

# Canadian Program on Genomics and Global Health

and

# McLaughlin-Rotman Centre for Global Health

## PROGRAM ON LIFE SCIENCES, ETHICS AND POLICY

This year, the Canadian Program on Genomics and Global Health joined the McLaughlin-Rotman Centre for Global Health, based at the University Health Network. Since its creation six years ago, the Program has become recognized around the world as a leading program on innovation policy and global health. Led by U of T Professors Abdallah Daar and Peter Singer, our mission has been to harness the advances of innovative technology for global health equity. Our vision has been to optimize global health benefits and minimize the social risks of advances in innovation through careful evaluation of the associated social and economic impacts.

Some of our policy-relevant activities have included:

1. Promoting the target of spending 5% of R&D funding on health and environmental technologies for the developing world. This target was in a 2004 Speech from the Throne and 2006 Economic Update in Canada. We designed a suite of programmatic initiatives to implement the target.
2. Advising the UN Secretary General's Office on developing a biotechnology initiative which would, in the words of Kofi Annan who discussed the initiative in a speech at St Gallen in November 2006, "expand the benefits of biotechnology and life science research to build better lives for people around the world ... [and] develop a global framework to mitigate potential risks."
3. Assisting the Bill and Melinda Gates Foundation to identify the Grand Challenges in Global Health
4. Describing the health biotechnology innovation system in emerging economies, with a focus on private sector firms, and using insights from this work to advise governments in the developing world.

Some key publications this year have included:

### 1. Regenerative Medicine and the Developing World

Published in PLoS Medicine, this paper highlights the potential for the emerging field of regenerative medicine to improve health in developing countries. A consensus-building method was used with an international panel of experts, 77% of whom reside in developing countries. These experts identified applications of regenerative they considered to be most promising for improving health in developing countries within the next ten years. Top-ranked by the experts was "novel methods of insulin replacement and pancreatic islet regeneration for diabetes". The resulting top ten list emphasizes regenerative medicine's applicability to both sides of the double burden of disease currently facing developing countries: epidemic rates of non-communicable diseases on top of the persisting threat of infectious disease. (Citation: Greenwood HL, Singer PA, Downey GP, Martin DK, Thorsteinsdóttir H, et al. (2006) Regenerative medicine and the developing world. PLoS Med. 3(9): e381. DOI: 10.1371/journal.pmed.0030381)

### 2. Scientific Diasporas: untapped resource

In this paper, published in Science, we describe the results of interviews with 60 life science researchers and entrepreneurs originally from the developing world now working in Vancouver, Toronto, and Montreal. Many participants expressed a desire to give back to their countries of origin. However, there was little evidence of systematic interaction related to science and technology with their countries of origin. Most participants were not aware of any mechanisms that might facilitate giving back their skills to their countries of origin. A minority had participated in projects as individuals or in networks. One participant said, "if the Canadian government created an organization, provided us with a nucleus, made the initial effort, I think there would be so many people who would join." We have therefore called on G8 countries to create initiatives to help diaspora scientists contribute to science and technology development in their home countries. (Citation: Seguin, B., Singer, P.A., and Daar A.S, (2006) Scientific Diasporas: untapped resource Science vol 312 p1602-03.)

### **3. DNA for Peace: Reconciling Biodevelopment and Biosecurity**

In this report, we warn that global efforts to combat bioterrorism are on a potential collision course with legitimate biotechnology pursuits that hold the promise of improving life for millions of the world's poorest people. We call for a global network of scientists to both promote biotechnology research to fight disease, hunger and poverty, especially in the developing world, and to keep vigil against the misuse of biological science. We noted that such an initiative would promote human security. We also argued that biodevelopment had to precede biosecurity – that is, expanding biotechnology research in developing countries was key to countering bioterrorism.

Our team members have won recent awards including the Avicenna Prize in Science and Ethics from UNESCO (to Dr. Daar), the University of Toronto Dales Award, University of Toronto Department of Medicine Research Award and CIHR Michael Smith Finalist Award (to Dr. Singer) and the CIHR Maud Menten Young Investigator Award (to Dr. Thorsteinsdottir). We have participated in influential international committees such as the High Level Commission on African Biotechnology (Dr Daar) and the US National Academies Panel which reported recently on "Globalization, Biosecurity, and the Future of the Life Sciences" (Dr Singer).

Now housed in MaRS, our team has grown to about 35 people, some of whom are based in Asia and Africa, including graduate students, post-doctoral fellows, research associates, research assistants, administrative staff, and faculty members. We also have an active undergraduate summer student program. Our primary funding sources are Genome Canada through the Ontario Genomics Institute, Ontario Research Fund, Canadian Institutes for Health Research, and Bill and Melinda Gates Foundation, with other co-funders listed at [www.geneticethics.net](http://www.geneticethics.net). For further information, please contact Mr Andrew Taylor, director of Operations and Scientific Strategy at [Andrew.taylor@utoronto.ca](mailto:Andrew.taylor@utoronto.ca).



*Members of the McLaughlin-Rotman Centre for Global Health, Program in Life Sciences and Global Health team (summer 2006)*