Announcement from the EMBnet Associate Node in South Africa

UCT and CPGR join forces with international Pharmacogenomics Initiative focusing on African diseases


Reinhard Hiller[1], Raj Ramesar[2]

[1]Centre for Proteomic and Genomic Research (CPGR), South Africa

[2]University of Cape Town, South Africa

Cape Town, South Africa, 17 June 2011

The Division of Human Genetics at the University of Cape Town (UCT) and the Centre for Proteomic and Genomic Research (CPGR), Cape Town, South Africa, proudly announce that they will be joining the 'Pharmacogenomics for Every Nation Initiative' (PGENI). Jointly, the two parties will form a South African PGENI Centre of Competence for conducting translational research relevant to the local burden of disease and to the most appropriate drugs for treating diseases in African populations.

The aim of the PGENI Centre will be to conduct large-scale studies investigating the prevalence of specific genetic traits (single-nucleotide polymorphisms, or SNPs) in South African populations, and the relationship of such traits with drug efficacy. Side-effects in drug treatments are a major concern for health-care providers worldwide. However, they present a particular problem in developing nations for two reasons: (i) most drugs available today have been developed for use in Caucasian populations, and have not been tailored to the genetic make-up of other population groups; (ii) drug side-effects create a significant financial burden for health-care systems in developing nations, where provision of effective treatments is critical for tackling the burden of disease.

The South African PGENI Centre will initially concentrate on investigating the prevalence of SNPs with known implications in drug efficacy. In order to do this, the Centre will use the Affymetrix DMET™ Plus application in cross-sectional pharmacogenomic studies. Following an initial pilot study, where a few hundred samples will be analysed, the Centre's aim is eventually to generate data-sets from thousands of individuals. These, in conjunction with bio-computational data-mining, will be used to determine drug-specific SNP profiles, and to develop recommendations for policy makers and health-care providers to improve the efficacy of drug treatments in South Africa.

According to Raj Ramesar, Professor of Human Genetics at UCT, and Scientific Director of the PGENI Centre in South Africa: "Our focus is on using powerful genomic tools to understand the exact mechanistic processes that lead to disease. This approach then leads one to devise new generations of drugs and therapeutics, which are better targeted to relevant points of biological interest in the disease process. However, different individuals process drugs at different rates, as much as they process foods and nutrients at different rates; and these processes and rates are genetically determined. We generally import drugs from international vendors, and use them to treat symptoms or diseases for which we presume biological processes are the same between our populations and where the drugs were originally manufactured and trialled. The work we plan to undertake in large numbers of African populations aims to optimise drug use for specific diseases, according to an individual's ability to process such drugs optimally."

"We are pleased to use our expertise in conducting large-scale genomic studies in a joint effort with UCT and PGENI, aimed at improving the efficacy of drug treatments in South Africa", said Reinhard Hiller, Managing Director of the CPGR. "The DMET™ Plus is an application very well suited to generating high-quality pharmacogenetic data-sets. Being able to use this tool to unravel genetic information that can be used to improve the quality of health-care in local populations will ensure that the project's scientific objectives will be met. What's more, we will be able to translate findings into practical applications with a tangible benefit for the community. South Africa is seeking to strengthen its capabilities in genetics

and genomics related to health, and this program will form a significant step in this direction."

Dr. Howard McLeod, Director of PGENI, based at the University of North Carolina in the USA, commented: "We are pleased that UCT and CPGR are bringing their extensive expertise to PGENI. We need partners that have the rare ability to perform high-quality science and guide policy development, and have found those skills in UCT/CPGR. As long-standing leaders in Africa, the Cape Town team have had immediate impact on shaping high-impact PGENI strategies for improving the selection of medications for African countries and beyond."

About the Division of Human Genetics at UCT

The Division of Human Genetics at UCT concentrates on clinical service delivery, through medical genetics clinics at affiliated hospitals. Medical Genetics services are supported by molecular and cytogenetic diagnostic laboratories. The Division has a greater reach within the clinical environment through its MRC Research Unit for Human Genetics, which focuses on the genetic basis of a wide range of the common non-communicable diseases. These contribute a significant burden of disease in South Africa and continentally. The division's more recent attention to genomic variation in indigenous African populations has been important in relating such variations to disease predisposition and variations in response to therapeutics. More information on research in the Division of Human Genetics is available at: www.uct.ac.za/depts/genetics. For more information about the Human Genetics Division, please contact: Professor Raj Ramesar at Raj.Ramesar@uct.ac.za, or:

Patricia Lucas
Tel: (021) 650 5428
Cell: 076 292 8047
E-mail: pat.lucas@uct.ac.za
University of Cape Town
Website: www.uct.ac.za

About the CPGR

The CPGR is a specialist not-for-profit contract research organisation established in South Africa to provide support and services to the life science and biotech communities, based on an initiative by the Department of Science and Technology (DST) to boost the development of a bio-economy in South Africa. The organisation, based in Cape Town, combines state-of-the-art information-rich genomic and proteomic ('omics') technologies with bio-computational pipelines, and biological models, to create unique solutions in the human health and agri-biotech sectors. The CPGR is funded by the Technology Innovation Agency (TIA) in South Africa. Please visit www.cpgr.org.za for more information or contact Dr. Reinhard Hiller (reinhard.hiller@cpgr.org.za) with specific requests.

About PGENI

The Pharmacogenomics for Every Nation Initiative (PGENI) is an enterprise of the Institute of Pharmacogenomics and Individualised Therapy (IPIT) at the University of North Carolina (UNC). PGENI works to integrate genetic-risk data for an individual country and World Health Organisation essential-medicine recommendations into public-health decision-making without placing an extra burden on health-care funding and technology infrastructure. PGENI has regional centres in Brazil, Jordan, South Africa, India, China, Mexico and Ghana, and is active in more than 100 countries. For more information, please visit http://pgeni.unc.edu/.

IPIT is an initiative of the UNC Eshelman School of Pharmacy, in collaboration with the UNC School of Medicine, UNC Gillings School of Global Public Health, and the School of Nursing, with substantial support from the Lineberger Comprehensive Cancer Centre and the Carolina Centre for Genome Sciences. The mission of IPIT is to employ an interdisciplinary approach to tailor therapies and enable the delivery of individualised medical practice. IPIT also offers the services of facilities in molecular genomics, cellular phenotyping and pharmacoinformatics to add to the excellent core facilities already existing at UNC. For more information, please visit: http://ipit.unc.edu/.