International Drug Discovery and Development Forum 2015

MUHC Center for Translational Biology (CTB)

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Meet our speakers

EDUCATIONAL SESSIONS

Special lectures on MSI by Dr. Pierre Chaurand, Université de Montréal

Dr. Chaurand obtained his Ph.D. in physical biochemistry and mass spectrometry in 1994 from the University of Paris Sud (Orsay, France) after which he joined the Institute of Laser Medicine, University of Dusseldorf, Germany. In 2000, he moved to Vanderbilt University School of Medicine, Nashville, USA, where he focused on MALDI mass spectrometry research directed at mapping the spatial distribution of biocompounds. In 2009, he joined the Department of Chemistry of Université de Montreal as an Associate Professor. Dr Chaurand is a pioneer in mass spectrometry imaging (MSI). His research focuses on combining cutting edge mass spectrometry technologies for profiling, identifying, and mapping the spatial distribution of biocompounds directly in biological samples. He is working at optimizing the translation of these exciting new molecular technologies to the investigation of diseased tissues.

SYMPOSIUM I

Dr. Ravi Chari is Executive Director of Chemistry & Biochemistry, and Distinguished Research Fellow at ImmunoGen, Inc., a biopharmaceutical company located in Waltham, MA. His group is responsible for the development of potent cytotoxic compounds for tumor-specific delivery in the form of antibody-drug conjugates (ADCs). His group also designs novel linkers to generate ADCs with optimal anti-tumor activity. Dr. Chari received his doctorate in Chemistry from the University of Detroit, Detroit, MI. Subsequently, he was a postdoctoral fellow in the Pharmacology department at the Yale University – School of Medicine, where he was in involved in the design and synthesis of mechanism-based enzyme inhibitors. In 1986, he joined the Dana-Farber Cancer Institute/Harvard Medical School as a research scientist, where he initiated work on the use of monoclonal antibodies to specifically deliver cytotoxic drugs to tumor cells. Dr. Chari is an inventor on 73 issued US Patents

Dr. John M. Lambert is Executive Vice President and Chief Scientific Officer at ImmunoGen, Inc., Waltham, Massachusetts. Dr Lambert received a BA in Natural Sciences in 1972 from the University of Cambridge, England, and received a Ph.D. degree in Biochemistry in 1976, also from Cambridge University, for his research on the structure of multimeric glycolytic enzymes under the supervision of Professor Richard N. Perham. He did his postdoctoral training in the laboratory of Dr Robert R. Traut in the Department of Biological Chemistry, School of Medicine, at the University of California at Davis, where he worked on the structure of ribosomes (1976 – 1980), and with Dr John R. Coggins in the Department of Biochemistry at the University of Glasgow in Scotland (1980 – 1982), where he worked on the arom multienzyme complex. In 1982, Dr. Lambert was appointed Assistant Professor of Pathology at the Sidney Farber Cancer Institute (later called the Dana-Farber Cancer Institute), Harvard Medical School in Boston, where he joined the research program supported by ImmunoGen, Inc., to develop monoclonal antibody-based anticancer therapeutic agents (1982 – 1987). In 1987, ImmunoGen established independent laboratories in Cambridge, Massachusetts to expand its research programs to develop immunoconjugates for treating cancer. Dr Lambert was appointed Director of Biochemistry in 1990, and Senior Director of Research in1992. He joined the Senior Management team of the Company as a Vice President in 1994, and served in a variety of roles until becoming Executive Vice President and Chief Scientific Officer in 2009.

Dr. Johan Lantto is Project Director at Symphogen A/S, a Danish biotechnology company that is developing antibody mixtures for treatment and prevention of cancer and other diseases. Dr. Lantto holds a Ph.D. in immunotechnology from Lund University, Sweden, and has more than 15 years of experience with antibody engineering and the development of antibody mixtures. For the past eleven years Dr. Lantto has worked for Symphogen with the development of technology platforms and antibody drug discovery projects. Dr. Lantto is currently heading oncology projects aimed at developing antibody mixtures targeting the MET receptor or multiple HER family members simultaneously.

Dr. William Muller has been studying the role of RTKs and their coupled signaling pathways since 1986. As a post-doctoral fellow at Harvard, Dr. Muller was involved in the first study to demonstrate oncogene cooperativity in a transgenic mouse model (Sinn et al., 1987). He was the first to show that mammary epithelial expression of an activated form of ErbB-2 was directly involved in oncogenic transformation (Muller et al., 1988). At McMaster University, Dr. Muller developed one of the most widely used transgenic models for breast cancer involving the PyMT oncogene. (Guy et al., 1992; Guy et al., 1994a; Webster et al., 1998). He also demonstrated that c-Src tyrosine kinase, as shown in human breast cancers, was elevated in large proportion of erbB-2 expressing sporadic breast cancers and played a critical role in mammary tumor progression (Guy et al., 1994b; Muthuswamy and Muller, 1994b; Webster et al., 1995). Dr. Muller's laboratory has also identified and characterized activated forms of the erbB-2 oncogene (Siegel et al., 1994; Siegel and Muller, 1996). Although comparable mutations have not yet been observed in erbB-2 induced cancers, Dr. Muller's laboratory has described a splice variant of erbB-2 that closely resembles these sporadic erbB-2 transgene mutants (Siegel et al., 1999). Dr. Muller's laboratory has made seminal contributions in understanding the molecular basis for ErbB-2 potent transforming properties by demonstrating the existence of both negative and positive signaling molecules that are associated with ErbB-2 (Dankort et al., 2001a; Dankort et al., 2001b). His most recent work identified that □1 integrin is essential for mammary tumor formation by the aggressive oncogene PyMT (White et al., 2004) and provides a basis for future work developed in this proposal. Dr Muller has published several review articles in this field (Cardiff and Muller, 1993; Dankort and Muller, 1996; Dankort and Muller, 2000; Hutchinson and Muller, 2000; Muthuswamy and Muller, 1994a; Webster and Muller, 1994).

SYMPOSIUM II

Dr. Niall Martin graduated with a PhD from Aberdeen University, from where he joined Zeneca Pharmaceuticals as a post doctorate scientist in the non-lipid cardiovascular disease Bioscience group. In 1993, Niall moved to France to become a Team Leader within the Thrombosis group at Laboratoire Fournier (France).

On his return to the UK in 1999, Niall became Director of drug discovery at KuDOS Pharmaceuticals, Cambridge, UK where he established the drug-screening capabilities in KuDOS that underpinned all KuDOS drug discovery programmes. Most notably, Niall set up and headed the KuDOS programme against PARP (an enzyme involved in DNA repair) that yielded the pioneering new drug, olaparib, which has now obtained market approval in ovarian cancer as Lynparza. The success of this drug was a major driving force for the acquisition of KuDOS by AstraZeneca, and has underpinned the concept of synthetic lethality as a major therapeutic opportunity for cancer treatment. Niall then headed KuDOS from 2008 to 2010, underwhich mTOR, ATM and other DDR inhibitors were identified for AZ oncology pipeline through KuDOS. Niall is a founding member of *MISSION* Therapeutics , a company involved in identifying drug targets within the deubiquitylating (DUB) enzyme class . Niall serves the company as EVP of Research.

Dr William Foulkes. I am a clinician-scientist with a long-standing interest in the causes and consequences of inherited susceptibility to cancer. We focus on translational research, in that we aim to uncover the reasons why some individuals within cancer-prone families have developed cancer. In addition, we have worked to characterize the clinico-pathological effect on these mutations, and to explore the underlying molecular mechanisms. We are particularly interested in susceptibility to breast, ovarian cancer, colorectal and prostate cancer. We also work on rare pediatric cancer susceptibility syndromes. I am interested in education in cancer genetics and have edited 2 books and am a co-author on the text: A Practical Guide to Human Cancer Genetics, Springer, 2014.

Dr. Mes-Masson was trained as a molecular oncologist, and obtained her Ph.D. from the Department of Microbiology and Immunology at McGill University in 1984 under the direction of Dr. John Hassell. From 1984-1986, she completed post-doctoral studies at the Molecular Biology Institute, University of California Los Angeles, in the laboratory of Dr. Owen Witte where she was the first to clone the full length BCR-ABL transcript implicated in Chronic Myelogenous Leukemia. After a short period as a research associate at the Biotechnology Research Institute, Dr Mes-Masson joined the Institut du cancer de Montréal and the Department of Medicine at the Université de Montréal in 1989. A full professor since 2001, Dr. Mes-Masson is presently the Scientific Director of the Institut du cancer de Montréal and Director of cancer research at the Centre de recherche du Centre hospitalier de l'université de Montréal (CRCHUM). In 2003, Dr. Mes-Masson was named the Director of the Réseau de recherche sur le cancer du Fonds de recherche du Québec - Santé (FRQS), a provincial cancer network of over 100 scientists focused on translational and clinical cancer research (www.rrcancer.ca). Dr. Mes-Masson is a founding member of

the Canadian Tumor Repository Network (2004) which is a consortium lead by provincial tumor biobanks in British Columbia, Alberta, Manitoba, Ontario and Quebec (www.ctrnet.ca). In 2008 Dr. Mes-Masson was named the Quebec node coordinator for the Terry Fox Research Institute (TFRI). Dr. Mes-Masson is also a board member of the Canadian Cancer Research Alliance, the Atlantic Cancer Research Institute and Ovarian Cancer Canada. Dr. Mes-Masson has authored well over 150 publications in cancer research, and her major focus over the last two decades has been ovarian and prostate cancer. Dr. Mes-Masson has also established a translational research program largely focused on delivering personalized medicine in oncology.

Dr. Patrick Burke is currently Executive Vice President of Emerging Products at Myriad Genetics. In this position, he leads the New Product Planning, Business Development and Project Management functions within Myriad Genetic. His responsibilities in this role encompass all aspects of new product development, including the development of new product profiles, execution of clinical trials, market research, reimbursement planning, project management, budgeting, and business development. The function of the Emerging Products team is to delivery new products for commercial launch to each of Myriad's six commercial business units -- oncology, preventative care, urology, dermatology, autoimmunity, and neuroscience. Patrick and his business Development Team lead efforts to establish new companion diagnostic collaborations and build new companion diagnostic products with the Pharma Partners. Dr. Burke joined Myriad Genetics in 2001 and over the years has served as Vice President of Strategic Collaborations, Vice President of Corporate and Business Development and filled various roles within the Business and Corporate Development group. Patrick earned his Ph.D. in Cell Biology from the University of Utah School of Medicine and received his Bachelor's Degree in Molecular Biology from the University of California, San Diego.

SYMPOSIUM III DDTP Special session (New Drug Design Concepts)

Dr. Peter Buchwald is an Associate Professor at the Department of Molecular and Cellular Pharmacology and the Director of the Drug Discovery Program at the Diabetes Research Institute, Miller School of Medicine, University of Miami, Florida, USA. Dr. Buchwald obtained his doctorate from the University of Florida, Gainesville, FL in pharmaceutics/drug design in 1997. He joined the University of Miami in late 2006 coming from Teva Pharmaceuticals and IVAX Research, Inc. where he served as Associate Director of Drug Discovery, New Drug Development. Work at the Drug Discovery Program he initiated at the Diabetes Research Institute (DRI) is focused on identification of novel immune-modulatory therapeutics that can prevent or possibly even revert type 1 (insulin-dependent) diabetes. Dr. Buchwald has published more than 90 articles in peer-reviewed journal, is co-author of a book on retrometabolic drug design, and has been recently elected to the rank of AAAS Fellow by the American Association for the Advancement of Science (AAAS).

SYMPOSIUM IV

Dr. Youssef L. Bennani is currently Site Head and Vice-President, R&D at Vertex Pharmaceuticals (Canada) Inc. He previously served as Vice-President of Drug Innovation (Integrated Discovery Chemistry and DMPK) at Vertex Pharmaceuticals in Cambridge, MA, USA for 7 years. Over the past ~22 years, he successfully led several research programs in therapeutic areas such as neurology, metabolism, immunology, infection [bacterial, viral and fungal], and oncology, delivering more than 25 new molecular entities reaching various stages of pre-clinical, human clinical development and market stages. His education consists of a Doctorate degree (PhD) in chemistry from Université de Montréal (under the direction of Dr. S. Hanessian), and post-doctoral studies at The Scripps Research Institute (under Dr. K. B. Sharpless), in La Jolla; as well as an E-MBA from LFGSM, in Chicago, Illinois.

Dr. Anne Marinier is the director of Medicinal Chemistry, Principal Investigator at Université de Montréal's (UdeM's) Institute for Research in Immunology and Cancer (IRIC) and Associate Professor at UdeM's Chemistry department. She brings along close to 25 years of experience in medicinal chemistry and a strong industry expertise in all aspects of drug discovery. Before joining IRIC, Dr Marinier was Group Leader in the Drug Discovery Research group at Bristol-Myers Squibb and has been involved in the identification of several pre-clinical candidates while contributing to the progression of numerous programs in oncology, immunology and infectious diseases. She currently heads IRIC's medicinal chemistry platform, which comprises 37 chemists and biologists. This platform, of which she spearheaded the creation and implementation in 2007 with federal and provincial funding of more than $9M, supports drug discovery research programs from IRIC scientists and collaborators/pharmaceutical company partners. Two molecules discovered and

synthesized at the platform in collaboration with Bristol-Myers Squibb, are currently in Phase I trial. A further compound, UM171, a cord blood stem cell expansion factor, discovered at the platform in collaboration with Dr Guy Sauvageau and his laboratory members, will begin Phase I/II during the summer of 2015. Dr Marinier's work with her team has translated to 20 patents and 22 scientific publications to date.

Dr. Pnina Brodt, is a Professor in the Departments of Surgery, Medicine and Oncology at McGill University and the McGill University Health Center where she has been since 1983. Dr. Brodt's research work has focused on the biology of cancer metastasis, particularly the molecular events that underlie the process of liver metastasis. Her group has played a leading role in identifying the important role of the IGF axis in cancer invasion and metastasis. This work led to the development of several strategies for blockade of the IGF-I axis including, most recently, the bio-engineering of an IGF-Trap that is currently in pre-clinical development as an anti-cancer drug for metastatic breast and colon cancer. This work has been funded by grants from the Terry Fox research Institute, MDEIE, CIHR and presently through a contract with Amorchem. Several patent applications on the IGF-Trap are pending. Dr. Brodt is a co-leader of the Cancer Axis of the Research Institute of the McGill University Health Center and is a co-founder of the Liver Metastasis Research Network (www.lmrn.org) – a multidisciplinary international network dedicated to uncovering the molecular mechanisms of liver metastasis for the betterment of patient care.

Dr Danuta Radzioch has been a member of **Infection and Immunity Global Health Axis and Medical Genetics and Genomics Axis within the Centre for the Translational Biology and Centre for Innovative Medicine** at the McGill University Health Centre. Dr Radzioch brings expertise in molecular biology, host-pathogen interactions, mouse models and translational medicine. Dr. Radzioch is a Fulbright Scholar, is a recipient of numerous prestigious awards, including several career awards and research grants from FRSQ (Fonds the Recherché Santé Québec), Canadian Institute of Health Research (CIHR), US Department of Defense (DoD) and the American Asthma Foundation-Sandler Program for Asthma Research (SPAR; Senior Investigator Award) and Quebec Consortium for Drug Discovery (CQDM) and Ministère de l'Enseignement supérieur, Recherche, Science et Technologie (MESRST). Following postdoctoral training at the National Cancer Institute, NIH she has joined Faculty of Medicine at McGill in 1989 and since 2003 is a full Professor at the Department of Medicine and Human Genetics,
Dr Radzioch's laboratory has developed mouse model of cystic fibrosis lung disease and defined molecular signature of Cystic fibrosis (CF) lung disease, allergic asthma, airway hyperresponsiveness and atopy models in mice, rats and primates, and mouse model of colon cancer.

Team of scientists led by Dr. Radzioch focused their studies on the characterization of molecular mechanisms involved in the regulation of inflammatory response in chronic lung diseases. These studies resulted in discovery of novel pharmacological interventions which enable normalization of excessive inflammatory responses and fatty acids metabolism disturbances occurring during severe acute bacterial infections, chronic allergic responses as well as acute spinal cord injuries. Dr. Radzioch' research team also explores the role of chromatin remodelling in the regulation of transcriptional regulation and the mechanisms of posttranscriptional control of genes involved in the control of inflammatory response.

She has held positions on review boards of several granting agencies, including Canadian Cystic Fibrosis Foundation (CCFF), Italian CF Foundation, Irish CF foundation, *Wellcome Trust* UK, CIHR, Alberta Heritage Foundation and Michael Smith Foundation. Dr. Radzioch is on the editorial board of several journals including Recent Patents in Inflammation and Allergy Drug Discovery), and she has been an Editor of Chromatin Remodelling.

Dr. Radzioch is also a member of Advisory Committee of Advanced Education and Training Opportunities (AETOAC) of the AllerGen National Centre of Excellence. She is a co-founder of Laurent Pharmaceutical Inc and serves as a Scientific Officer at the Scientific Advisory Board of Laurent Pharmaceutical Inc. as well as a member of Scientific Advisory Board at the Institute of Molecular and Translational Medicine at BIOMEDREG in Czech Republic. She is the co-author of 169 scientific papers, 180 abstracts, several book chapters, several patents and she had generated 27 different macrophage cell lines. Overall, Dr. Radzioch has a very keen interest in translational medicine from dissecting molecular basis of inflammatory processes leading to serious and debilitating diseases, developing new treatments, preclinical studies assessing safety and efficacy of newly discovered treatments and designing and executing clinical trials.

Stephen Morris obtained his Ph.D. from Dalhousie University and Bsc. from McGill, both in Biochemistry. After postdoctoral studies at McGill and University of Ottawa studying dopamine and serotonin cellular and molecular biology. Dr. Morris was a research associate at the Montreal Neurological Institute where he worked on neurotrophin protein processing and secretion. Dr. Morris has worked in the biotechnology sector for 15 years first at Aegera Therapeutics and now at Pharmascience Inc. where he is Senior Director of Research and Innovative Drug Development. He has been involved in bringing 5 new chemical entities into clinic and currently directs a multidisciplinary team developing drugs for autoimmune disease, inflammation and cancer.

Dr. James Jaquith is the Head of Medicinal Chemistry at The Centre for Drug Research and Development (CDRD), Canada's national translational and commercialization centre. CDRD plays a key role in the evaluation, funding, de-risking, and strategic development of multiple academic research programs from collaborators in Canada, the US, Australia and Europe. Current in-house programs focus on novel approaches for the treatment of pathogenic infections, peripheral neuropathies, diabetes, Parkinson's disease, and cancer, with a special focus on novel ADC platforms.

Prior to joining CDRD, Dr. Jaquith was the Director of Chemistry at Aegera Therapeutics (Pharmascience Inc.) where he made important contributions to the discovery and development of several clinical development candidates which advanced into Phase 1 and 2 clinical trials. Dr. Jaquith received his B.Sc. and Ms.C. in chemistry from the University of Waterloo, and a Ph.D. from the University of Ottawa, before joining Apoptogen Inc. as an NSERC Industrial Research Fellow.

Dr. Sanjoy Das received his PhD degree in 1995 at the Institute of Chemical Engineering, Hyderabad India. He did two post-doctoral fellowships: one from 1996-1998 with the world renowned medicinal chemist, Prof. Pierre Sinay, Ecole Normale Superieure, France and another from 1998-2000 with Prof. Rene Roy at the Department of Chemistry of University of Ottawa. He started his career in the pharmaceutical industry at Biochem Pharma, Laval, as Research Scientist II in 2000. In 2003, he joined Universite du Quebec as an Associate Professor for one year and returned to industry in 2004, being subsequently Research Scientist II at ViroChem Pharma, Laval (2004-1010) and Research Fellow 1 at Vertex Pharmaceuticals (2010-2013). In 2013, he took the position of Associate Director at AngioChem Pharma. During his extensive industrial career, he published 37 papers and currently holds 16 patents. His career in industry is associated with the discovery and development of several new drugs from the bench to clinical trial. Dr. Das joined the MUHC last June to take the position of Manager of the new CTB Drug Discovery Platform.

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