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What's New

McGill-CIHR Drug Development Training Program

Inside this issue:

DDTP symposium: Drugs and Radiation Oncology

Radiation therapy is the mainstay of cancer treatment. However this treatment is hampered by resistance mediated by DNA repair protein and hypoxia. Novel drugs and approaches to the sensitisation of tumours to radiation are lacking. Recently the DDTP held its seventh international symposium on the topic with four speakers from academia and industry: Dr. Amin Kassis from Harvard University (USA), Dr. Katherine Vallis from the University of Oxford (England), Dr. Bo Lu from Thomas Jefferson University (USA), and Dr. Agnès Pottier from Nanobiotix, (France). Chaired by Dr. Abdulkarim, Director of the Radiation Oncology Department of McGill and co-chaired by Dr. Jean-Claude, DDTP Co-Director, the symposium started with a lecture by Dr. Kassis on targeting diagnostic and therapeutic radionuclide to solid tumors. In his lecture, Dr. Kassis outlined his new approach termed "Enzyme-Mediated Cancer Imaging and Therapy" (EMCIT), a novel technology that seeks to concentrate and permanently entrap radio-imaging (18F-/123I-/124I-labeled) and radiotherapeutic (131I-/211At-labeled) compounds within solid human tumors. EMCIT is a method for enzyme-dependent, site-specific, *in vivo* precipitation of radionuclide-labeled prodrugs within the extracellular spaces of primary solid tumors and their metastases.

From left to right: Dr. Amin Kassis, Dr. Bassam Abdulkarim, Dr. Bertrand Jean-Claude, Dr. Katherine Vallis, Dr. Agnès Pottier, Dr. Bo Lu.

Dr. Katherine Vallis from the University of Oxford presented a lecture on the development of anticancer radiopharmaceuticals directed at intranuclear targets. In her lecture, she discussed strategies to direct radionuclides to the nucleoplasm for both therapy and imaging. These include the use of uni- and bi-specific antibody-based vehicles, modified by the addition of cell-penetrating peptides and/or nuclear localizing signals.

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DDTP Mentor appointed Chair of the Department of Chemistry

The DDTP is pleased to announce the nomination of Dr. Masad J. Damha, DDTP mentor and Co-Chair of our Academic Training committee , as Chair of the Department of Chemistry . Dr. Damha received his B.Sc. ('83 – Honours) and Ph.D ('88) from McGill University. In 1987, he became an Assistant Professor at Erindale College, University of Toronto. He returned to McGill in 1992 and is now a James McGill Professor of Chemistry. His work focuses on bioorganic and nucleic acid chemistry. Dr. Damha has published over 140 peer reviewed scientific articles and holds several patents in the RNA therapeutics field. He is a co-founder of Anagenis Inc., a McGill's spin off company with proprietary gene silencing technologies. Dr. Damha has played a significant role in the inception of the DDTP both by rallying mentors of the Department of Chemistry and by promoting and supporting the idea of joining forces to develop a unique and multidisciplinary drug discovery and development training program at McGill. The DDTP congratulates him on his nomination and wishes him success in his new endeavour. Dr Damha will officially start his term in June 2013.

DDTP symposium: Drugs and Radiation Oncology (continued)

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Dr. Bo Lu presented a lecture on novel radiotherapy combinations for managing advanced lung cancer. Dr. Bo Lu recently started a collaboration with Nanobiotix to advance their new nanotechnology to pre-clinical and clinical trials. Within this context, Dr. Agnès Pottier, head of discovery of Nanobiotix, discussed the principles of nanomedicine and presented the new lead nanoparticle NBTXR3, which is currently in clinical development in Europe.

The symposium was well attended with a total number of 72 participants including mentors, students and visitors. The exchanges between our speakers and the DDTP community members were animated and instructive. Direct interactions between the students and the speakers were extended at a luncheon held at the Faculty club. The students showed a lot of interest in the EMCIT principle, the targeted radionuclide approach and the nanomedicine technology. There was an excellent cohesion between the different lectures, which were all highly instructive. The DDTP thanks all attendants for their participation and look forward to seeing them in the next symposium on Toxicology and Drug Development at the Faculty Club, April 26th.

Sensitization of tumours to radiation: a call to DDTP members

Resistance to radiotherapy is mediated by several factors including DNA repair, antiapoptic signalling hyopoxia etc. If you have a reason to believe that one or many of your molecules can sensitize tumour cells to radiation, please contact us at trainingindrugdev@mcgill.ca to discuss possible collaborations.

Important Dates:

- April 15, 2013
  Spring 2013 DDTP Competition Deadline
- April 26, 2013
  DDTP Symposium: Toxicology and Drug Development
- May 31, 2013
  DDTP Research Retreat

2012 Competition Results

Spring 2012 Competition: In the Spring competition, a total of 19 applications were reviewed and 12 awards were granted, giving a success rate of 63%. The Department of Chemistry received 6 of the awards (50%), while the Department of Pharmacology and Therapeutics received 2 (17%) and the Department of Medicine 4 (33%). The awards went to 3 Master's, 3 postdoctoral fellows, and 6 PhD students. Full results are available here.

Fall 2012 Competition: At its December 2012 meeting, the scholarship and fellowship committee reviewed 24 applications. A total of 10 awards were granted, giving a success rate of 42%. Nine out of the ten awards went to students from the Chemistry Department and one to a student in Pharmacology. There was no winner from the Department of medicine in the Fall competition. The awards were distributed amongst 1 Master's, 2 postdoctoral fellows and 7 PhD students. Due to a 6-month delay prior to initial spending, we accumulated a budget carry over that allowed us to grant an average 14 awards/competition. This budget carry over has ended at the third year of the program . Therefore an average of 10 scholarship will be offered per year for the subsequent years of the program. Full results are available here.

The last two competitions brought the total number of awards granted since the beginning of the program to 94. We welcome our new trainees to the program and wish them an exciting year of learning and discovery.

We thank the Scholarship and Fellowship committee members for their excellent contribution to the selection of the successful candidates. We are also grateful to the Canadian Institutes of Health Research (CIHR) and the MUHC Research Institute for funding the awards granted in these competitions.

DDTP Symposium : Biological Therapeutics – "Do's and Don'ts and Points to Consider"

From left to right: Dr. Mario Filion, Dr. Brian Booth, Dr. Nicki Panos-kaltsis, Dr. Phil Oldfield (Chair), Dr. John Di Battista (Co-chair).

The 6th DDTP symposium took place on May 17th 2012 at the McGill Faculty Club and focused on biological therapeutics: lessons learnt making way for the future. Chaired by Dr. Philip Oldfield, Co-chaired by Dr. John Di Battista, the symposium included three invited lecturers: Dr. Nicki Panoskaltsis (Northwick Park Hospital Harrow, United Kingdom), Dr. Mario Filion (Alethia Biotherapeutics, Montreal, QC), and Dr. Brian Booth (U.S. Food & Drug Administration, Silverspring, MD). In her presentation entitled

DDTP symposium : Biological Therapeutics – "Do's and Don'ts and Points to Consider" (continued)

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"Lessons from TGN1412: What really happened at Northwick Park?", Dr Panoskaltsis went through the sequence of events in 2006, in which 6 healthy volunteers simultaneously received TGN1412 (an anti-CD28 humanised monoclonal antibody). All 6 individuals suffered a life-threatening cytokine storm starting with TNF-alpha release within an hour of Phase 1 clinical trial. These events stimulated discussion and changes in policy regarding the safety and ethical conduct of such clinical trials. In his talk entitled "Digging deeper to identify new therapeutic targets for targeted therapies", Dr. Filion outlined the challenges of developing more specific and safer monoclonal antibody therapeutics, and how this Montreal-based company has designed an approach based on a highly sensitive transcriptomics technology that permitted the identification of novel targets for engineering therapeutic monoclonal antibodies. Dr. Brian Booth presented a lecture entitled: "Safe & Effective: The regulatory issues with the development of biologic products." Dr Booth discussed the types of issues that need to be addressed ranging from the chemical nature of the product to the clinical effects and the adverse events that can occur after treating the patient. The symposium was well attended with a total number of 53 participants including students, mentors, and visitors. The DDTP thanks all attendants for their participation and the speakers for their excellent lectures.

2012 Travel Awards

The Scholarship and Fellowship committee has reviewed and granted 4 travel awards in 2012. It should be noted that only DDTP awardees are eligible for the $750 travel grant. Awards are primarily granted on the basis of the relevance of the conference to be attended to drug discovery and development. In 2012, four DDTP trainees were granted a DDTP travel award to help them attend conferences in Spain, Germany, the USA, and Canada. (See details in Table 1). We strongly encourage trainees to apply in 2013. There is no deadline for the application. However, applications must be received at least 2 months prior to the event to be attended. Guidelines and application form are available on the DDTP website.

DDTP Travel Awardees for 2012

Baraa Noueihed	Pharmacology and Therapeutics	Modern Therapeutics 2012: Advances in Physiology, Pharmacology and Pharmaceutical Sciences	Toronto, ON June 12-15 2012	Dr. Sylvain Laporte Dr. Sylvain Chemtob
Suman Rao	Medicine	EACR 22: From Basic Research to Personalized Cancer Treatment,	Barcelone,Spain, July 7-10 2012	Dr. Bertrand Jean-Claude
Sylvain Rocheleau	Chemistry	244th ACS National Meeting and Exposition	Philadelphia PA August 19-23 2012	Dr. Nicolas Moitessier
Katherine Castor	Chemistry	EMBO Conference Series: Chemical Biology 2012	Heidelberg, Germany September 26-29 2012	Dr. Hanadi Sleiman

Impact of the Retreat 2012: The First American Association for Pharmaceutical Sciences (AAPS) APS Student Chapter at McGill is Incepted

As a participant in our Retreat 2012 held at the Queen Elisabeth Hotel, you may remember the presentation by Dr. Philip Oldfield on AAPS in which he called for the creation of a McGill AAPS chapter. Kun Shi, a student from the Department of Biochemisty heeded the call and started the process of incepting an AAPS chapter at McGill.

After a very successful Wine & Cheese last December, the new student chapter is doing very well with close do 40 undergraduate, graduate, and postdoctoral fellow members. With more than the number of students required for becoming AAPS student members, the McGill chapter has now submitted a formal proposal package to AAPS to obtain full student chapter status. The McGill Chapter is expecting to grow in the next months. On Tuesday, February 5th, Dr. Phil Oldfield was the first invited guest of the Chapter in an event held in Chancellor Day Hall Rm 203. During this event, Dr. Oldfield who inspired the creation of the Chapter, shared his experience in the biopharmaceutical industry and as an entrepreneur. The Chapter is already planning its next event, a Career Day event on May 30th.

MITACS Program

Supervisors and trainees interested in collaborating with industry are eligible to receive matching fund from the MITACS program. While MITACS primarily matches dollars given by industry, funding obtained by supervisors from Foundations is now eligible for matching. The objective of MITACS being to offer industrial experience to the candidate, it is required that the trainee spend at least a quarter of his time in the industrial milieu during the granting period. Application forms are available at http://www.mitacs.ca/accelerate/apply-now

Recent Publications by DDTP Trainees

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