
Dr. Reinhart Reithmeier Councillor, CSBMCB



Reinhart Reithmeier

I was always interested in exploring. Growing up in the countryside on the out-skirts of Ottawa provided plenty of opportunity. My parents are great nature-lovers and they encouraged me to develop my interest in biology. A scholarship from a local golf course where I worked every summer helped me to attend Carleton University. I switched from chemistry to biology and finally settled on biochemistry as my major. Stan Tsai patiently supervised a rather inept 4th year undergraduate student. I graduated in 1972 in the first biochemistry class of five. Attending a small school where you got to know the professors and they got to know you was the best start I could have made in a

university career.

I got a real taste for research working as a summer student at the NRC labs in Ottawa with Mak Yaguchi and Lou Visentin. These dedicated scientists worked hard and helped foster my passion for research. At the NRC I developed a keen interest in protein structure. I applied to a number of graduate schools, but no one contacted me until I was awarded an MRC Studentship, then the phone rang off the hook. I decided to attend the University of British Columbia to work with Phil Bragg on bacterial membrane proteins. Little was I to know that membrane proteins were to occupy my research life.

In 1976, on the advice of Dennis Vance, I started my postdoctoral studies on the red cell anion transporter with Guido Guidotti at Harvard University. I was lucky to win an MRC Postdoctoral Fellowship because at the time funding was very tight. Everyone will tell you that the post-doctoral years are the best and they certainly were for me. No grants to write or review, no teaching, no administration—just research. In the Guidotti lab it was sink or swim. Here was where I learned to be an independent researcher.

I really love Canada and after two years I decided to return and do a second postdoctoral fellow-

ship with David MacLennan in Toronto who was working on muscle membrane proteins. David allowed me to work on some major projects in the lab with the help of Stella DeLeon and Vijay Khanna, who taught me what technical competence was all about.

I enjoyed the MacLennan lab very much but after about a year David said it was time for me to get out on my own. That was in 1979. There were no jobs, so I wrote to several Biochemistry Departments across Canada, asking them to sponsor me for an MRC Scholarship. John Colter, Chairman of the Department of Biochemistry at the University of Alberta, was very enthusiastic and pointed out that money was about to flow from the Alberta Heritage Foundation for Medical Research. I won the MRC Scholarship, so I was Alberta bound to run my own lab studying the structure of membrane transport proteins. John and other generous members of the department like Cyril Kay and Neil Madsen successfully guided me through my first tentative years as a principle investigator.

Six years later I moved back to Ontario to join a new MRC Group in Membrane Biology in the Department of Medicine at the University of Toronto organized by Mel Silverman. Toronto had great appeal since it had considerable strength in the membrane research area, with renowned researchers such as David MacLennan, Victor Ling, Jack Riordan, Aser Rothstein, Sergio Grinstein and Amira Klip. Again, with the support of the Department, an MRC Scientist Award and subsequently as a member of this MRC Group I was relatively free to pursue research on membrane proteins full-time. MRC and the Kidney Foundation have been very generous in supporting my research over the years, including a sabbatical year in the south of France with Jacques Pousségur where I learned about molecular biology and fine wine.

I have been very fortunate to have many excellent technicians, graduate students and postdoctoral fellows in my lab. Supervising bright, young people and helping them develop into independent scientists is the highlight of my career as a university professor and researcher. We still work on membrane transport proteins, although the focus has shifted from structural studies to molecular biological and cell biological approaches.

I have developed quite a passion for teaching over the years. I particularly like telling a room full of eager undergraduate students about the nuances of membrane proteins.

Administration comes upon university professors slowly but oh so steadily. What starts out as a light St. John's fog can quite quickly turn into a Vancouver downpour. But after a while you don't

mind getting wet. Serving on grants panels, editorial boards, lobbying for MRC funding, being a graduate coordinator overseeing 300 graduate students and a CSBMCB Councillor all at the same time can make for a very challenging but rewarding schedule.

My wife Kathleen Devlin and our son Nicholas have kept my life in wonderful balance.

Michel Bouvier Councillor, CSBMCB

Dr. Michel Bouvier was born in Montréal in 1958. In 1979 he completed a B.Sc. in Biochemistry at the Université de Montréal. Following his Ph.D. in Neurological Sciences at the same university in 1985, he joined the laboratory of Dr. Lefkowitz at Duke University as a post-doctoral fellow for four years. In 1989, he returned to Montréal as an assistant professor of biochemistry at the faculty of medicine of the Université de Montréal and as a scholar of the Medical Research Council of Canada. He became associate professor of biochemistry in 1993 and was promoted to the rank of full professor in June of 1997. In October of 1997, he became chairman of the same department and was awarded the Hans-Selye chair of Cell Biology. He is also an active member of the Groupe de Recherche sur le Système Nerveux Autonome and an associate member of the research centre of Sacré-Coeur Hospital in Montréal. He is the president of the Canadian Hypertension Society.

Over the years, his research program has focussed on the processes involved in signal transduction across biological membranes. In particular he studied the processes controlling the efficacy of the G protein-linked signaling pathways using the β -adrenergic receptor as a model. Special attention was given to the role of phosphorylation and palmitoylation of the receptors in controlling their responsiveness under normal and pathological conditions. These studies contributed to a better understanding of the molecular mechanisms involved in the altered β -adrenergic responsiveness associated with hypertension and heart failure. Additional studies using over-expression systems contributed to unravelling the negative intrinsic activity of a number of ligands (in particular β -adrenergic antagonists) thus leading to the emergence of the concept of inverse agonism. More recently, his work

provided evidence suggesting that G protein-coupled receptors could function as dimers and that compounds that inhibit dimerization could represent a new class of antagonists.

Dr. Bouvier is the author of more than 75 scientific papers and over 100 abstracts. In 1994, he became Scientist of the Medical Research Council of Canada. Recent awards also include the 1993 Joe Doupe young investigator award given by the Canadian Society of Clinical Investigation, the 1994 young investigator award from the Canadian Hypertension Society, the 1994 young investigator award from the Club de Recherches Cliniques du Québec, the 1997 young investigator award of the Québec Hypertension Society and the 1997 Merck-Frosst award from the Canadian Society of Biochemistry and Molecular and Cell Biology. The research group he directs is now composed of seven post-doctoral fellows, six graduate students, three research assistants and a professional assistant and is supported by various agencies including the Medical Research Council of Canada, the Natural Science and Engineering Research Council of Canada, the Canadian Heart and Stroke Foundation, the Kidney Foundation of Canada, and le Fond Consolidé d'Aide à la Recherche du Québec.

Being born in 1958, I grew up during the golden days of Man's expeditions into space. As a child that was watching every mission religiously, I was absolutely fascinated that scientific knowledge had allowed humans to free themselves from their small planet "en route" to explore new worlds. This was the start of my enduring interest for sci-



Michel Bouvier

ence. Two high-school teachers then played a determining role in influencing which of the scientific fields I would eventually chose as my principal study subject. Messrs. Jean and Bandzuck respectively biology and chemistry teachers at “l'École Secondaire Le Plateau”, made me realize, through their passion for teaching and their disciplines, that even the most complicated processes that animate living creatures involve chemical reactions. They got me dreaming that the “secret of life” may one day be completely understood in molecular terms and told me that a relatively young science called biochemistry was studying just that. My choice was made, I was to study biochemistry.

In 1976 I registered at the Université de Montréal as a first year student in biochemistry. I really enjoyed my three years there and was happy with the basic training I received in chemistry and biochemistry but was eager to learn more about physiology. In particular, I was intrigued by the idea that relatively simple chemical substances, neurotransmitters, were responsible for regulating such complex functions as those of the nervous system. Thus, I joined the laboratory of Dr. Jacques de Champlain in the department of physiology to start graduate studies in neurological sciences. In Jacques laboratory, we studied the pre-synaptic control of noradrenaline and adrenaline release by the sympathetic nervous system. I was more specifically studying the dys-regulation of the pre-synaptic adrenergic receptors that accompanied the development of hypertension. Although unconsciously at the time, the death of my father at the age of 40 from the consequences of malignant essential hypertension most likely influenced my decision to join a laboratory where hypertension was a central theme. Jacques did not only teach me about pre-synaptic control and hypertension but was a role model in the best sense of the word. His passion for biomedical research and his quest to get closer to the truth through original and creative thinking were truly inspiring. I obtained my Ph.D. in neurological sciences in 1985.

After this incursion in the world of physiology, I decided it was time to go back to more molecular approaches and joined, as a post-doctoral fellow, the vibrant laboratory of Dr. Robert Lefkowitz at Duke University. I had a very exciting time there. The cDNAs and genes encoding the adrenergic receptors and other hormone and neurotransmitter receptors were being cloned at an incredible pace thus providing the tools to finally study their func-

tion at the molecular level. The four years I spent in this world-renowned laboratory only seemed like a few months. Bob Lefkowitz and Marc Carron taught me among many other things the importance of the models chosen to address specific questions and the role that serendipity, not chance, plays in research.

I left North-Carolina full of enthusiasm and with the firm intention of getting my own research program going. I accepted a position of “professeur adjoint” in the department of biochemistry at the Université de Montréal and the MRC honoured me with a MRC scholarship and an operating grant. This was the start for me of a great adventure..

Michel Bouvier is now full professor of biochemistry at the Université de Montréal, he is the holder of the Hans Selye chair of cellular biology, the president of the Canadian Hypertension Society and an MRC Scientist.