

Australia joins global cancer project

Health and medical research in the 21st century is marked by increasing international cooperation. This occurs through individual researchers working together seamlessly world-wide. The “research-without borders” approach is one of the many admirable features of scientific research in general. Since the Human Genome Project however, there has been increasing cooperation between funding agencies themselves to coordinate support for some major projects, particularly where there is a need to tap into the best expertise, wherever it might be found.

The International Cancer Genome Consortium (ICGC) is one such effort. The ICGC will help to coordinate current and future large-scale projects to understand the full range of genomic changes involved in the 50 most common cancers. If successful, this will provide researchers everywhere with the information they need about the genomics, epigenetics and transcriptomics of these cancers.

The ICGC spans 24 countries, including Canada, China, India, Japan, the United Kingdom, the United States and some European nations as well as Australia. Countries continue to join this international effort, which looks set to be the largest international research effort since the human genome project.

The Minister for Health and Ageing, The Hon Nicola Roxon MP, announced on 26 March 2009 that the Australian Government, through the NHMRC, will provide \$27.5 million funding for research into pancreatic and ovarian cancer. Each year 3000 Australians die from ovarian and pancreatic cancers. These two cancers were chosen after a call for applications by the NHMRC in July 2008, and following peer review

that have developed resistance to platinum-based therapies.

From a technical viewpoint, the genetic events that will be studied through the sequencing work include point mutations (single nucleotide polymorphisms or SNPs), insertions, deletions, copy number variants as well as epigenetics and gene expression.

With the remarkable advances in molecular sciences, informatics and sequencing in recent years, goals that were not achievable at the turn of the decade are now achievable through this international collaboration expected to last a decade or so. We now have a glimpse of what personalized approaches to cancer treatment, and perhaps what prevention might look like, but we need a much better understanding of the basic biology of tumor cells to achieve this.

NHMRC sees other advantages through joining the consortium. It will help build our national capacity for DNA sequencing and there are remarkable changes expected in the costs of sequencing in the near future. It will also expand our capabilities in bioinformatics; many have commented that in bioinformatics, despite nodes of excellence, our national capacity lags behind other advanced countries in health and medical research. Membership of ICGC will also further promote international collaborations, reduce duplication, and help develop plans for other international collaborative research efforts.

Australia has been a member of the ICGC from its inception, with the CEO of the NHMRC as an inaugural member of the ICGC Executive. Other leading Australian researchers and academics are represented on

NHMRC sees other advantages through joining the consortium. It will help build our national capacity for DNA sequencing and there are remarkable changes expected in the costs of sequencing in the near future. It will also expand our capabilities in bioinformatics...

of the nine applications. This grant represents the single largest grant ever from the NHMRC for health and medical research, and importantly, the NHMRC funding will be leveraged to more than \$40 million, with partnerships in this research including the University of Queensland, NSW Cancer Council, Silicon Graphics, and Applied Biosystems, a division of Life Technologies Corporation.

The Chief Investigator is Associate Professor Sean Grimmond from the Institute of Molecular Biosciences at the University of Queensland, and fellow Chief Investigators include Professor Andrew Biankin from the Garvan Institute, for pancreatic cancer, and Professor David Bowtell and others from the Peter MacCallum Institute for ovarian cancer.

The pancreatic cancer work will be undertaken in collaboration with researchers at the Ontario Institute for Cancer Research. The Australian team will focus on fully sequencing 350 individually diagnosed cases of pancreatic cancer. For ovarian cancer, the project will sequence 150 cases - 50 primary serous OvCa, matched with 50 cases of relapse and 50 cases



various subcommittees of the ICGC, including the International Scientific Subcommittee, the Data Access subcommittee and the Ethics Committee

It is NHMRC's fervent hope that the project will offer hope to people around the world that we can discover better ways of preventing, diagnosing and treating cancers within the next decade.

*Further details the ICGC may be found at <http://icgc.org>.