International Innovation showcases the most exciting highlights and interviews on research centred on healthcare published in recent editions, available free-to-access online.

CANADIAN PARTNERSHIP AGAINST CANCER

Chris Clark, a champion for improving the experience for individuals battling cancer, is at the forefront of an organisation that strives to reduce the burden of this complex disease. Here, he discusses his own experience of dealing with cancer, the parallels between his personal battle and leadership, and his hopes for the future in the face of this prevalent health challenge.

INTERNATIONAL BRAIN RESEARCH ORGANIZATION

Dr Pierre J Magistretti highlights IBRO’s efforts to develop global neuroscience activities through collaborative research, teaching, advocacy, funding and dissemination frameworks. Through greater understanding of the brain and its mechanisms within the context of disease, the Organization’s ultimate goal is to promote training of neuroscientists and efforts to build capacity, as well as raise awareness about brain diseases worldwide.

How far are we from the widespread application of personalised treatments in a clinical setting? Moreover, are medical practitioners ready, both from a practical and ethical point of view, for this new age of healthcare?

Dr Gabi Kastenmüller (Helmholtz Zentrum München, Germany): This really depends on the area of medicine; in cancer medicine it is already a reality, but for more common diseases, such as hypertension, it is still far away. Although we have a lot of knowledge that could be used for more personalised treatments, we can only proceed if we convince the decision makers – who have a financial perspective on healthcare – that in the end, personalised medicine will be economical. For example, it would enable us to stop trial-and-error treatment and instead use research in areas like metabolomics to identify the best therapeutic option for a patient.
A CANCEROUS ENVIRONMENT

Researchers from the London Health Sciences Centre, UK, are probing the role of hyaluronan in wound repair and breast cancer in the hope of developing effective treatments for this devastating disease, as well as the clinical problems associated with tissue scarring. Here, Professor Eva Turley discusses the changing view of the medical community towards cancer and explains how her collaborations with Professors Mary Cowman and James McCarthy are enhancing her work.

A PARAMOUNT PROTEIN

Researchers based at the Laboratory of Immunology in the Regina Elena National Cancer Institute, Italy, are investigating the crosstalk between tumour cells and the tumour microenvironment in order to pinpoint early cancer biomarkers in breast, pancreatic and lung cancers. Dr Paola Nisticò shares details about her background in immunology and her research into the mechanisms that underpin the response of the immune system in breast cancer patients.

UNDER THE KNIFE

Constraints with current surgical procedures for removing cancerous tumours have driven scientists to explore potential ways to overcome such limitations. Researchers at Purdue University’s Department of Chemistry, USA, have been examining the use of fluorescent dyes to distinguish between cancerous and healthy tissue for the more effective removal of malignant lesions. Here, Professor Philip Low discusses this novel research and the striking success fluorescence-guided surgery has had so far.

CLASSIFYING COGNITIVE NEUROSCIENCE

The ATHENA project, led by US researchers, is harnessing the power of computer science to interrogate the vast landscape of neuroimaging research. Drs Jessica Turner and Angela Laird are collaborating to provide knowledge representations of cognitive neuroscience data. Here, they discuss difficulties with meta-analysis and how they are seeking to help researchers better navigate the literature available.

A NEW FRAME OF MIND

Current methods for analysing functional magnetic resonance imaging data from the resting brain have proved inadequate for some purposes, but a team from the University of Tokyo, Japan, has found a promising alternative. Drs Naoki Masuda and Takamitsu Watanabe discuss their innovative method for estimating the activity of resting-state brain networks, which has proved more accurate than the popular techniques used at present.