving this May to go to medical school but has not yet decided which one he will most likely attend. Nick will be attending law school next year, with the intention of going into patent law. He does not currently



know which school he will attend. Yudi will be continuing on in the lab and is currently competing for a research fellowship for undergraduates that the University of Wisconsin offers.

Finally, there is a new undergraduate student joining the lab, Molly Fedra. Molly currently works at

the University of Wisconsin hospital and also tutors for calculus in her spare time.

With this current lineup in our lab, we hope to continue to unravel the mystery that is cellular control of genes involving fats.



Ann Palmenberg
Lab 527
Molecular
Virology

Hello Friends and Alumni! Well, we moved again last year, this time to what we hope will be a permanent home in the Bock Laboratories Virology Institute. When Gary Borisy departed for Northwestern last summer, we were accorded his 5th floor suite, and moved in during August of 2001. Marchel has been busy setting things up and coaxing our HeLa cells to grow in the new facility. They seemed to somehow prefer the dusty environs of the Biochem '56 wing to the newly renovated lab. Go figure! Aside from the still-present pile of boxes (where can we stash 15 cases of pipettes?) the new digs are more or less functional now, thanks to John Bade and his Bock Labs crew, who have been continuously rewiring, building and pushing around the equipment according to Marchel's instructions. ACP's new office is room 527B, and Marchel is in 511A. The (first) housewarming last fall brought out many old friends, and it was good to see you all.

ACP, as usual is trying to write the pile of manuscripts and papers that never seems to get smaller. Actually, this is a good thing, since it means the work continues to go well and the data keep pouring in. The Protease grant was renewed (for the 23rd year!), the IRES patents continue to be lucrative, so things are financially secure for a while. Joe Binder graduated in December of 2001 and is now a staff scientist at Pfizer Pharmaceuticals in San Diego. Rumor has it he loves the work, the sunshine, and the California girls. Aleksey Aminev and Svetlana (now a scientist in Jim Gern's lab) received their green cards last summer, and are now free to travel outside the US again. They are planning a special Moscow holiday in conjunction with the upcoming International Virology Congress, to be held in Paris this July. It sounds like a great trip! Most of the rest of the lab will be traveling to Cape Cod in May, for the first Europic picornavirus meeting to be held in the US. Five abstracts and presentations by the lab will ensure a strong presence. Apparently, some of the world's best polio people are finally beginning to think about working with cardioviruses, a theme ACP has been pushing for a great many years. Among the folks going to that meeting will be Mei Wu. This will be one of the first personal holidays she's taken in several years, without her adorable boys, Andrew and Jonathan. Cori Fata, a

new postdoc who joined the lab in October, will also be at the meeting, discussing her great new procedures for the isolation of active 3Dpol. Cori graduated from the Medical College of Ohio last fall, after working with Dorothea Sawicki. Rachel Groppo, our Biochem grad student who joined the lab in 2000 will be staying "home" this summer. Rachel is currently in the throws of her prelim defense (she's going to do just fine!), and is looking forward to some well-earned down-time once the hassle is over. Her project involves an examination of Mengo-modified ribosomes, and how/why these ribosomes lead to the shutoff of host protein translation during infection. She won an NSF Fellowship for this work last year. Eleanor Howe of the CMB program is also in the throws of her defense (of sorts). She is intending to finish her degree with a MS, so she can transfer her studies into the field of bioinformatics. Eleanor loves computers and has developed some of ACP's 2D RNA models into 3D versions that may help explain how the viral IRESes work. Once these cool new models are written up, it will be time for her defense, probably sometime this summer. Jean-Yves Sgro still functions as a sort of honorary member of the ACP group, and is also continuously busy at the terminals. He is teaching the BioMod mini-courses again this spring and rewriting the 712 computer lab book for ACP. Last year he worked with Dave Nelson and Mike Cox to create a fantastic array of new molecular graphics for the latest version of Lehninger Biochemistry and his work is very much in demand. JYS and ACP recently revised the Virology Institute web site (virology.wisc.edu/IMV). In addition to listing virology training opportunities on the UW campus, it also now includes an entry into Jean-Yves' "Virus World", the new dynamically rendered depository for his cornucopia of virus images. Visit the new site when you get a chance. It's pretty cool!

As for our alumni, we've heard that Scott McBride is about to graduate first in his class from Marquette Law School. With his combo of PhD (UW-Oncology) and law degrees, Scott "esquire" is being ardently courted by several law firms. Congratulations, Scott! Cheryl Dvorak is completing a postdoc at the University of Minneapolis. Dave Hall recently accepted a faculty

position at the Lawrence University in Appleton, WI, joining the academic ranks just like Michael Hoffman, at the UW-La Crosse. Lee Martin will return from Switzerland sometime this summer and probably join the lab of Michael Oldstone, where he can continue with his measles virus vaccine work. Jorge Osorio is back in Madison with Powderject Vaccines Inc., while Hernando Duque is at Plum Island, working with the USDA boys on FMDV.

ACP and the hamsters are pretty much ensconced in the new office taking care of the never ending paperwork. After last year's ASV meeting in Madison, she swore never to organize another meeting, and when the 2006 ASV returns to Madison, it will probably be Paul Friesen's baby. Nonetheless, ACP was still talked into teaming up with Margo

Brinton for the next (2004) Positive-Strand RNA Virus meeting, to be held in San Francisco. Success, it seems can bring its own penalties. The hamsters (currently: Peach Pit and Jamar) like the 5th floor view and enjoy eating the plants that grow on the windowsill. They're both doing fine despite a recent scare. It seems the "Pit" somehow escaped while ACP was out of town, and it took a week of frantic searching, nocturnal hamster traps and furniture moving, before he was discovered sleeping peacefully in a software box 3 ft from his cage. He's none the worse for wear, although the same can't be said for the software manual or enclosed CDs (ironically, "DreamWeaver") that he shredded for bedding. Warmest regards to all of you, and please stop by if you get a chance. We'd love to show you the new labs.



Ron Raines
Lab 371

Arrivals and departures. Marcia Haigis received her Ph.D. in January and is busy planning for postdoctoral work with Lenny Guarante at MIT. She will stay in the Raines lab until Summer to finish her work on ribonuclease biology. Richele Abel received her M.S. in December and took a position at Dean Mosher's lab in the Medical School. Kris Staniszewski, our former undergraduate and lab manager, now attends graduate school at Northwestern University.

We are sad that Uli Arnold returned to Germany to assume his duties at Martin-Luther University in Halle. He and Matt Hinderaker continue to collaborate on a project to incorporate nonnatural amino acids into RNase A. Fortunately, Uli and Ron were able to convince the NSF and its German counterpart to provide support for Uli and a German student to spend 1 month in Madison each year (2002–2004) and for two people from the Raines lab to spend 1 month in Halle, Germany each year. (The line forms at the left.) Parit Plainkum has

returned to Thailand to complete his M.D./Ph.D. at Mahidol University. While in the Raines lab, he developed an RNase A variant that was activated by protease cleavage and may be useful in the treatment of malaria.

The Raines lab welcomes Brian Miller, a new postdoc who did his graduate work in the Wolfenden group at the University of North Carolina at Chapel Hill. Brian is attempting to resurrect an extinct enzyme active site.

Family business. Cara and David Jenkins welcomed a baby boy, Caleb, to their family on 9/23/01 (7 lb., 2 oz.). We also celebrated two marriages. Congratulations to Richele Abel and Bill Watkins for their September wedding, and Sunil Chandran and Tesjavini Prasad who were wed in December.

Achievements. Members of the Raines lab won many awards in the last year. Brad Nilsson won the Abbott Laboratories Fellowship in Synthetic Organic Chemistry.

Jonathan Hodges and Brian Miller won postdoctoral fellowships from the NIH and Damon Runyon Foundation, respectively. Rob Hondal won the first Boyer Postdoctoral Award, which is now given each year to the most outstanding postdoctorate in the biochemistry department. The award was endowed by 1997 Nobel laureate Paul Boyer, who received his Ph.D. from the department. Rob is excited to move this Summer to become an Assistant Professor in the biochemistry department at the University of Vermont.

Erin Kurten, an undergraduate working with Marcia Haigis, won a Pfizer Summer Undergraduate



Research Grant, Barry Goldwater Scholarship, University Bookstore Award and Wisconsin Hilldale Faculty/Undergraduate research fellowship.

And...Ron himself won a Guggenheim Fellowship and a Vilas Associates Award, and was elected to be a Fellow of the American Association for the Advancement of Science.

Sport. In marked contrast to the glory achieved in the laboratory, 2001 was, at best, a rebuilding year for the Raines lab sports franchises. Summer softball was captained by Bryan Smith, who sought to infuse the lineup with youth and imported talent. Unfortunately, our international superstar Sunil Chandran had played cricket, and was unfamiliar with the fielder's glove. After taking a blistering line drive off the chest in practice, Sunil decided to forgo use of the mitt completely. Despite this potential limitation, manager Bryan placed Sunil at 3rd base, where Sunil played valiantly even after his hands turned purple. The team's offense was stale,

striking out more often than the Milwaukee Brewers. Shelley Christopherson, our lone fan and fiancé to centerfielder Matt Hinderaker, left in the 4th inning of the Game 2 because she was "embarrassed to be associated with" the organization. The team ended with a 1-3 record, including a loss to the stars of Astronomy.

The inaugural Raines lab intramural basketball team played to a respectful 2-3 record in the intermediate league, but was doubled-up in the first round of the playoffs.

Rob Hondal defeated any conspiracies to win the Ron Raines Fantasy Football League behind the steady performance of Marshall Faulk. Congratulations to Rob!

Contact Us! As always, we are happy to welcome lab alumni to drop in for a visit and update us on life after the Raines lab. Otherwise, please send us an e-mail, and visit our lab website for more information: www.biochem.wisc.edu/raines.



Ivan Rayment
Labs 2206 & 3324

The major news this year is that we have actually moved into our new labs. It is great to be in the Department. The move went very smoothly thanks to the efforts of everyone in the lab, but particularly Bob Smith and Jim Thoden who made sure that all of the laboratory and X-ray diffraction equipment escaped destruction by the movers! It did not take long to have the lab fully functional, though the coldrooms were a bit slow getting commissioned. The new labs are really nice and the coldrooms are better than any I have ever seen. There is really no reason not to spend the whole day at 4 degrees! (See our lab space at <http://www.biochem.wisc.edu/holdenrayment/index.html>)

Since moving over the lab has been very active. Our efforts to clone myosin and actin are at last proving to be successful, thanks in large part to Kirsten Dennison and Dima Klenchin. I am hopeful that this will give rise to a new bunch of structures in this area. As before, we continue to solve as many structures as we can get our hands on. Eric Wise has determined three new structures in the last year where one of these, (3-Keto-L-Gulonate 6-Phosphate Decarboxylase) was just published as an accelerated manuscript in Biochemistry. We have also made great progress on understanding several of the cobalamin biosynthetic enzymes in collaboration with Jorge Escalante. Yes, research is fun.



Tom Record
Lab 4424

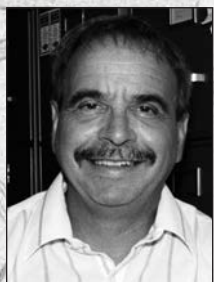
Our most recent biochemistry Ph.D. graduate is Jill Holbrook, whose UW affiliation continues in the Med School where she is completing the last two years of the M.D. part of her M.D./Ph.D. Jill's elegant calorimetric studies of oligonucleotide DNA helix formation and large-scale DNA wrapping around the E. coli DNA processing and packaging factor IHF (integration host factor), performed in collaboration with researcher Mike Capp and Drs. Ruth Saecker and Oleg Tsodikov, led to novel proposals relating thermodynamics to structural features of these systems, and for predicting possible paths of DNA wrapping in multiprotein-DNA assemblies from structures of the individual proteins. We all miss Jill, as

well as Oleg, a Biophysics Ph.D. graduate of this laboratory, and Elizabeth Courtenay, a recent Bacteriology Ph.D. graduate whose novel quantitative study of the thermodynamics of interaction of denaturants, osmolytes and other solutes with proteins, in collaboration with Mike Capp, allows us to interpret and, in favorable cases, predict the effects of these solutes on protein processes such as unfolding, assembly or ligand binding. Oleg has taken a postdoctoral position in crystallography with Tom Ellenberger at Harvard, studying DNA repair proteins. Elizabeth is a postdoc with Tania Baker at MIT, where she is developing biophysical assays to define mechanisms of chaperone proteins.

Senior Biochem graduate students in the group include Marni Raffaele, whose footprinting studies in collaboration with Oleg and Ruth have characterized the two key intermediates in the kinetics of binding and opening the transcription start site of promoter DNA by RNA polymerase; Dan Felitsky, who has used the marginally-stable folded state of the lac repressor-DNA binding domain to quantify solute effects on protein stability; and Jiang Hong, who, in collaboration with Dr. Charles Anderson, is developing the use of solutes such as urea and glycine betaine as quantitative probes of coupled folding and other contributions to changes in water-accessible surface area in protein-DNA binding. Chemistry graduate student Jeff Ballin is completing a quantitative study

of the nonspecific binding interactions of histidine, arginine and lysine containing oligopeptides with oligomeric and polymeric DNA in collaboration with Dr. Irina Shkel. Newer members of the laboratory include graduate students Kirk Vander Meulen (Biochemistry; IHF), Jonathan Cannon (Biophysics; solutes) and Wayne Kontur (Chemistry; RNA polymerase). Among recent Biochemistry Ph.D. graduates, Mark Levandoski and Kristi McQuade are now assistant professors at Grinnell and Bradley, and Maria Craig is a scientist in the medical school at University of Virginia.

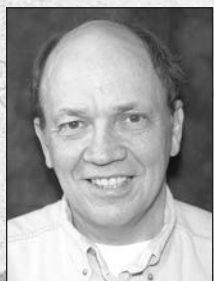
We look forward to hearing from anyone and everyone about what they are doing.



George Reed
Lab 407
Enzyme Institute

Greetings to all from all of us (George, Russ, Todd, Scott, Steve, and Paul) at our “faulty towers.” A substantial volume of water has “passed under the bridge” since our last entry in this medium. We have been in email contact with many of the former members of the lab during this interval. We now have a fairly current email address book for most of the lab alumni. Drop us an email if you would like to receive a current address reed@biochem.wisc.edu. We have a couple of changes in staffing since the last report. Matt Johnson took a position with a biotech company here in Madison at the end of last summer. We are delighted to have two new students in the laboratory. Steve Mansoorabadi came into the lab in September of 2000 and Paul Sims came over in November of 2000. We are putting Steve’s marvelous talents in math and physics to work on spin-spin problems in strongly and weakly coupled biradical (triplet) systems. Paul has provided us with some quantita-

tive information on the properties of the acid/base catalysts in the active site of enolase. We recently learned that Vahe Bandarian (Ph. D, 1998, presently at U. Michigan) was recommended by the advisory committee of the Burroughs Wellcome Fund for a BWF Career Development Award. The BWF Award is highly competitive, and we are very proud that Vahe was selected. Thanks to Todd Larsen and the other members of the lab, we now have many new crystal structures of enolase and some of its site-specific variants. Two trips to the Synchrotron Facility at Argonne, involving most members of the lab, have provided data for some very nice structures. The structures have helped us to understand the roles of specific residues and of flexible loops in the mechanism of enolase. Russ is helping everyone and keeping the Linux systems updated. Scott is pleased that the Vikings have a new coach, and he appears to be ready for some serious NMR measurements.

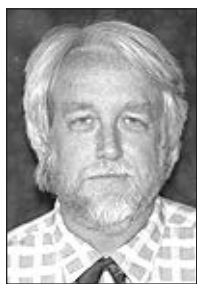


Bill Reznikoff
Lab 319

Another year has brought a lot of fun science, saying goodbye to old lab mates and welcoming new ones. Our molecular analysis of Tn5 transposition coupled with our collaboration with Ivan Rayment’s lab on the structure has unearthed new discoveries and kept us very busy. We can now “see” things that we never even thought existed, such as a flipped base to aid in hairpin formation, two metals in the active site, the hairpin itself, etc. Sometimes, however, we have made new discoveries about old topics such as finding out that the 4th bp in the OE really is important or discovering what Torsten’s EK110 and EK345 really do. We (Igor and Todd) have also had a lot of fun devising new research tools that maybe a few people will find useful. Finally Kelly and Amanda are busy using Tn5 as a genomics tool.

Two of our long time members have “graduated” to other pastures. Todd has joined Steve Benkovic’s lab as a Happy Valley postdoc. Danielle finished her Bacteriology degree and joined Sigma in St. Louis. In addition, Julian Acre was a summer student this last year. Julian is back in Puerto Rico and is probably going to medical school next year. Our new addition is Chris Adams who came to graduate school after undergrad work at Ft. Lewis College in Durango, CO.

We would really like to have some visitors so give us a call, or e-mail us with your news.



Marv Wickens
Lab 307

Most years at about this time, sap rises in the trees, bulbs tentatively assert themselves, and students in the lab prepare for prelims. That all is true this year too. But this year is different. The later winter brought a new kind of transformation. Hair loss.

Aaron Goldstrohm, a newly arrived post-doc, initiated the process. He came to the lab last year with intellectual riches from his thesis work at Duke, but with a barren head. This seemed to plant a seed, or should I say, buy some weedkiller, for others in the lab. Recently, *Daniel Seay* trimmed down to a few millimeters, and the same with *Labib Rouhana*, a new student. Now with Daniel, one never knows what eccentricity to expect, and Labib, as new student, was a wild card. But still, the trend is striking and fearful for the hirsute among us. If the trend continues, I think they should shave it all off and wax 'em up; that way, we can blind any audience at the RNA meeting by just bending their heads and facing the audience. The Wickens Lab's blinding illumination.

Here's a rundown on some recent developments. From the youngest among us rise four new students: *Brook Simon*, *Laura Opperman*, *Labib Rouhana* and *Jae Eun Kwak*. A diverse, energetic and enthusiastic group, and the largest assemblage ever to enter the lab at one time. Speaking of energetic enthusiasm, Brook confessed that she is so energetic and enthusiastic that she once drove into the Pacific Ocean thinking it was a puddle she could traverse. Hopefully, there'll be a bridge over all of their thesis projects. It has been great to have them join us; if things go as well as they did with the lab's now second largest class — Jeff Collier, Brian Kraemer and Cameron Luitjens — all is well.

While I embrace these youthful additions wholeheartedly, I have to confess that as far as I am concerned, no one was born after 1970 other than

my son. These people who claim to have been born in, say, 1978, are illusions devised by Rod Serling for some bizarre *Twilight Zone* episode I am forced to inhabit. I know that beneath the masks, makeup and wardrobe, they are 50 years old and laughing at me.

Brad Hook has been preparing his prelim and prepared boatloads of protein to analyze for various biochemical purposes. He has been helping an undergrad, *Sherry Aw*, get started on a research project. (Sherry has the gall to claim a birthday in the 1980's — preposterous!) Sherry's lined up a summer working at Cold Spring Harbor, which should be a real treat. Clones should leap from her fingers when she returns in the fall. Aaron Goldstrohm, a post-doc trained in Mariano Garcia-Blanco's lab, has been preparing to assault mRNA regulation in yeast in various ways. He's brought much to the lab's arsenal of tricks, and has ushered in new technologies *in bencho* and *in silico*.

And while we are speaking of new technologies, not to mention birthdates in the 80's, let me confess that my resistance has collapsed, I have surrendered. Power Point, Power Point, Power Point. I have been skeptical and stuck to my slides and transparencies, and even felt an urge to go in the opposite direction. After a high-tech talk, with graded blue backgrounds and proteins rotating like chickens on a rotisserie and objects zooming in like the end of *Star Wars*, I sometimes return to my office and clutch a piece of chalk, shaking my head. But the time has come, and a goal for the summer is to bring myself into the new millennium and learn PP. I do this for the obvious convenience, but fie on rotisseries, a pox on dancing ponies! But I digress.....

Dave Bernstein continues to analyze RNA-protein interactions, using both *in vitro* and yeast methods. He also continues to provide a target for hockey pucks, with a commitment that is quite remarkable. His confessions of the smells of maturing hockey paraphernalia have put me off the sport altogether. And talk about *in silico*... here is a man who loves his silica. New computer, new monitor, software, and on and on. Can biology be understood from the desktop? Is a bench still required? (This is a rhetorical question. A moment's hesitation before answering and you are lost.)

Craig Stumpf has been screening his heart out, looking for RNAs using new technologies and approaches. Mate and plate. In yeast, if you bind, you live. Talk about pressure in the molecular singles bar.... Dave Bernstein has been taking a much more conservative approach, introducing a protein

Four Marvs!?!?



to only one of a few potential partners, identified by features that are sure to be desirable. Ah, this protein loves a large nose and small mouth – this RNA should do fine. But not Craig. The protein, libido aflame, is thrown into a sea of RNAs, a Casanova loose in Venice; the unattached are slain, their colonies ungrown.

I was beginning to worry about *Daniel Seay*. Not about his thesis work – Daniel's got that well under control. No, it's his desire to defy death. Climb rocks, play brutal sports, sleep on the ice. Let me clarify: my fear is not that he does them (I've grown used to that) – it's that he seemed to stop doing them. But now Daniel tells me that he is going to hike more than 200 miles in a week or so, solo, up north. My fears are assuaged and I am calm. Daniel again is lunatic.

Scott Ballantyne has many pursuits these days. There's what he likes to call PBRs, not to be confused with Pabst Blue Ribbon beer -- proteins that he suspects have a common mode of action in regulating mRNAs. He also is pursuing jobs. Or, to put it more aptly, several institutions in the upper Midwest are now pursuing him. And he has successfully pursued property, having bought a place up north to hide, reflect, hunt and fish. Aldo Ballantyne with a micropipet and a rod.

Natascha Buter, who has worked as a technician and supported many projects in the lab, as well as her own, is now going to convert her efforts in the lab to thesis work, and is joining the graduate program. An excellent move, though I understand that

her interviews with certain faculty who she already knows well must be a bit bizarre. *Liz Barlow*, with some assistance from Natascha, keeps us organized, administered and moving forward. Nonetheless, entropy has its way and there are always points of disorder. *Amy Lange*, an undergrad, cares for our frogs and makes solutions with caffeine-induced efficiency. We are collectively mounting several anti-entropic assaults this year on the organization of our reagents and enzymes and plasmids, to mention only a few. We shall triumph.

Carol Pfeffer continues to be my personal anti-entropy commando. She might sometimes think that she's losing the battle, but it ain't so. There is always more disorder possible, and what might appear as disorder to one is a fractal pattern to another. Or at least that's how I rationalize the mound of memos, papers, and queries on my desk. They have a surprising way of self-sorting with maturity. Maturity of the papers that is, not of me – some tasks are too daunting.

Among the recently departed is *Cameron Luitjens*, who has headed off to southeast Asia for fun before re-emerging revitalized. Jeff Collier, Kris Dickson and Brian Kraemer still haunt the halls, as do all of you since gone off to new pastures. Tenure has come to some of you in the last year, while others among you have published your first papers. Some of you have buns in the oven, as the British say (it means you are pregnant), while others have buns already out on the table, and others remain utterly bunless. More power to you all. You are all missed. We must have a family reunion, buns and all.

FROM THE CHAIRMAN:

...continued from page 2

is how it should be. However, they still find time to carry out the various functions that make a department operate.

There are at least two new companies that have sprung from the inventions of Biochemistry in the last couple of years. One is my own company, called Deltanoid Pharmaceuticals, Inc., as I described in my laboratory newsletter section. The other is Quintessence Biosciences, Inc., started by Ron Raines and Laura Kiessling, based on their work on modification of proteins for function.

The operating staff in the front office has remained relatively stable. We have been very lucky to be able to retain people like Carol Marth and Cheryl Adams with the new broad-banding policy for some of the

classified staff. Thus, we are now able to increase salaries to appropriate levels for the work carried out by people occupying broad-banded positions. There have been a few changes in the office staff as reported by Cheryl Adams in the "Office News", but I believe the office staff matches the faculty in its excellence and hard work. It is also a wonderful group with which to work. This is one of the reasons that has prevented my retirement to date.

I would like to invite you to visit the Department of Biochemistry whenever you can, and especially now to see first-hand how the department has developed and changed over the years. We believe that you will be very pleased. We certainly are, and we are very proud of the alumni that we have produced. Thank you for all of your support, and I look forward to hearing from you or about you during the next year.

FACULTY PROFILE:

Wes Pike

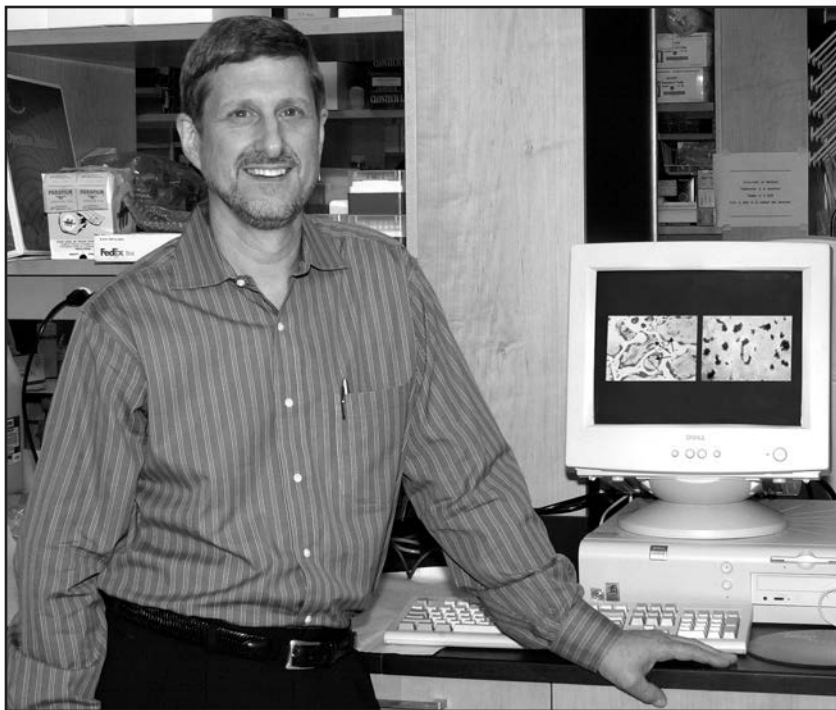
I feel like a rambler, as an academic having made far too many moves for far too many reasons. As a consequence, it is with pride that my wife, Dr. Rupa Shevde and I join the Department of Biochemistry here at the University of Wisconsin, a department with such a rich history of accomplishments in both teaching and research.

I grew up in the Northwest, the Willamette Valley of Oregon to be precise. In this land of fir trees, jagged peaks, and lots of water, I was destined to be an ecologist. As a consequence, I spent far too much time chasing birds and animals in the Cascade Range and the deserts of Oregon to appreciate the world of cell biology, molecular biology and biochemistry. In retrospect, there was no molecular biology then; that was a discipline that was just being invented to spur on the biochemists. Nevertheless, a biochemistry professor and a physiology professor at Oregon State University changed all that in my final year of undergraduate school, and to them I will be eternally grateful. Interestingly, however, it was my ecological interests in the devastating effects of pesticides on the avian calcium metabolism that sparked a life-long career in the regulation of mineral metabolism that now focuses more appropriately on mammals. Little was I to know that the nuclear receptor for vitamin D as well as receptors for other hormones might play essential homeostatic roles in all of these processes. Yet here we are, many years later, still trying to understand some of the basics of skeletal physiology and calcium metabolism. And many of the most pressing questions remain unanswered.

I obtained my Ph.D. at the University of Arizona in Tucson, Arizona under the mentorship of Dr. Mark R. Haussler. Mark was an excellent teacher and researcher, and the training I received there was outstanding. Tucson was also an interesting place with very little rain, something I was not used to coming from Portland, Oregon, the “rain capital” of the country. Perhaps for all of these reasons, I remained in Tucson for some eleven years. From there, it was Baylor College of Medicine in Houston, Texas for five years, Ligand Pharmaceuticals in San Diego, California for five years, the University of Cincinnati in Cincinnati, Ohio for five years, and now the University of Wisconsin. While each of these moves was a novel learning experience (some better than others), both Rupa and I hope to break out of that five year moving pattern here in Madison. Brandon, our 14-year old son, and his alaskan malamute Sierra Mist both love it here and have vowed not to leave. Having spent considerable time in several large cities, it is a pleasure to live on the west side of Madison yet travel less than 20 minutes to work without benefit of crowded freeways and traffic even during “rush hour.”

The current research interests in the laboratory focus upon the impact of steroid hormones on the skeleton in both health and disease. This area permits investigation that is prompted by a biological question, yet allow subsequent exploration into the cellular as well as molecular realm and eventually into the therapeutic arena. Naturally, the vitamin D hormone $1,25(\text{OH})_2\text{D}_3$ is at the top of the list of active skeletal regulators. Collaborating with Professor Hector DeLuca, the world's premier investigator in this area, is a particular treat. Other steroid-like hormones also play significant roles, however, including the sex steroids estrogen and testosterone, the retinoids, and newly identified receptor ligands such as certain fatty acids and other metabolic intermediates. Elucidation of the diverse biological activities of these ligands on the skeleton and identification of the molecular mechanisms of action of the nuclear receptor family in that tissue is likely to prove as exciting over the next ten years as it has been during the past several decades. Both Rupa and I hope to play a role in advancing our understanding of the activities of these interesting regulators during that time.

We thank the faculty in the Department of Biochemistry for the opportunity to work with them here in Madison. Both Rupa and I will strive to be a valued addition to this strong research campus.



GRADUATE STUDENT ALUMNI

The current graduate students are interested in contacting former graduate students that have embarked on their careers. If you are willing to be contacted regarding your career path, please send an e-mail to alumniKIT@biochem.wisc.edu.

Separately, the department would like to send out a survey regarding your graduate school experiences. If you would like to participate in the survey, just let us know in your e-mail. If you have any questions about the process, just include them in the body of your e-mail.

Thanks from the Biochem grads!

HONORS & AWARDS:

2000

Amasino, R. M.
2000-2001 Industrial & Economic Development Program Award, CALS, UW-Madison

Attie, A. D.
Vilas Associates Award, Division of Biological Sciences, UW-Madison - 2000-02

Cox, M. M.
WARF Kellett Mid-Career Faculty Research Award - 2000-05

Fox, B. G.
M. J. Johnson Professorship in Fermentation Biochemistry, UW-Madison - 2000-10

Frey, P. A.
2000 Repligen Award, Division of Biological Chemistry, American Chemical Society

Holden, H. M.
Vilas Associates Award, Division of Physical Sciences, UW-Madison - 2000-02

Kimble, J.
President, Genetics Society of America

Kiessling, L.
Horace S. Isbell Award, Division of Carbohydrate Chemistry, American Chemical Society

Ludden, P. W.
Merit Award, Department of Health and Human Services, NIH - 2004-08

Martin, T. F. J.
Merit Award, Department of Health and Human Services, NIH - 2004-07

Menon, A.
H. I. Romnes Faculty Fellowship, UW-Madison - 2000-05

Suttie, J. W.
Fellow, American Society for Nutritional Sciences - 2000
Katherine Berns Van Donk Steenbock Professor in Nutrition - 2000-10

2001

Belshaw, P.
Research Innovation Award, Research Corporation - 2001-04
2001 Burroughs Wellcome Fund New Investigator Award in the Basic Pharmacological Sciences

Cleland, W. W.
Hilldale Award, Physical Sciences Division, UW-Madison - 2000-01

Gorski, J.
Thirtieth Distinguished Alumni Award, Washington State University - 2001

Kiessling, L.
H. I. Romnes Faculty Fellowship, UW-Madison - 2001-06

Kimble, J.
Vilas Professor, University of Wisconsin - 2001

Raines, R. T.
Guggenheim Fellowship - 2001

Record, M. T.
2001 Founders Award, Biophysical Society

FACULTY PROFILE:

Sam Butcher

I've been here one and a half years now, and it seems like just yesterday that I was standing in an empty lab scratching my head. I arrived here after a five year postdoc at UCLA in Juli Feigon's group, where I studied catalytic RNA structure and function, primarily by NMR spectroscopy. My Ph.D. training was as a catalytic RNA biochemist in John Burke's group at the University of Vermont.

When I arrived in late September of 2000, I found my way over to the 1912 wing of the old biochemistry building, where my office was once Babcock's. The adjacent lab that I occupied belonged to Link in the 1930s. The rich departmental history impressed me, and I realized that I had better start ordering some chemicals so that I might live up to the standards set by my predecessors. I recruited a few part-time undergraduate assistants to help me set up: Anna Huppler, Annie Allmann, Laura Nikstad and Jarrod Thomas. During our entire first year, the lab consisted of myself and the undergraduates.

My research focus is centered on the structure and function of biologically important RNAs and ribonucleoprotein complexes. We use a combination of biochemical and chemical approaches, with an emphasis in NMR spectroscopy. Additionally,

we are growing crystals for X-ray crystallography and plan to spend more time on this in the future. Madison is an ideal environment for my research, because it has a strong and interactive community of RNA researchers, as well as being home to the National Magnetic Resonance Facility at Madison. Currently, we are investigating the structure and function of the spliceosome, a large macromolecular complex of five RNAs and 70 proteins that catalyzes pre-messenger RNA splicing. I enjoy stimulating conversations on this topic with Prof. Dave Brow (Biomolecular Chemistry). We reasoned from genetic and biochemical evidence that U6 RNA likely constitutes the catalytic center of the spliceosome. In my first year, we determined the structure of the central, conserved domain of U6 RNA and found evidence that supports a catalytic role for this RNA in splicing.

At the beginning of the second year, three outstanding graduate students arrived in the lab (Nick Reiter, Dipa Sashital and David Staple). I was able to entice them to work with me by promising that we would soon move into a newly finished lab space next to John Markley's group on the first floor of the Biochemistry Addition (or maybe it was the big bowl of candy that I kept refilling). Finally, in February 2002, we moved in with the rest of the Biochemistry department. After 17 months by ourselves, it sure is nice to have neighbors.

Our new lab is developing its own colorful personality. I bicycle commute throughout the year and am usually in the lab or my new but already very messy, office. If you hear someone in the lab singing out loud while they work, it's probably Laura. Annie makes more RNA than anyone on the planet and manages to keep everybody in line while she does it. David has a preference for country music and has a flair for original egg-drop container designs (second place earned us some handsome bookends). Nick is quiet but rumor has it that he plays drums during graduate student recruiting. Dipa is always in a good mood—maybe it's because her experiments usually work. Stop by to visit our candy bowl and talk about the latest in RNA structural biology.



RICK AMASINO

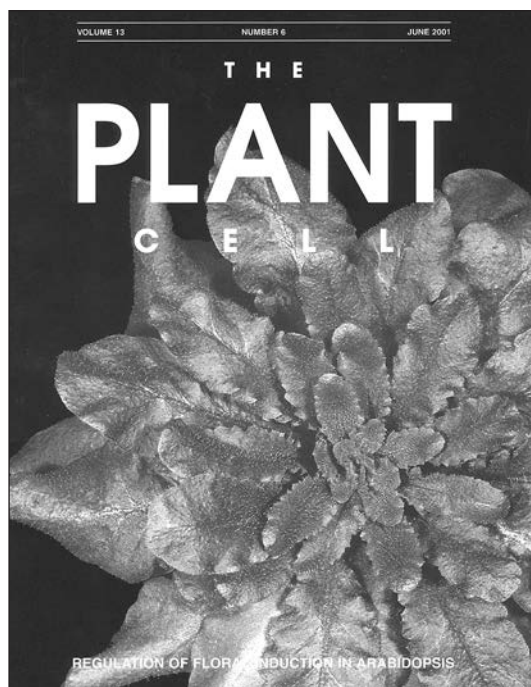
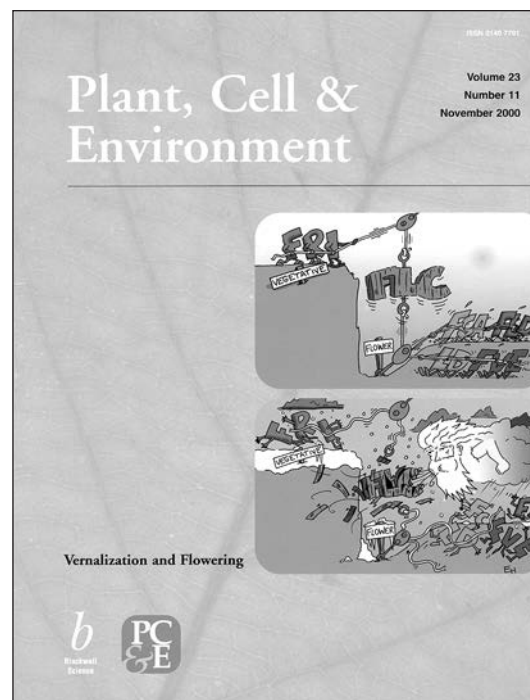


Photo: Fritz Schomburg of a late-flowering mutant of Arabidopsis. Ed Himmelblau helped in the design.

RICK AMASINO



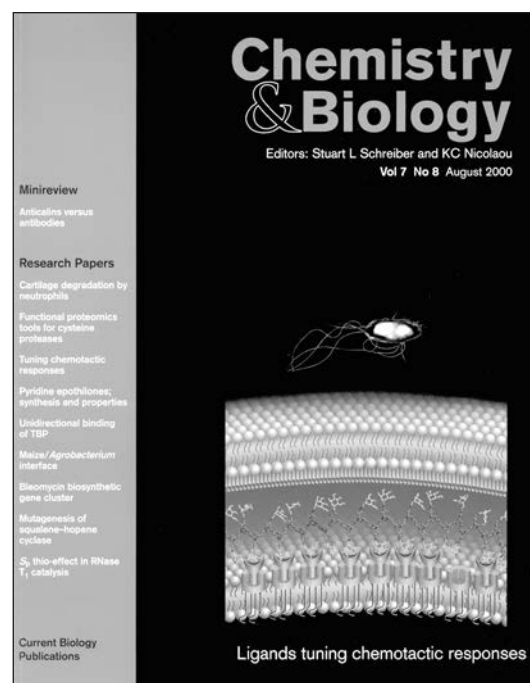
Design: Ed Himmelblau, Rick and Scott Michaels to illustrate the flowering pathways in Arabidopsis, in particular the molecular basis of the promotion of flowering by exposure to the cold of winter.

SEBASTIAN BEDNAREK



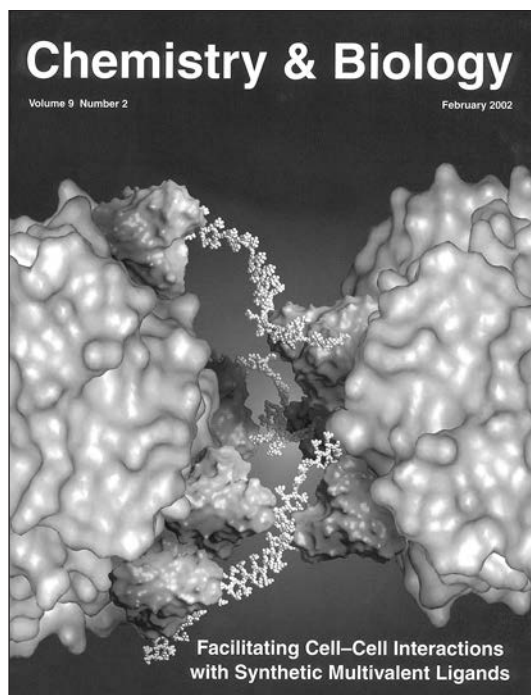
Displayed is a dividing Arabidopsis suspension-cultured protoplast undergoing cytokinesis. ADL1Ap is concentrated at the equatorial plane of the formation, suggesting that this dynamin-related protein functions in cell-plate membrane dynamics. In addition, by examining the phenotype of *adl1A* loss-of-function mutants, ADL1Ap is required for other processes critical for embryogenesis, seedling development and reproduction. Image: C. Dickey, digital enhancement: L. Vanderploeg.

LAURA KIESSLING



Multivalent ligands can mediate the clustering of membrane proteins; in this case the chemoreceptors of *E. coli*. Shown here is a schematic representation of chemoreceptor clustering along with an electron microscopic image of the bacterium (courtesy of M. Depamphilis and J. Adler). Illustration: Adam Steinberg.

LAURA KIESSLING



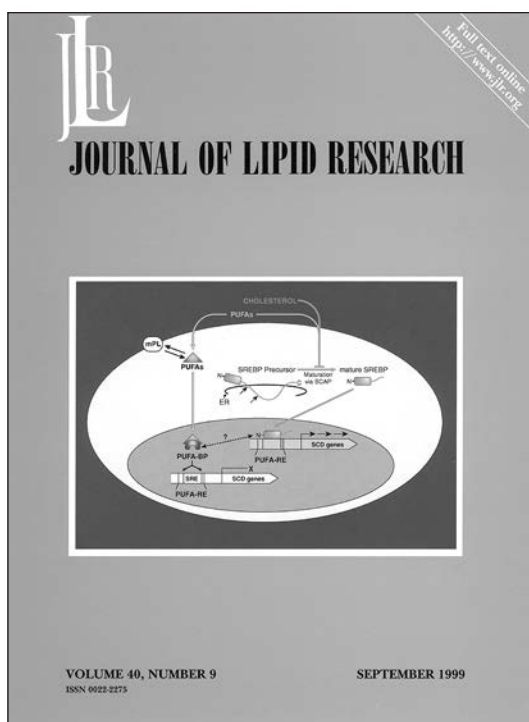
Cell-cell interactions can mediate pathogen clearance, tumor metastasis, and cell motility. Methods for controlling cell aggregation could be used to promote or inhibit cell-cell recognition. This image depicts synthetic multivalent ligands being used for facilitation of the concanavalin A-mediated aggregation of cells. Molecular images: Jason Gestwicki and Chris Cairo, cover design: Adam Steinberg.

JUDITH KIMBLE



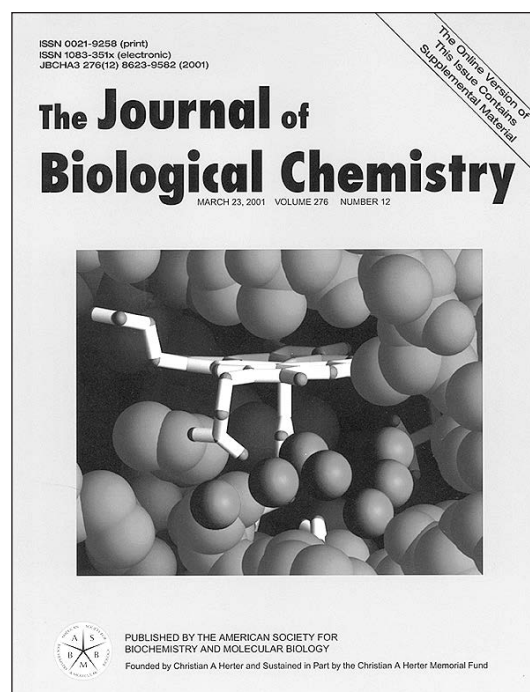
The Kimble lab has been investigating the molecular mechanisms that control how organs develop and recently discovered a secreted metalloprotease that controls organ shape. The crescent shaped cell is shown in magnified view in the white circle to the right of the worm. This same cell is diagrammed below with the metalloprotease (pacman figure) chewing the matrix surrounding the cell in a model of how this enzyme may control organ shape. Illustration: Adam Steinberg,

JAMES NTAMBI



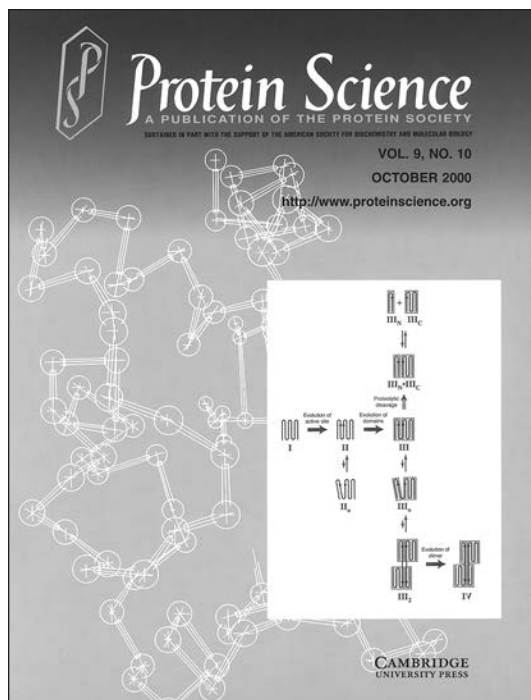
Pathways of stearyl-CoA desaturase 1 gene regulation by polyunsaturated fatty acids and cholesterol. Illustration: Robin Davies.

GEORGE PHILLIPS



The figure shows how water molecules can 'attack' the heme group in myoglobin when certain amino acid side chains are mutated to a smaller size. Image prepared by Elaine Liong and Bog Stec, with coloring help from Adam Steinberg.

RON RAINES



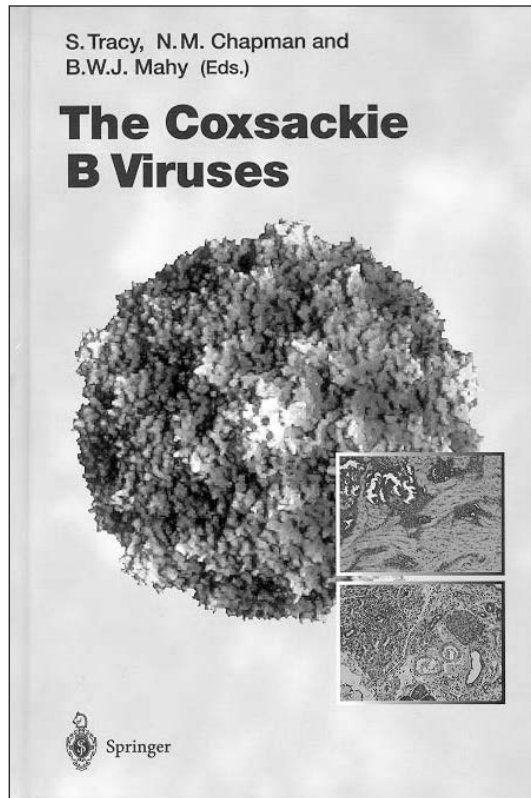
Putative mechanism for the evolution of domain-swapped dimer with composite active sites. Cover design: Irving Geis.

IVAN RAYMENT/BILL REZNIKOFF



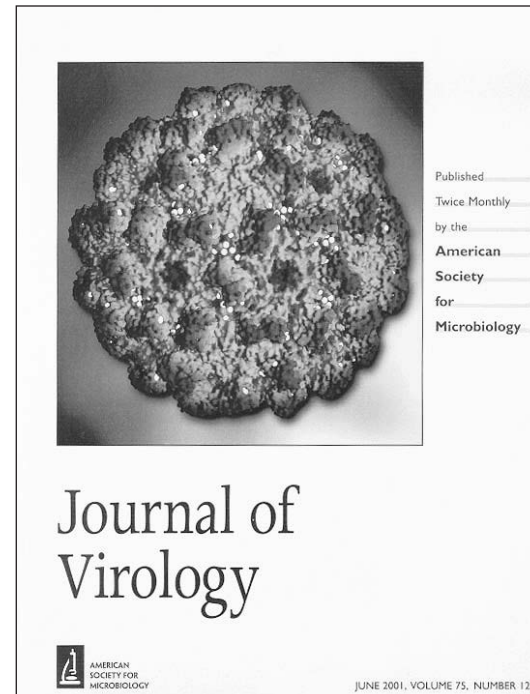
Tn5 transposase-transposon synaptic complex. DNA transposition is a fundamental process in the generation of genetic diversity. The synaptic complex, an intermediate in the transposition process, consists of two transposase molecules bound to two transposon tip DNA sequences. Cover design: Adam Steinberg.

JEAN-YVES SGRO



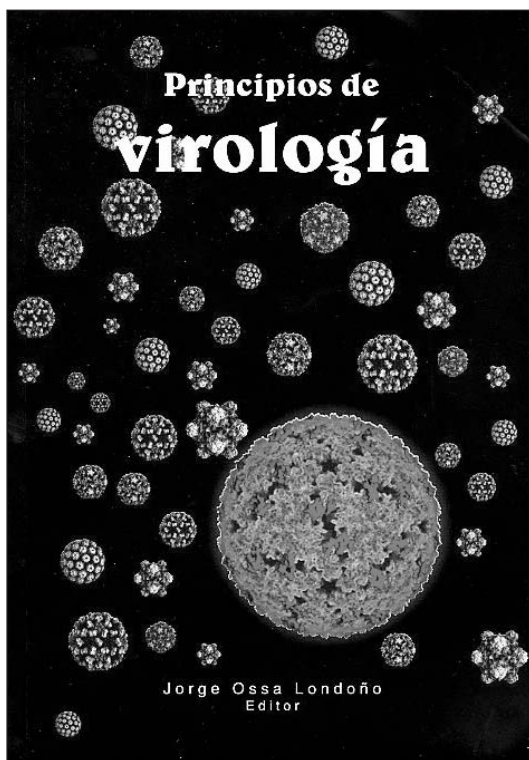
Cocksackievirus B3 image is a computer representation derived from x-ray coordinates. The GRASP protein molecular surface is radially depth-cued to visually highlight surface features. The canyon is clearly evident. Note that the canyons are not continuous around the 5-fold icosahedral axes.

JEAN-YVES SGRO



Structure of the cucumber necrosis virus (CNV) particle, showing areas of the capsid important in fungal vector recognition. Areas in white correspond to amino acid residues in the particle quasi-threefold axis that are mutated in naturally occurring CNV transmission mutants. The mutations also affect attachment to the outer membrane of the fungal zoospore, suggesting a role for these sites in receptor recognition.

JEAN-YVES SGRO



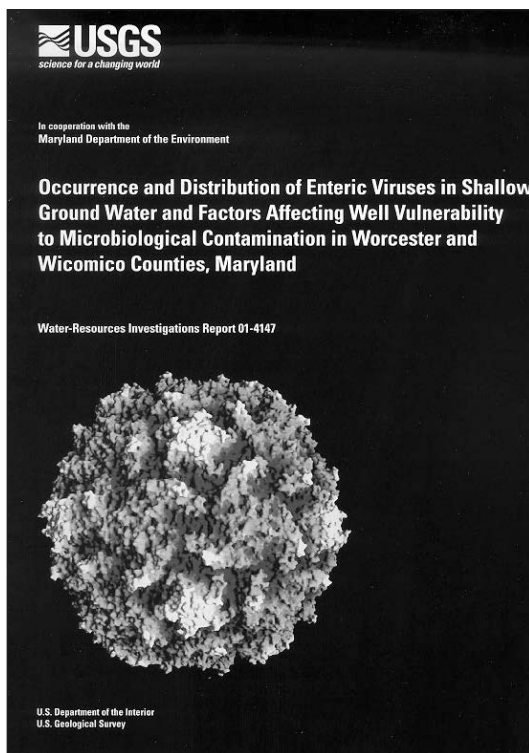
Many virus images. Sizes are not to relative scale. The larger image is that of foot-and-mouth disease virus (FMDV), shown as radially depth cued. In reality this virus is not larger than the other viruses represented here. The dark surface represents the location of the highly antigenic loop (residues 134 - 157 on protein VP1) which was disordered in previous crystallographic attempts.

JEAN-YVES SGRO



Largest and smallest complete viral particles solved by X-Ray crystallography. Both structures are repented here to scale. The larger structure is simian virus 40, a Polyomavirus from the Papovaviridae family. The small structure is that of satellite tobacco necrosis virus.

JEAN-YVES SGRO

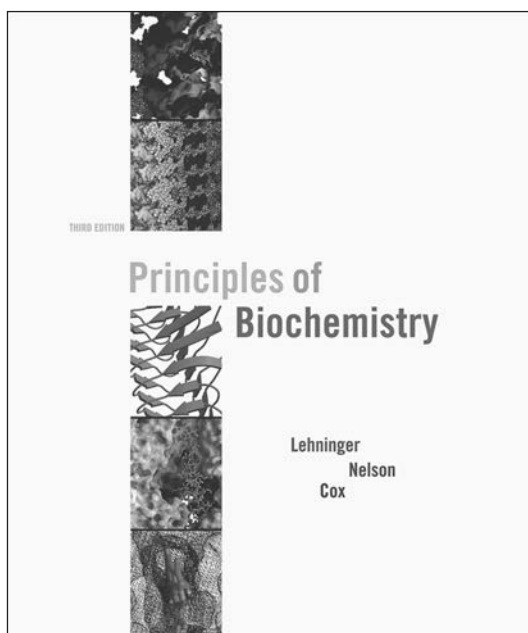


Molecular surface of Poliovirus Type 1 Mahoney, radially depth cued, as solved by X-ray crystallography.

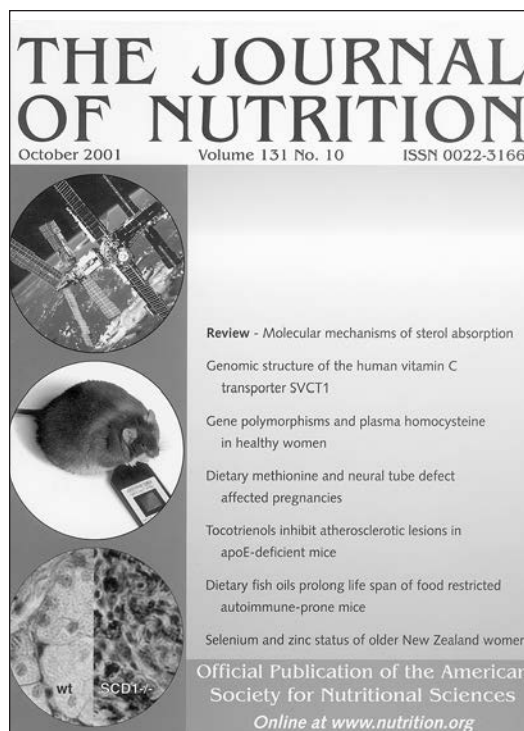
JEAN-YVES SGRO



Functional Genomics: the "Space Age" of genes and molecules.
Left: Hovering over a double helix of DNA, the bacteriophage "fd".
Top: The DNA III beta subunit.
Right: the green fluorescent protein (GFP).
Bottom: Kinase/peptide complex.
Design: Brian Kay and Jean-Yves Sgro



1st from Top: Close-up of a vertically sliced GroEL chaperonin, with ADP visible. 2nd from Top: Close-up of an axially sliced Tobacco Mosaic Virus, revealing the coiled RNA looping through the protein capsid. PDB_ID=1VTM. 3rd from Top: Close-up of a Beta sheet representation of the solenoid-shaped protein "UDP N-acetylglucosamine acyltransferase." 4th from top: Surface close-up of the Gamma subunit within the F0F1 structure (Bovine Mitochondrial F1-Atpase). 5th from TOP : Close up on the HEME (red) of Cytochrome C. Inserted within the molecular surface of the protein represented as a meshed surface.



Gene expression analysis using gene chips revealed changes in patterns of gene expression associated with obesity and diabetes, Sam Nadler and Alan Attie (middle image). Sebaceous glands of the stearyl-CoA desaturase wildtype and knockout mice. Makoto Miyazaki, Weng Chi Man, and James M. Ntambi (bottom image). Journal design: Robin Davies

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Address correction requested