



Summer 2005

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Recommended Citation

West, Nancy (2005) "Penn Veterinary Medicine Alumni Discover Rewarding Careers in Biotech," *Bellwether Magazine*: Vol. 1 : No. 62 , Article 23.

Available at: <https://repository.upenn.edu/bellwether/vol1/iss62/23>

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Penn Veterinary Medicine Alumni Discover Rewarding Careers in Biotech

By Nancy West

During the past decade, growth in the biotechnology industry has exploded with U.S. revenues increasing nearly fivefold, from \$8 billion in 1992 to \$39.2 billion in 2003. During roughly the same period, research and development spending in the U.S. biotech industry more than doubled from \$7 billion to \$17.9 billion, while the number of biotechnology patents granted per year more than tripled from about 2,500 in 1992 to nearly 7,800 in 2002. Employment in the industry soared from 103,000 in 1994 to more than 198,000 in 2003.

Attracted by a wide range of opportunities, a growing number of Penn Veterinary Medicine alumni are finding rewarding careers in biotechnology where they enjoy the advantages of a resource-rich industry and entrepreneurial spirit as well as the excitement of research and discovery that has the potential to enhance human and animal health.

Following are the stories of three Penn alumni who have found success and fulfillment in the biotechnology field.

Douglas J. Ringler, C'79, V'83: *A Promising Therapy for Type I Diabetes*

During his teenage years in upstate New York, **Doug Ringler, C'79, V'83**, worked at a mixed veterinary practice where a large number of the patients were dairy cows. He loved the experience and had every intention of joining the practice after finishing veterinary school. Instead, he joined a small-animal practice in Boston and, after just a few months, made a discovery that was surprising even to him. Although he enjoyed veterinary practice, he wanted something more.

"I quickly found myself looking for the next challenge in my career," Dr. Ringler recalls. "I wanted to work on new goals that would complement what I had already experienced, so I decided to return to academia."

After completing a residency and a post-doctoral fellowship in pathology at Harvard Medical School, Dr. Ringler joined the school's medical faculty. During his 10 years at Harvard, he ultimately served as associate professor of pathology and chairman of the Division of Comparative Pathology, and directed a pathology lab of 20 pursuing research in inflammatory mechanisms.

In 1993, Dr. Ringler decided it was time to move on to the next phase of his career—translating basic research findings into the clinical

venue. That year, he ventured into the biotech industry as a founding scientist and executive officer of LeukoSite, Inc., a biotech company focused on the development of therapies to alter immunological responses.

Five years later, the successful company was sold to Millennium Pharmaceuticals, which marketed two products based on the research and development done by Dr. Ringler and his colleagues, including Campath®, a monoclonal antibody for refractory chronic lymphocytic



Douglas J. Ringler

leukemia, and Velcade®, a treatment for multiple myeloma. Another biotech firm, Genzyme, acquired the rights to and is now developing Campath® as a treatment for multiple sclerosis.

Today, Dr. Ringler is president and CEO of TolerRx, a biopharmaceutical company he co-founded in 2000 to focus on the discovery, development, and commercialization of novel therapies to treat patients with immunological diseases, including Type I diabetes, psoriasis, and hemophilia A.

"We are now moving toward Phase III testing in humans with a monoclonal antibody that we believe can very significantly change the disease course in Type I diabetics," says Dr. Ringler, noting that an article will soon appear in the *New England Journal of Medicine* about these unprecedented findings.

"Knowing that your efforts are benefiting others is tremendously rewarding," he says. "We expect this product to modulate the disease course in children, young adults, and adults with Type I diabetes. We hope to significantly reduce the side effects from the disease that are largely vascular related."

TolerRx is also running Phase I clinical trials on the same product for the treatment of

psoriasis, and expects to begin Phase I trials this year with a second product designed to induce tolerance in transplantation, autoimmune diseases such as lupus, and clinical situations where the immune system attacks therapeutic proteins or biologic drugs, such as Factor VIII in hemophilia A.

"Biotech is a terrific career path for a veterinarian," says Dr. Ringler. "Very few careers give you the opportunity to participate in drug discovery and development at all levels of the process. You can start at the bench and take it all the way to the patient's bedside, which is tremendously rewarding. Veterinary training, especially at Penn, gives you a unique perspective that is very valuable in this process."

Mark J. Pykett, V'91, PhD'94, MBA: *Developing CNS Diagnostics and Therapeutics*

The research lab was always the end goal for **Mark Pykett, V'91, PhD'94, MBA**. Now president and chief operating officer of Boston Life Sciences, Inc., a biotechnology company focused on research and clinical development of diagnostic and therapeutic products for central nervous system (CNS) disorders, Dr. Pykett says that he was motivated to attend veterinary school for his training because he believed it would give him the best, broad-based training. He was not disappointed.

"I chose Penn because of the Veterinary Medical Scientist Training Program," he says. "I liked the fact that this combined VMD/PhD degree program was well integrated between the vet school and the graduate research environment."

Dr. Pykett also believed that the diversity of species, conditions and diseases encountered in veterinary school would provide him with better interdisciplinary approaches, better translational capabilities, and a better ability to think outside the box and extrapolate findings between species.

After completing the program and a post-doctoral fellowship at Penn, he moved on to Harvard School of Public Health, where he completed a second post-doctoral fellowship on the molecular basis of cancer and then held an adjunct faculty position for five years.

Dr. Pykett expected to remain in an academic career, but switched gears when he became interested in Boston's hot biotechnology industry. "While at Harvard, I had the opportunity to see the entrepreneurial side of medical research," he

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recalls. “At about the same time, I learned about a technology that I thought had interesting prospects as the seed for a biotech company.”

Together with the inventor of the technology and a colleague from Penn, Dr. Pykett co-founded and served as president and CEO for Cytomatrix, a startup company that focused on developing cell therapeutics. Later, he served as president of Cordlife, a cell therapy biotech company that acquired his successful company,



Mark J. Pykett

and of CyGenics, a global adult stem cell and cell therapy biotech company.

Since 2004, he has overseen operations at Boston Life Sciences, Inc. (BLSI). He also serves on the board of directors of several public and private biotech companies. The current lead product in the BLSI pipeline is ALTROPANE®, a diagnostic imaging agent for the early diagnosis of Parkinson’s disease, which is currently in Second Phase III clinical trials. “Our goal is to show that ALTROPANE® will improve the medical community’s ability to differentiate Parkinson’s disease from non-Parkinsonian movement disorders,” says Dr. Pykett. ALTROPANE® is also in Phase II clinical trials for use in objectively diagnosing attention deficit hyperactivity disorder (ADHD). Other products in the pipeline include a nerve growth factor for the treatment of stroke and spinal cord injury and a novel DAT (dopamine transporter) blocker for the treatment of Parkinson’s disease.

“The challenge of bringing innovations through the entire development and commercialization process that, hopefully, will lead to a product that can enhance the lives of many people is extremely rewarding,” states Dr. Pykett. “The biotech industry offers a host of benefits

to veterinarians who are interested in research,” he notes. “In smaller biotech companies, you have the opportunity to be entrepreneurial and innovative and play a leadership role very early in your career. For me, the incentives, flexibility, and autonomy in the biotech industry, combined with the opportunity to do innovative work that moves at a rapid pace, have brought a tremendous amount of career satisfaction.”

Kenneth L. Mohn, V’88, PhD’91:

Research and Discovery in Large Pharma

As a boy growing up at the edge of the Pine Barrens in Tom’s River, N.J., **Ken Mohn, V’88, PhD’91**, spent a lot of time in the woods catching snakes, lizards, and other creatures, observing them for a while, then letting them go free. “I always loved animals and related well to them,” recalls Dr. Mohn. “Everyone said, ‘You should be a veterinarian.’ But I wanted to be a Marlin Perkins or Jacques Costeau. That seemed more exciting.”

Nevertheless, Dr. Mohn decided to pursue a veterinary career. “I grew up in a strong Christian home and I believed that was God’s direction for my life,” he says. While pursuing an undergraduate degree in animal science at Rutgers University, he had the opportunity to work on a highly successful honors research project. That experience ignited his interest in a career that would combine his love of animals and research.

“In the midst of that project, I was applying to veterinary schools,” explains Dr. Mohn. “When I saw the Veterinary Medical Scientist Training Program in Penn’s brochure, I knew that was the place for me.”

While in school, he completed a lab animal medicine rotation at Merck. “I was intrigued by the pharmaceutical industry and the opportunity to do practically oriented research in a well-funded organization,” he states. In 1992, he joined Merck’s Basic Animal Science Research group, which focuses on the development of novel veterinary pharma products.

Serving first as a research fellow and then research veterinarian during the past 13 years, Dr. Mohn has worked on a wide range of projects, from allergy treatments for dogs and cats to feline dental products to growth promotants for pigs and cattle to poultry products, and even some human-health products.

Currently, he is in charge of a parasitology laboratory looking for a broad spectrum anti-

parasitic drug with the potential to take the place of ivermectin.

Dr. Mohn holds a patent for a product developed to treat feline dental resorptive lesions, which he is hopeful will reach the marketplace. He also takes pride in his contributions to a reproductive control project in which his veterinary training played a key role. “My observations evolved into an exciting program to develop a reproductive control vaccine targeted primarily to the pork industry,” he says.



Kenneth L. Mohn

Dr. Mohn enjoys the fact that, in addition to research, he is also responsible for the health of horses, cattle, swine, chickens, and sheep residing at Merck’s 200-acre research farm where he has worked for the past five years. “I really missed the hands-on contact with animals when I was just working in the lab,” he relates. “Now I have the opportunity to treat a horse or a cow and to run some *in vivo* studies while maintaining a productive *in vitro* laboratory. . . it’s the best of both worlds.”

Dr. Mohn has found his veterinary training invaluable throughout his career. “I’ve led many multidisciplinary project teams because of my diverse training,” he notes. “It helps tremendously in understanding the process for which we’re trying to develop a therapy and for developing valid animal models.”

The rewards of research work at a large pharma company are enormous, he says. “In addition to significant financial benefits, you have huge opportunities to be creative and apply your veterinary skills to pursue a goal that may have a very significant impact on animal health worldwide and contribute to human health as well. It’s exciting to think that your discoveries may ultimately change the way people practice medicine.” ■