

INNOVATION as IDEAS APPLIED

Of course research innovation in the Faculty of Science did not start with RIO's creation in 2006. But turning the products of excellent research into products that can enhance our societal well-being is often a Sisyphean challenge. A prime component for success in this goal rests on the demonstrated **value** of the novel solution which we propose, of its true ability to address an **unmet need**, be it in health care, communications, air quality or pollution reduction. In this sense, RIO has provided support and where necessary mentorship to clarify potential opportunities and structure innovative mechanisms to add value to our research outcomes. This issue describes several of the initiatives and developments mediated by RIO in the past year.

Fessenden Prizes

Three Fessenden Prizes in Innovation were awarded to graduate students in 2010. These encourage the articulation of perceived commercialization potential for innovative research results. The applicants' ability to envisage and accurately describe the subsequent steps needed to go from research result to successful product is a key component of the application. Consideration of the competitive position, intellectual property protection and market definition are some of the elements which the competition seeks to encourage. The timeline for the competition enables applicants to postulate for the same-year NSERC Innovation Challenge award.

Fessenden Professorships

The project supported by the first award, made in 2008 to Nicolas Moitessier (Chemistry), has now concluded. The goal was to develop into a commercial product a novel and highly accurate software platform for drug discovery, design and process chemistry.

Named FORECASTER, this software suite fills the key need experienced in medicinal synthetic chemistry to optimize the conformational fit between a potential drug and its receptor.

For pharma, this in-silico lead compound elucidation offers a tremendous improvement over the current approach. A German independent study conducted in 2009 compared the performance of eleven competitive commercial products in that field and gave first place to the McGill-developed software.

Prof. Moitessier held the Fessenden Professorship award concurrently with a grant from the Quebec MDEIE's Programme de soutien à la maturation technologique. The combined financial resources, complemented by solid project management from OTT and RIO, enabled the Moitessier team to reach its objective. Molecular Forecaster Inc. (<http://fitted.ca/>) was formed in 2010 to market and support the product.

The names and projects of all the Fessenden program winners appear on the RIO site at <http://www.mcgill.ca/science/rio/fessenden/>.

Recognizing inventors

This year, in addition to recognizing faculty inventors whose disclosure to the University resulted in a first filing of a patent application, student or post-doctoral co-inventors were also presented with a recognition plaque.

The 2010 faculty inventors were recognized in the course of the final Faculty of Science meeting in May. In preparation for next year, department chairs are invited to advise RIO of an appropriate departmental event at which student certificates may be presented in the presence of peers.

Speeding up Drug Discovery

Montreal continues to be a hub of the Canadian pharmaceutical industry. Recent downsizing decisions have resulted in a wealth of available medicinal chemistry talent desirous of staying in Montreal. Approached by former Merck Frosst Vice-President (and McGill Adjunct Professor) Robert Zamboni, chemistry department chair Bruce Lennox undertook serious consideration of his proposal to set up a novel structure which would offer inexpensive state-of-the-art drug development services to McGill researchers, with

the objective of accelerating the translation of McGill discoveries to the pharmaceutical marketplace.

Once a molecule with lead compound potential is identified, it must undergo numerous tests which progressively confirm its therapeutic suitability. Large quantities of the desired compound(s), usually exceeding the synthetic capability of the typical university laboratory, need to be made.

Since September 2010, Zamboni Chem Solutions Inc. (ZCS) offers services ranging from consulting to tailoring and scale-up of the lead compound to take a candidate through the myriad analyses which confirm metabolic uptake, effectiveness, dosage and acceptable toxicity, on the road to human clinical trials. ZCS provides McGill researchers with a convenient and inexpensive alternative for the synthesis of larger quantities, formerly obtained through external contract research organizations at significant cost.

Projects are proposed for consideration to ZCS through a standard form which can be obtained from the Research Innovation Office. Work has started on three projects which have already been accepted. It is envisaged that the contribution of ZCS will add significant value to the intellectual property encompassing these lead compounds prior to their being licensed by the University.

In the global context, the imminent expiration of patents covering a large number of high-earning drugs makes translational research critical for the industry. "Over the next five years, the pharmaceutical industry will face the sharpest revenue decline in history," stated a December 2009 report prepared by Bernstein Research. "Of the top 10 biggest drugs in the world, nine will lose patent protection; of the top 20, 18 will lose protection." Enriched by the experience of ZCS personnel, the outcome of McGill research and expertise may well find itself augmented in impact and better positioned to benefit from the resultant opportunities.

Fostering entrepreneurial thinking

The Science TEC meetings organized by RIO continue to offer students an informal opportunity

to understand and practice critical concepts necessary to turn a good scientific idea into a product. Practical Science TEC components include learning to pitch an idea effectively and exploring related Montreal events

In association with the Dean, RIO sponsored a student-centered startup weekend event which brought over fifty Montreal young programmers and entrepreneurs to campus in October 2010. In September, an invited presentation by a successful Physics-grad-turned-entrepreneur described the genesis of his first tech startup, an example quite different from Web 2.0 - based small companies.

Reorganization of the former OTT

The unit formerly known as the Office of Technology Transfer no longer exists. Following a re-organization led by VPRIR Operations Sandra Crocker, all of the pre-2010 research support units have merged into the single Office of Sponsored Research (OSR). Since November, the OSR in its entirety is housed in the James Administration Building.

Within the OSR, there are now four associate directors, whose respective groups support the entire range of funded research activity. They are Nathalie Foisset (federal infrastructure and provincial programs), Mary-Margaret Klempa (grants and foundations), Tanya Glavicic-Théberge (contracts, agreements and industry matching programs) and Michèle Beaulieu (commercial development).

OSR staff members have been designated (<http://www.mcgill.ca/research/contact/>) to serve specific Faculties, in a move to facilitate communications. Researchers can call any member of the team assigned to their Faculty for assistance. RIO will continue to work in collaboration with OSR to strengthen the impact of innovative Science research outcomes.

This newsletter highlights activities in the Faculty of Science which encourage and support effective technology transfer or which provide tools for a clearer understanding of the process. Please contact erica.besso@mcgill.ca or call 514-398-3897 for questions or for electronic delivery.