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New global network to explore link between genes and environmental factors to tackle health challenges

Dec 1 2016

A new global network linking leading research centres across the world has launched today to tackle some of the most pressing global health challenges of our time such as autism, cancer, diabetes and dementia. The International Phenome Centre Network (IPCN) will greatly increase global research capabilities in the field of phenomics.

Through comprehensive analysis of biological fluids or tissue samples, phenomics examines how our lifestyles and the environment we are exposed to interact with our genes. It can help explain why some people develop disease when others don't. The network launched at a special presentation at the World Innovation Summit for Health (WISH) in Doha, Qatar.

It is widely recognised that people's genes are not enough to explain how disease develops, and that disease prevention, detection and treatment can be improved by understanding the dynamic interactions between our genes, environments, microbiomes, diets and lifestyles, and their expression in diverse individuals and populations.

The mission of the IPCN is to better understand how variation in gene-environment interactions affects disease across the lifespan for different populations. Using robust and harmonized data sets representing the world's diverse populations, this research will inform global public health policies and the development of new therapies.

“*The world is facing an unprecedented confluence of environmental and lifestyle factors that are dramatically increasing the risks of chronic disease, and posing the greatest public health challenges seen in modern times. The International Phenome Centre Network is creating internationally harmonised centres of analytical science focused on understanding gene-environment interactions*”

that underpin disease risk, the comparative biology of major diseases, and addressing unmet healthcare and medical needs,”

Professor Jeremy Nicholson, Director of the MRC-NIHR National Phenome Centre (NPC) and Head of Department of Surgery and Cancer at Imperial College London.

Initiated by the NPC at Imperial College London, the IPCN includes more than a dozen international partners with regional, multi-institutional hubs in Australia, Canada, China, Japan, Singapore, Taiwan, the United States and the United Kingdom.

Since 2012, the NPC has established best-practice laboratory and research methodologies in phenomics, and the new IPCN will share this knowledge around the globe. If research is conducted in the same, harmonized fashion it makes it easier to combine data sets and compare results.

This means that larger, more complex studies can be undertaken than would be otherwise possible, and less complex studies completed much faster than an individual centre could do in isolation.

“Phenomic research really is one of the next medical frontiers which can advance our understanding of a whole raft of diseases and conditions,” said Professor Dame Sally Davies, Chief Medical Officer of the United Kingdom.

“The way we treat autism, cancers, mental health, stroke, obesity, metabolic diseases and type 2 diabetes could all be revolutionised by research in this area. It is also really good for work to cross international boundaries to find ways of tackling the biggest global public health challenges facing us today faster.”

“In Singapore, we welcome the launch of the International Phenome Centre Network,” said Professor James Best, Dean, Lee Kong Chian School of Medicine, Nanyang Technological University.

“Through this partnership, the Singapore Phenome Centre at Nanyang Technological University will have enhanced opportunity to collaborate

internationally. By pooling data obtained with harmonised methodology and by sharing ideas, we will better understand the biochemical abnormalities underlying metabolic disorders such as diabetes.”

“The WISH program is dedicated to understanding and mapping changes in global health needs and emergent medical and healthcare problems,” said Professor the Lord Ara Darzi of Denham, Director of the Institute of Global Health Innovation at Imperial College London.

“The IPCN is set to take on many of these healthcare challenges, such as obesity, diabetes, cancers and autism, and to create a technological framework for studying the comparative biology of disease at the global scale.”

The founders of the network are Imperial College London with its corporate partners Waters Corporation and Bruker Corporation. Waters and Bruker have developed the mass spectrometry and nuclear magnetic resonance (NMR) spectroscopy technologies which makes advanced, precise, and efficient metabolic phenotyping possible.

Metabolic phenotyping involves identifying metabolites present in bodily fluids and tissue samples that provide information on a person’s current state of health and physiological function. This in turn provides information on disease and metabolic pathologies.

Source:

<http://phenomenetwork.org/>
