Hello, CMB alumni. Maybe to some, a 42 degrees F (6 degrees C) temperature in May seems unseasonable as well as unreasonable for this time of year. Unless, of course, you were here on the UW-Madison campus over the last winter which is already becoming known as “The Long Winter”, “The Bad Winter”, and “The Winter With Quite A Bit Of Snow”. The last term is particularly apt, as Madison saw the previous recorded snowfall record—76.1 inches (193 cm) broken on February 13th, 2008, and the 100 inch (254 cm) mark passed on March 23rd, two days after the official start of spring.

Obviously, we are not strangers to a significant amount of snowfall, but 100 inches is a lot. How much? To put it into perspective, Manute Bol, the tallest individual to ever play in the NBA (1985-1995), was 91 inches (231 cm) tall. Thus, had he spent the past winter standing on the tarmac of the Dane County Regional Airport (where the official snowfall measurements are made) and had there been no shoveling, plowing, melting or sublimation of the snow for five months, Mr. Bol would have found the top of his head covered by some nine inches of snow (assuming he was barefoot and bald).

How have we been coping? After all, to the best of our knowledge, no one in the CMB program is remotely close to 91 inches tall, so even with shoveling, plowing, melting, and sublimation, being snowed under was a serious concern for many of us. One of the more common strategies was to remain indoors for much of the winter. The “stay indoors” approach goes back at least as far as the winter of 1880-1881, as described by Laura Ingalls Wilder in The Long Winter. This story recounts the efforts of the Ingalls family to survive a series of prairie blizzards that began in mid-October and did not subside until April. Professor John E. Miller notes that while the story contains some omissions and elisions, it is nevertheless “…a quintessential historical episode on the prairie…”.

The Long Winter takes place in South Dakota, the number of connections to Wisconsin are striking: A) The first book in the series penned by Wilder, Little House in the Big Woods, takes place in Wisconsin. B) The Professor Miller cited above, a historian, received his Ph.D. from UW-Madison. C) Ann Miller, Professor Miller’s daughter, is currently a Helen Hay Whitney Post-doctoral Fellow conducting cell division research at UW-Madison.

But to get back to the long winter of 1880-1881, Laura Ingalls Wilder, The Long Winter, Harper Collins, NY1940.

and her family spent as much time as possible in their home, devising novel strategies to stay warm and obtain nutrition, as the almost-constant-blizzards stymied the usually resourceful Pa Ingalls in his efforts to obtain food. For months on end, the family ate nothing but frozen potatoes and, when those ran out, wheat ground in a coffee grinder.

To compare the experience of the Ingalls family to that of a typical CMB lab, I spoke with Rob Kalejta, whose lab is situated on the sixth floor of the Bock building. Rob is a CMB trainer and an Assistant Professor of Oncology. In the course of our conversation (excerpted below), he had much to say on winter survival, architecture, nauticalism, and mentoring graduate students.

Q. “Rob, in The Long Winter, Laura Ingalls Wilder writes that the Ingalls family was on the edge of starvation for several months in a row, due to the near-constant snow fall that kept them trapped in their house. How did you and your lab deal with this issue during the near constant snow of Madison’s ‘Long Winter’?”

A. “Well mostly what we did when we got hungry was go downtown to the sub-basement.”

Q. “I see. And how did that help?”

A. “The sub-basement is where the vending machines are.”

Q. “Ah, what a great idea. One cannot help but wonder why this never occurred to Pa Ingalls. What are your thoughts on that?”

A. “I can think of a couple of reasons. For one, it is my understanding that many of the original prairie settlers did not typically build sub-basements and, indeed, the houses of some of them even lacked a primary basement. So maybe it was as simple as ‘no sub-basement, no vending machines’.”

Q. “Excellent point. What is the second reason?”

A. “Well, even if the Ingalls family did have a sub-basement, it’s a good bet the vending machines would have had trouble with the big coins they had back then. For example, the 1880 Morgan Silver Dollar had a diameter of 1.5 inches (3.8 cm), whereas the modern ones, be they Susan B. Anthony’s, Pocahontas, or the ones being issued right now are all about 1 inch exactly (2.5 cm). It’s hard to imagine that you’d have any kind of success trying to get a one-and-a-half inch coin into a one-inch slot.”

Q. “Another excellent point. Speaking of success, Rob, you and your students have been doing quite well of late. I notice that Ryan Saffert (CMB incoming class of 2003) has first author papers in the Journal of Virology in 2006 and 2007 while Adam Hume (CMB incoming class of 2004) has a first author paper in Science that was published in May of 200812. To what do you attribute your success?”

A. “Part of it, a big part, is having great students. But part of it is also my mentoring style. I put a lot of effort into my mentoring. When I was younger, I was a big fan of things like The Karate Kid and that old TV series, Kung Fu. They appealed to me because of the fact that they stressed the importance of mentoring and how one can train students in a particular ‘style’ or ‘system’. There are a variety of styles, many of which are based on observation of animals. For example, from the tiger we learn tenacity and power. From the snake we learn suppleness and rhythmical endurance. From the dragon—well, I forget what we learn from the dragon. In any case, I myself have spent years developing what I call the White Crane system of mentoring. When properly done—no can defend!”

Rob graciously agreed to allow me to photograph him demonstrating the White Crane system (Figure 1). As is readily apparent, this is a powerful approach to graduate training.


2 R.T. Saffert and R.F. Kalejta. 2007. Human cytomegalovirus gene expression is silenced by Daxx-mediated intrinsic apoptosis via integrins, receptors that link the cell’s cytoskeleton to the ECM proteins. Over the years, her research has evolved, taking an in vivo approach to look at the roles of cell-ECM interactions in tissues and organs. Specifically, the lab is interested in what controls organ shape and size. In an exciting recent discovery published in Genes and Development, her lab has found that transcriptional regulation of two integrin genes controls gonad development in C. elegans. Importantly, these genes are also found in humans, suggesting that they may play a role in human development. Dr. Schwarzbauer is now extending the theme of cell-matrix interactions to stem cells. As understanding stem cell differentiation is one of the key questions in modern day science, the Schwarzbauer lab is now working to solve this mystery by investigating how the ECM may direct stem cell differentiation. Dr. Schwarzbauer’s successful scientific career is also evidenced by her many honors and awards, including the American Heart Association Established Investigator Award and the March of Dimes Basil O’Connor Award. She has also chaired several Gordon Conferences and held many elected positions for the American Society for Cell Biology (ASCB). Dr. Schwarzbauer fondly remembers her days in Madison. She met her husband, Donald Winkelmann, who was pursuing a Ph.D. in physical chemistry, while she was a Ph.D. student at the time. She also recalls biking to work, trips to get ice cream in the summer, and cross country skiing in the Arboretum in the winter. She hasn’t forgotten her Wisconsin roots, as she still displays a poster depicting the top of the Statue of Liberty on Lake Mendota and also enjoys introducing brats to east coast friends.

Figure 1. Rob Kalejta demonstrates the “White Crane” system of mentoring on Adam Hume, one of his graduate students.
By Megan McGlone

The UW-Madison campus is changing rapidly every day; blink and a whole block has been leveled; look to your right and a luxury student housing skyline has appeared. Bock Laboratories still remains much the same, and of course is still the home of CMB, but it bears witness to the changes all around and is going through changes of its own. The landscape all around Bock is changing—as the old Biochemistry building is about to be torn down in our southern view and a brand new interdisciplinary Microbial Sciences Building, dedicated to the promotion of collaboration between three different departments, popped up out of our north facing windows. We’re also seeing changes on the inside, as our beloved building manager, John Bade, has left the building—enjoying a hard earned retirement after nearly four decades in Bock Labs. This year, as we bid a fond farewell to a long-time friend and resident, we also welcomed 10 new ones—Dr. Patricia (Patti) Keely and her lab. Keely Lab members include: David Inman, Suzanne Ponik, Matt Conklin, Scott Gehler, Paolo Provenzano, Steve Trier, Kristin Riching, Carolyn Pehlke, Aditi Bajekal, and Nayon Kang.

The sciences at UW-Madison, as well as most disciplines in the University, are moving toward a spirit of interdisciplinarity in their buildings, departments, and programs. As CMB was one of the first of its kind in multi-disciplinary graduate training in molecular biology, it is no stranger to a collaborative approach to scholarship and research. CMB trainer Patti Keely, as the newest resident of Bock Labs, embodies the spirit of interdisciplinarity and collaboration.

Dr. Keely is an Associate Professor in the Department of Pharmacology, and is affiliated with programs all over campus—she is a CMB trainer; as a PI in Molecular and Environmental Toxicology, Biomedical Engineering, Cancer Biology, Molecular Biology, and Molecular and Cellular Pharmacology; as well as Co-PI for LOCI, the Laboratory for Optical and Computational Instrumentation. As the recipient of many honors, including the Shaw Scientist Award, and the Susan G. Komen AACR Career Development Award, her dedication to training and collaboration provides all her students and colleagues with the opportunity to learn and benefit from her years of dedication to excellence in research and scientific discovery. In her lab, which consists of a close team of ten scientists, research is conducted in the areas of Cancer Biology, Cell Structure, Extracellular Matrices, Cell Migration, and mechanical signal transduction, focusing on understanding how breast cell interactions with the extracellular matrix through integrins and small GTPases affect normal and carcinogenic cell phenotype.

Dr. Keely’s training in college and graduate school focused on cell biology and cancer research; however her research has much closer to home. When she was doing her undergraduate studies at the University of Minnesota, she was diagnosed with Hodgkin’s lymphoma. She successfully fought the lymphoma with radiation and chemotherapy, however, these treatments may have brought about another complication. In 2006 Patti was diagnosed with esophageal cancer, probably caused by her previous radiation therapy. Again, she fought the esophageal cancer with the help of aggressive and outstanding surgical intervention at UW Hospitals. In her fight she also found a new way to contribute to research on cancer biology and treatment, as she enrolled in a clinical trial at the Mayo Clinic to try an experimental drug to prevent the recurrence of esophageal cancer. She has now been cancer free for over two years and has a promising prognosis.

Dr. Keely’s experiences fighting cancer have made her sympathetic to the struggle cancer patients face, as she has been in their shoes—searching for all available options, getting second opinions, and receiving treatment. All the people in her lab also have a deep personal understanding of the reality of cancer as they have seen the human side of the disease, and have an acute awareness of the importance and relevance of their life saving work.

Looking forward to the future, Dr. Keely is working with LOCI to develop advanced optical and computational techniques for imaging and experimentally manipulating living specimens, hoping to develop new ways to find and view breast cancer in vivo, to help in diagnostics and research, and move closer to more stories of successful treatments and cures.

CMB Trainer James Thomson Drives Stem Cell Focus at UW

By Emily Vaughan, 4th year CMB student

UW-Madison is regarded as a major center for stem cell research, and this recognition has much to do with the work of James Thomson, Professor of Anatomy and CMB trainer. Thomson is among the more than 40 researchers that are currently part of UW’s Stem Cell and Regenerative Medicine Center. Thomson has been a leader in the field of stem cell research since 1998 when his lab was able to isolate and culture human embryonic stem cells in a discovery that was named “Breakthrough of the Year” by Science magazine.

Thomson’s success has continued over the last decade, more recently with a publication in 2007 showing four factors that are sufficient for reprogramming human adult somatic cells to become induced pluripotent stem cells (iPS). These cells are like human embryonic stem cells in their ability to differentiate into different cell types (Yu et al., 2007. Science 318, 1917). This discovery is critical for the advancement of the field at a time when the use of embryonic stem cells is particularly controversial. In fact, this May, Thomson was named one of Time magazine’s Top 100 Influential People of 2008 because of the importance of this work. Thomson was also one of 72 people elected to the National Academy of Sciences this year, which is one of the greatest honors for American scientists.

Thomson will now play a key role in the future of science research on campus, as he has been named Director of Regenerative Biology at the Morgridge Institute for Research (MIR), the privately funded portion of the Wisconsin Institutes for Discovery (WID). The new center is under construction and will be located at the 1300 block of University Avenue and is scheduled to open in 2010. The $150 million WID/MIR facilities have been designed to facilitate collaboration between the fields of biology, math, engineering, and information technology. In addition to providing opportunities for interaction between disciplines, the center will also provide space for visiting scientists across the globe to conduct research in collaboration with UW scientists. An executive director and other scientific directors at MIR are expected to be named in the future. The appointment of Thomson as a research director at MIR indicates that UW will continue its tradition as a leader in the field of stem cell research.


Distinguished Alumni Speaker: Dr. Chloe Bulinski

By Josh Snow, 3rd year CMB Student

The mission of the CMB Alumni Relations Committee is to maintain a connection with CMB alumni and help them prepare for those careers.

For nearly two years, the PDC has hosted Career Option Panels where Ph.D.s discuss their jobs, answer questions, and give advice to students. Panel members include professors and post-docs from Research 1 institutions, scientists from large and small biotechnology companies, and graduates working in science policy, science writing, and patent law.

We have also hosted guest speakers who discussed topics including research ethics, tips for successful completion of a Ph.D., and the Delta Program in Research, Teaching, and Learning; and co-sponsored last year’s Distinguished Alumni seminar with the Alumni Relations Committee.

Finally, the PDC also tries to connect CMB students with other career development events and resources on campus.

We would like to thank everyone whose efforts have made our events possible, especially the CMB alumni who participated as career panel members and guest speakers: Dr. Laura Heisler, Dr. Amanda McQuade, Dr. Christine Pfund, and Dr. Ahna Skop. Your insights, guidance, and personal stories have been an invaluable resource.

If you would like to be a member of a future career panel, have any advice for current CMB students, or would otherwise like to help in their professional development, please contact the CMB Office at cmb@bocklabs.wisc.edu

Giving to CMB

I/we wish to join other alumni and friends in supporting the Cellular & Molecular Biology Graduate Program

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Josh Snow, 3rd year CMB Student (Judith Kimble Lab)
Neema Sales, 5th year CMB Student (Robert Blank Lab)

Campus photos: Neema Sales
Photo Collage Design: Leanne Olds, Bock Labs Illustrator

Do you know the whereabouts of these CMB graduates? Please send any information (i.e. current employment, e-mail address, telephone number, and/or mailing address) you might have to: cmb@bocklabs.wisc.edu

Lost Alumni

Ganesh Vasudevan 2004
Anne Johnson 1979
Eric Humphries 1974
Alan Warth 1968