
2007 Society Award Designates

Dr. Nahum Sonenberg, from the Department of Biochemistry, McGill University, has been chosen to receive the 2007 Roche Diagnostics Award, which recognizes outstanding achievement in research in one or more of the fields of biochemistry, molecular or cellular biology undertaken in Canada by a Canadian scientist. This year, the Society decided to award the Merck Frosst Prize for meritorious research by a young Canadian scientist with ten years or less of independent research in the areas of biochemistry, molecular or cellular biology to Dr. Marco Marra, from the Department of Medical Genetics at the University of British Columbia. These awardees will be presenting Plenary Lectures at the 50th Annual General Meeting of the Canadian Society of Biochemistry, Molecular and Cellular Biology to be held July 5-9 2007 at McGill University.

The 2007 CSBMCB Roche Diagnostics Prize for Biomolecular and Cellular Research

Dr. Nahum Sonenberg

Dr. Sonenberg was born in Germany and educated in Israel, obtaining his B.Sc. and M.Sc. in Microbiology from Tel-Aviv University in Tel-Aviv, and his Ph.D. in Biochemistry from the Weizmann Institute of Science in Rehovot. Following completion of his Ph.D. degree, he was a post-doctoral fellow at the Roche Institute of Molecular Biology in Nutley, New Jersey, where he held the Chaim Weizmann Fellowship. He was appointed Assistant Professor in the Department of Biochemistry at McGill University and the McGill Cancer Centre in 1979, promoted to Associate Professor in 1983, and appointed Professor in 1987. In 1985-86 he was Visiting Professor at the Whitehead Institute for Biomedical Research in Cambridge, Massachusetts.

Dr. Sonenberg has received many honours and awards. These include Medical Research Council Distinguished Scientist Awards, the 1994 PMAC

Keynote Lecturer at the Annual Meeting of the Canadian Federation of Biological Societies in Montréal, an International Scholar Award from the Howard Hughes Medical Institute, the Robert L. Noble Prize from the National Cancer Institute, and a Killam Prize for Health Sciences. He has been elected to the Royal Society of Canada, the American Academy of Arts and Science and the Royal Society of the United Kingdom.

Over the past 25 years, Dr. Sonenberg has published over 300 papers in the field of regulation of protein synthesis. He is internationally recognized as one of the leading researchers in this area of research. His seminal observations about basic mechanisms in the regulation and control of protein translation have reshaped current knowledge in the area, and have been incorporated into current textbooks. In addition there are therapeutic applications to many of his discoveries, which have an impact on development of novel gene therapy approaches, novel drug targets for cancer treatment, and approaches to antiviral therapeutics.

His important contributions began while he was a post-doctoral fellow, when he identified protein complexes that bind the 5' cap structure of eukaryotic mRNAs. These eIF4F complexes and their individual components are now known to regulate,



and be rate limiting, in protein translation. Regulation of eIF4F is altered in many human cancers. Dr. Sonenberg's laboratory has followed this initial discovery by linking several signal transduction pathways to translational control by means of phosphorylation of individual components of eIF4F. Over-expression of the least abundant component eIF4F leads to malignant transformation and hence it is a proto-oncogene. It is over-expressed in a number of cancers. He has shown that viruses can translate in a cap-independent fashion; this has led to new targets for gene therapy. His contributions also include findings on the role of double-stranded RNA-dependent kinase PKR in growth control and apoptosis, and on the role of 5'-untranslated regions in the regulation of cellular and viral mRNAs. More recent research collaborations with groups at Rockefeller and Harvard Universities have focused on structural studies of translation factors. Very recent work has provided genetic evidence for the role of translational control in hippocampal-dependent synaptic plasticity, learning and memory.

Overall, Dr. Sonenberg's contributions have had a major impact in a number of areas. They have been extremely innovative and have changed the way others think.

The 2007 CSBMCB Merck Frosst Prize

Dr. Marco Marra

Dr. Marco Marra, currently an Associate Professor in the Department of Medical Genetics at the University of British Columbia, obtained his education at Simon Fraser University – a BSc in Molecular and Cell Biology and a PhD in Genetics. Following his time at Simon Fraser University he was a post-doctoral Research Associate at Washington University School of Medicine in St. Louis, MO. In 1999 he returned to Vancouver, becoming a Senior Scientist and the Associate Director of the Genome Sequence Centre, Associate Member of the Michael Smith Laboratories, and a faculty member in the Bioinformatics Graduate Program of the University of British Columbia.



A major scientific achievement by Dr. Marra and his collaborators was the construction of a human genome map. This key resource allowed an International Consortium to efficiently complete and make publicly available the human genome sequence. This human genome sequencing project is a major scientific achievement. Through Dr. Marra's contributions, the sequencing data remained in the public domain. A specific contribution of his to the international project was development of a large-scale approach that resulted in the construction of a clone-based physical map of the human genome. His mapping approach, called "BAC fingerprinting", has been further refined in his laboratory and used to analyze more than 30 billion bases of genome DNA from 30 different diverse species, ranging from bacteria to plants to animals. The significance and uniqueness of these activities was recognized by an International Scientific Advisory Board, composed of individuals from the United States and the United Kingdom, which state "The...(mapping technology)...is in a dominant and unique worldwide position. There is no other group that has the equivalent expertise and throughput for BAC fingerprinting..."

Dr. Marra has also made significant contributions in the sequencing of the genome for the SARS coronavirus. The rapid generation of this sequence led to the "SARS Accelerated Vaccine Initiative" in British Columbia.

The Genome Science Centre has over the past 7

years competed successfully for over 100 million dollars of peer-reviewed grants. Dr. Marra and his group have produced over 100 publications and given over 75 invited presentations. Dr Marra received an honorary Doctor of Science degree from Simon Fraser University in 2004, and an

honorary Doctor of Laws degree from the University of Calgary in 2005. In 2004, his contributions to cancer research were recognized by the National Cancer Institute Terry Fox Young Investigator Award.