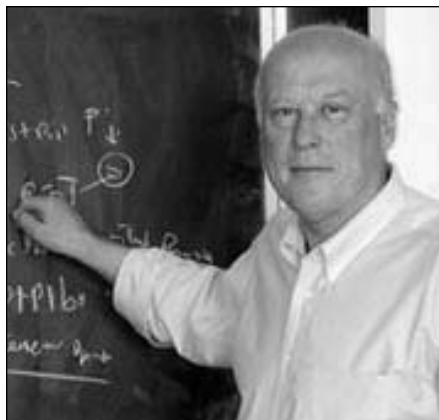

Incoming Members of the CSBMCB Executive Board 2004-2005

Dr. David Y. Thomas, Vice-President

I was born and grew up in Llandaff, a small town outside Cardiff in Wales. While at high school I



had vague notions of becoming a lawyer or a nuclear physicist. But it was not until I encountered a course on genetics and molecular biology that I became hooked on science and research. I did my Ph.D. in genetics with David Wilkie at University College London, still a leading institution in biological sciences research.

My first week as a Ph.D. student at UCL is memorable. My supervisor David Wilkie left for a year's sabbatical and I attended a series of lectures on the derivation of the triplet code by Francis Crick during which he announced the "swan song of molecular genetics". This was truly being thrown into research at the deep end. Thanks to the fantastic research environment of UCL and the help of David Wilkie's supervisor, the eminent Guido Pontecorvo, who had moved to ICRF at Lincoln's Inn Fields, and a lot of naivety on my part, I managed to find an interesting and productive research topic. There had been reports of antibacterial antibiotics such as chloramphenicol, erythromycin and some aminoglycoside antibiotics inhibiting various yeast strains. I was able to show that the target of these drugs was in fact mitochondria, and also to show the targets were encoded by mitochondrial DNA. Then I was able to demonstrate recombination between mitochondrial DNA molecules and then follow the inheritance of mitochondria. Mitochondrial genetics has now become a subject in its own right. I also had the opportunity whilst a graduate student, thanks to the kindness of David Wilkie, to work in Nigeria at the

University of Ile-Ife, for many reasons a very interesting experience in life. In fact the manuscript that described the recombination of mitochondrial DNA was typed on an IBM Selectric in a hotel room in Lagos and submitted to BBRC, as this was the only journal for which I could find an address in those days before the Internet.

I was offered a number of post-doctoral opportunities to work in Europe and the US but I received an offer from Peter Medawar to work in the Microbiology Division at the National Institute for Medical Research at Mill Hill. Sir Peter Medawar was one of the intellectual giants of biology research and ran an institute of 600 people, but still found time to do bench work and to discuss other people's research, and also to read and make constructive criticism on every manuscript that left Mill Hill. There was a lot of interest in mitochondria at Mill Hill. Margaret Ashwell, Terry Rabbits and Tommy Work were struggling to isolate mitochondrial ribosomes and finally accomplished this difficult feat. I continued to work on mitochondrial protein synthesis, and showed for the first time with Don Williamson that the products of mitochondrial were components of the cytochrome oxidase and ATPase complexes. During this time Ben Hall visited Mill Hill from the renowned Department of Genetics, University of Washington, and invited me to spend some time in his lab. He and Mike Smith at UBC had an application to NIH (eventually not funded as being "too ambitious") to clone the gene for isocytochrome c1. So I spent 1972-73 on leave from the MRC isolating mRNA, making antibodies and doing in vitro protein synthesis, while Jerry McDonnell produced polyA polymerase and Maxine Linial made AMV reverse transcriptase and EcoRI restriction enzyme that Herb Boyer personally delivered. We waited for Cor Hollenberg in Mike's lab at UBC to synthesize a 9-mer oligonucleotide. I made many visits to the UBC lab and spent many wet weekends distilling reagents and

running incredibly slow cellulose columns. Unfortunately we were unable to synthesize the required oligonucleotide, and the cloning of the iso-cytochrome I gene was accomplished a few years later by Donna Montgomery in Ben's lab, by Jack Szostak in Ray Wu's lab, and in Fred Sherman's lab (the latter with an oligonucleotide synthesized by a Canadian company, ENS Biologicals of Ottawa). I learnt a lot from my experience in the superb Genetics Department in Seattle and it made me ambitious to try new directions in research.

I returned to Mill Hill, which now had a new director Arnold Burgen, who just had arrived from McGill. I was full of enthusiasm to do recombinant DNA work, but the Asilomar inspired moratorium was in effect and the Rothschild Report was causing the MRC severe problems. I received an attractive offer from the Institut für Genetik at the University of Munich, which was a centre of mitochondrial research, and spend two very enjoyable years finishing some work on mitochondria. Then I was offered a job at the NRC in Ottawa in the Biological Sciences Division, which I had visited a couple of years before. So, I joined several of my relatives in the Welsh diaspora and moved to Canada. NRC was an interesting new experience, since there was access to oligonucleotide synthesis in Saran Narang's laboratory and I was able to start some new research directions. In one of these I collaborated with David Baulcombe in Desh Verma's lab at McGill to clone the first plant gene, in this case for leghaemoglobin. At the NRC I became involved in a series of applied projects with companies, but I developed a basic research interest in protein folding and processing. We found Ottawa a very pleasant town to bring up a family, and three of our children were born at the Riverside Hospital. But I was thinking about moving from the NRC and Ottawa when Lou Visentin persuaded me to stay at the NRC "for a couple of years" and to move to the, as yet unconstructed NRC Biotechnology Research Institute in Montreal. My wife is from Montreal and so we moved in with four young children in the summer of 1984 and I spent the first couple of years in laboratories at the Royal Victoria Hospital, and then

moved to the new institute at Avenue Royalmount when it was completed.

The concept of biotechnology was new, and in those days the ideas of where it would have the greatest impact in Canada were, in retrospect, misplaced. But I was fortunate to be able to build a group of productive and superb colleagues, and we were able to make significant contributions in the areas of G protein coupled receptors, MAP kinase signaling, innate immunity, protein processing and glycoprotein folding. Thus I stayed at the NRC rather longer than I had intended, but eventually in 2001 I moved as a Canada Research Chair and Chair of the Biochemistry Department to McGill. Before I made this move, McGill had agreed to the construction of a new multidisciplinary, multi-facility, research building (now known as the Bellini Life Sciences Building, it joins the Stewart Biology Building and McIntyre Medical Sciences Buildings). We were able to obtain significant CFI and FRSQ and private support for this new building, which is scheduled for completion in July 2007. The Biochemistry Department and McGill are proving to be a stimulating and challenging environment that I am enjoying immensely.

Science is an exciting enterprise, and while I look forward to new ideas and new experiments, I think my most important contribution has been the 150 plus students, post-docs and technicians that have been in my various laboratories. It is a continuing pleasure to see their careers develop. Of course, superb mentors and collaborators have also been the key to my success and I should mention David Wilkie, Don Williamson, Sir Peter Medawar, Ben Hall, Mike Smith, Allen James, Rudolf Schweyen, as past mentors and Howard Bussey, Malcolm Whiteway, Thierry Vernet, John Bergeron and Ekkehard Leberer as ongoing collaborators. I am now interested in promoting the interface between chemistry and biology, and the impact that academia can make in research on orphan and neglected diseases, and I look forward to new experiments and new collaborators.

Science in Canada is at present enjoying good levels of support from all levels of government. However, the CSBMCB and all of us must commu-

nicate with decision makers at all levels about the successes and benefits of our research. The biopharmaceutical industry (I am on the SAB of several pharmaceutical and venture capital companies) is going through a bad patch right now, and I believe that we must sustain our research enterprise and excellence through new models of funding. The arguments for basic research that underpin our future prosperity need to be stated and restated in an understandable fashion to as wide an audience as possible.

Dr. Eric Brown, Councillor

I grew up in rural southern Ontario and attended high school in Dundas, a little town West of Hamilton that lays claim to an international 'cactus festival.' Guelph became my second home after high school – I spent 10 years there completing my undergraduate and graduate degrees. The latter began with a Masters in the Food Science department with Dr. Rickey Yada where I discovered my passion for protein biochemistry studying the stability fungal aspartic proteases on the pretext that they were key ingredients in cheese-making. It was, nevertheless, as a Ph.D. candidate in Biochemistry at Guelph that my future was cemented in molecular approaches to understanding the puzzles of bacterial physiology in the laboratory of Dr. Janet Wood. There I studied the PutA protein, a fascinating flavoprotein that binds to and represses its own operon in addition to interacting with the cell membrane where it catalyzes the oxidation of proline.



After receiving my Ph.D. in 1992, I accepted a post-doctoral fellowship to train with Dr. Christopher Walsh in the department of Biochemistry and Molecular Pharmacology at Harvard Medical School where I worked to describe the mechanisms of enzymes in bacterial cell wall biosynthesis. There I learned a great deal about pre-steady state kinetics,

characterizing enzyme intermediates and enzyme inhibitor complexes. During the same period I embarked on studies of the dispensability of cell wall biosynthesis genes in *E. coli*, a collaboration that placed me in the laboratory of Dr. Roberto Kolter in the Department of Microbiology and Molecular Genetics at Harvard Medical School. After postdoctoral studies, I decided to stay in the Boston area and work in the biotechnology sector where I spent more than three years, principally at Astra Research Center Boston, using enzymology and molecular genetic approaches to develop drugs against the gastric pathogen *Helicobacter pylori*. While in Boston I became a huge admirer of the city and was an enthusiastic sampler of New England attractions, especially its pro sports venues, golfing and Irish pubs.

After six years in Boston, I elected to return to Canada to develop an independent research program and took up a position in Department of Biochemistry at McMaster in July of 1998, first as a CIHR Scholar and now as a Canada Research Chair. Perhaps indelibly marked by my time in pharma, my group has adopted the motto 'the only good bacterium is a dead bacterium.' We have concentrated to date on addressing the inadequacies of conventional antibiotics with research into new approaches to the discovery of antibacterial drugs. Those directions have included careful analyses of the phenotype associated with loss of novel and essential functions to help us understand their importance to bacterial physiology. We have likewise occupied ourselves with rigorous biochemical studies of key proteins in an effort to learn more about their roles in physiology and to facilitate their exploitation in antibacterial drug discovery. Most recently, we have been developing chemical genomic approaches where, with the benefit of state of the art small molecule screening, we are working toward building a chemical-genetic interaction network for the essential physiology in bacteria. Since returning to the Hamilton area, it's been a great to spend time again with family and old friends. I attribute any perspective I have to my wife Zuhail and seven year old Jacob, not to mention my very average skills in golf and ice hockey.

Dr. George Chaonas, Councillor

George Chaonas was born in 1952. He began his career as a biochemist in 1953 by conducting experimental taste tests on a box of Borax discovered under the kitchen sink. Thereafter, smitten by the thrill of research, curious George set his sights on a career as a scientist. He completed his undergraduate training in Biological Sciences at Queens College of the City University of New York in 1973. His last year of undergraduate study was spent at the University of Southern California in Los Angeles where he took several courses and worked in the laboratory of Dr. Caleb Finch on the biochemistry of ageing. It was during this time that his fascination with nucleic acids and gene expression was kindled. George went on to pursue graduate studies in this area in the Division of Medical Biochemistry at the University of Calgary under the supervision of Drs. R.B. Church and J.H. van de Sande. During his tenure as a graduate student his interests grew in the area of nucleic acid structure and protein-DNA interactions. George's thesis work involved studies on T4 polynucleotide kinase and the interaction between restriction endonuclease HhaI and its recognition site.

During his graduate training in Calgary, George became interested in the process of DNA transposition and moveable genetic elements. Thereafter he spent more than 25 years studying Mu DNA transposition, which began with a postdoc at Cold Spring Harbor Laboratory from 1978-1981 with the late Dr. Ahmad Bukhari. In 1981 George returned to Canada to take up a position as an Assistant Professor at the University of Western Ontario where he remained for 21 years.

In 1999-2000, with the help of a Guggenheim Fellowship, George spent a sabbatical year in the lab of Dr. Patricia Rosa at the NIH Rocky Mountain Labs in Hamilton Montana. He became fascinated with the exotic pathogen, *Borrelia burgdorferi*, which causes Lyme disease and has a segmented genome with many linear replicons carrying covalently closed hairpin ends. The mechanism by which these molecules replicate was unknown and has become the focus of George's

recent research. In 2002 George moved his lab to the University of Calgary where the mountains, ski hills and trout streams are within easy reach. He is currently appointed as a Canada Research Chair in the Molecular Biology of Lyme Disease and as a Scientist of the Alberta Heritage Foundation for Medical Research.

When time permits George likes to pretend that he is working in the lab. His precocious entry into the field of biochemistry in 1953 surprisingly didn't leave a bad taste in his mouth; whenever possible he designs his experiments using borate buffers (which for some strange reason he insists on mouth pipetting).

On a more personal note, George enjoys family life with his wife Genevieve and their two grown daughters, Christina (and husband Simon) and Aletheia. He is an active church member and plays renaissance lute with the Early Music Ensemble at the University of Calgary.



Dr. Dev Mangroo, Councillor

Dev Mangroo was born in Guyana, South America, and was raised in Toronto, Canada. He did both his B.Sc. and Ph.D. in the Department of Biochemistry at McMaster University. Dr. Mangroo's Ph.D. supervisor was Dr. G. E. Gerber, and his research was on the mechanism of long chain fatty acid permeation of the cell membrane of *Escherichia coli*. After his Ph.D. he was awarded an NSERC postdoctoral fellowship to work with Dr. U.L. RajBhandary at the Massachusetts Institute of Technology, Cambridge,



Massachusetts, on bacterial protein initiation. Dr. Mangroo is presently in the Department of Molecular and Cellular Biology at the University of Guelph, and the primary focus of his research is on identification and characterization of components of the nuclear tRNA export machinery of *Saccharomyces cerevisiae*.