

A Conversation with Mitchell Albert, PhD Harvard trained scientist recruited to Thunder Bay

Q: What is your scientific background?

A: I did my undergraduate study at the SUNY College at Purchase, and became interested in what we would call neuroscience. I was unhappy with the rather indirect techniques used in those days to study the brain, such as the EEG. I remember telling myself, and my skeptical friends and mentors that I would invent a new means to more directly study brain function. I have been really lucky in that those dreams of youthful bravado may actually be close to being fulfilled through the further development of one of my inventions. Of course, neuroscience has not stood still in the meantime, it is quickly transforming.

I did my graduate studies at Stony Brook University, where I received my Ph.D. in Physical Chemistry. In 1995, I joined the faculty of Harvard University, holding a research appointment at Brigham and Women's Hospital in Boston, one of the hospitals associated with the Harvard Medical School. As part of my Ph.D. research, I had, along with others, invented a new type of MRI which used hyperpolarized noble gases. At Harvard, I continued my research on HP gas MRI. The immediate usefulness of the technique has been in investigating the lungs, and may become established as a new clinical tool. In 2006, I became Professor and Director of MRI Research at the University of Massachusetts Medical

School, where I led a multidisciplinary team of scientists in advanced MRI research.

Q: What is your research specialty?

A: I am a specialist in the field of hyperpolarized (HP) noble gas MRI, a multidisciplinary technology that integrates discoveries in physics, chemistry, engineering, and biology. I co-invented this technology as a graduate student at Stony Brook University, demonstrating the first ever HP 129Xe MR imaging of the mouse lungs, which was published in Nature. I am now a Research Chair at TBTRI and a Professor at Lakehead University. My research group will focus on developing HP 3He and 129Xe MRI to image ventilation in the airways and alveoli of the lungs, which has important applications to respiratory diseases, including asthma and COPD. We are also developing the use of HP 129Xe MRI to image stroke, and to use xenon biosensors to probe for cancers, vulnerable atherosclerotic plaques, and brain injuries. Another extremely important area that I am excited about pursuing at TBTRI, is the further development of HP gas MRI as a tool for cancer diagnosis and treatment guidance.

Q: Why did you decide to come to Thunder Bay?

A: I have always been fond of Canada, and Canadians. There was a two decade period, from the mid-

1980's during which I vacationed in the Maritime Provinces, especially Newfoundland, every other year. Indeed, on whim, we would jump into a car and drive 500 miles to Toronto. When TBTRI was mentioned to me, I saw at once that it had all sorts of attractions. It was new, and seemed to be organized by people who were far-seeing and vigorous. There was a spirit of adventure in our initial conversations and Thunder Bay seemed destined to become a center of scientific research excellence. Now that I am here, and I am even more convinced of that. I believe that TBTRI will offer me the opportunity to further develop HP noble gas MRI, and will facilitate translation of this technology to clinical applications. One of the things that really sold me on Thunder Bay is the tremendous quality of the scientists here, and their limitless enthusiasm. There is also a culture of collaboration and cooperation. Living here will also allow me to indulge my cravings for driving, hiking and scrambling, to the utmost.

Q: What are your immediate research and other goals, and what, in particular, do you hope to accomplish at TBTRI?

A: At TBTRI, I hope to continue to develop and perfect HP gas MR imaging of the lungs and brain, working closely with clinicians and corporate partners such as Tornado Medical Systems. Our ultimate goal is

to bring this powerful technology into wide-scale clinical translation. I hope that it will become a clinical technique that will benefit patients in Canada and throughout the world who suffer from a range of diseases of the lung and brain. I believe we should particularly target asthma, COPD, cystic fibrosis, lung cancer, breast cancer, brain cancer, and stroke. Cancer is currently the leading cause of death in Canada, stroke is the third leading cause, while chronic lower respiratory disease is fourth. Advances in imaging technology that can better detect and treat of these conditions with significant benefits to our society. I feel privileged to pursue these goals at TBTRI.

Q: Has your research had an international reach? Have you travelled to other countries to present papers, or to pursue collaborations with foreign teams of scientists?

A: I have travelled extensively throughout North America, Europe, and Asia in the course of my research career. One region of particular interest to me in terms of scientific collaboration is Asia. I have travelled to Japan and to China many times, and I have an ongoing collaboration on MRI research and clinical translation with scientists at the Wuhan Institute of Physics and Mathematics at the Chinese Academy of Sciences in Wuhan, China. I champion cross-fostering of North American and



Photo by Aaron Tator

Mitchell Albert, PhD, is a new Research Chair, jointly recruited by Thunder Bay Regional Research Institute and Lakehead University.

Chinese scientific enterprises, which I believe will be increasingly important to both of our cultures and economies in coming decades. I also champion the benefits of interdisciplinary research together. This is a mission I will continue to champion at TBTRI.

Q: Can you recall a particularly significant moment in your career?

A: A moment that I felt was particularly significant to me was when I received the 1999 Presidential Early Career Award for Scientists and Engineers (PECASE) from President Bill Clinton. I also was awarded the NSF Career Award in 2001 for my work with HP gas MRI.



Rita Costanzo, President, Ladies of the Italian Society of Port Arthur, along with Vice-President Lena Gazzola and Rose Quaresima present Glenn Craig, President & CEO of the Health Sciences Foundation, with a donation of \$4,500 to the Northern Cancer Fund.

The Italian Ladies Society of Port Arthur recently held their annual Spring Tea. The delightful afternoon of tea, sandwiches and desserts successfully raised \$4,500 for the Northern Cancer Fund of the Thunder Bay Regional Health Sciences Foundation. With this year's contribution the ladies have donated an impressive \$49,500 to the Northern Cancer Fund. 100% of all funds raised are dedicated to supporting excellence in cancer care in Northwestern Ontario.

The Health Sciences Discovery Fund:

Fuelling Local Research – And Our Local Economy

Dave Knutson, an engineer at GENIVAR, said that he and his wife Bev donate to the Health Sciences Discovery Fund because supporting the fund helps research and Thunder Bay on so many levels, giving more "bang for the buck".

"What interested me was that research is attracting more and more bright minds to our community," Knutson said. "The concepts were intriguing with a mix of pure and applied research."

That is the ultimate goal of the Health Sciences Discovery Fund: to support all levels of research from the early stages of theoretical research to creating new treatments, techniques, and equipment that directly benefit patients. It is a separate fund set up by the Thunder Bay Regional Health Sciences Foundation specifically to support local research efforts.

Although the fund itself is relatively new, it has strong roots. This fund evolved directly from the former Northern Cancer Research Foundation (NCRF); it was cancer research that started the research snowball rolling in our city in the early 1990s. Today, that commitment to supporting research has expanded into other areas of medicine including digital imaging.

And that continued commitment shows. Research has a growing impact on the community and the region, Knutson said. Communities with world-class healthcare research activities tend to be healthier themselves. Not only that, but research also attracts more research – the snowball keeps on rolling.

Knutson said that these are their primary reasons for supporting the Health Sciences Discovery Fund.

"Pursuing medical research of any kind raises the standard of healthcare for residents within the community," Knutson said. "Not only does research provide new techniques and equipment, but it attracts highly-capable, motivated healthcare professionals."

Case in point, the Thunder Bay Regional Research Institute's newest scientist, Dr. Mitchell Albert. Dr. Albert will be instrumental to state-of-



Dave Knutson believes medical research in Thunder Bay has wide-spread benefits for the people of Northwestern Ontario.

the-art MRI research programs at the TBTRI.

That snowball brings clear economic benefits for the city and region too.

"The type of research going on here has the potential to attract private firms to commercialize the technology developments," Knutson said. Tornado Medical Systems, a multi-national medical imaging company, is one prime example. The company announced in 2010 that it would be moving into the Whalen Building this year to set up a product development facility, right here in Thunder Bay.

When you donate to the Health Sciences Discovery Fund, you help make all this happen: world-class research right here in our city, higher levels of healthcare for you and your loved ones, and a growing knowledge-based economy. More bang for your buck indeed...

For more information or to make your donation, please visit the Thunder Bay Regional Health Sciences Foundation website: www.healthsciencesfoundation.ca

Together, we are bringing Discovery to life.

Rory Cava is Prostate Man

By Tracie Smith

You'd probably recognize him if you saw him. He can be found at the office, at the arena, or on a larger than life billboard on Water Street. He's Rory Cava - and he is Prostate Man.

Rory already had a connection to the campaign in that his father had prostate cancer. Fortunately, he was diagnosed early and treated successfully. So, when Rory was approached to participate in the Prostate Man campaign, he was eager to help. "When it comes to prostate cancer I know first-hand how important awareness and early detection is," explains Rory. "I'm proud to be a part of a campaign that's doing such a great job of getting the word out there."

Being Prostate Man means living the lifestyle. Be proactive about your health – stay active, eat healthy, and get checked regularly. Rory walks the talk in all respects.

A hockey player since childhood, Rory understands the importance of living a healthy lifestyle. He has played on the semi-pro level, and was on the Twins hockey team that once resided in Thunder Bay. Although he hasn't played in about 20 years, he still remains dedicated to the sport. He has held the position of President of the Lakehead Varsity Thunderwolves for 7 years now.

"Keeping active is very a very important factor in living a healthy lifestyle," Rory says. "I think it's crucial to eat healthy and get enough exercise, especially as we get older." Rory keeps active by cycling and is also an avid runner. He didn't let his fifties slow him down – at 51 he is still participating in marathons.

While some people may have been hesitant to participate in such a public campaign about prostate cancer, Rory thinks it's been great. "A lot of people have come up to me and said that they saw my billboard, or caught me on TV. It's been a lot of fun to be recognized," he says. "It's encouraging to see that the Prostate Man campaign is having such an impact. People are noticing, and they are making the connection to prostate cancer and awareness."

Rory is a Prostate Man, but he

RORY IS PROSTATE MAN

I never miss a game!

Rory is the best hockey supporter in town. He's not on his skates so much anymore, but he keeps his superhero dreams alive with plenty of running time, bike time, and fan time. He doesn't let the spare tire catch up.

Rory's tough enough to endure the fragrance of the Thunderwolves' dressing room, and he's tough enough to take it like a man.

Every man is Prostate Man – Talk to your healthcare provider and join the team.

www.prostateman.com

isn't the only one. Every man is Prostate Man! "The message is simple," says Rory. "Be proactive about your health and get checked – prostate cancer has a high survival rate if detected early. I get checked regularly, and I encourage everyone else to do the same."

Your coach, your student, your daughter.

Help the people of Northwestern Ontario live longer and enjoy a better quality of life. Your donation supports world-class medical research here at home.

Together, we bring discovery to life.

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