

New test to improve treatment for patients at risk of heart attack

February 9 2016, by Louise Loughran

An Irish research consortium is embarking on a new project to make a test, which will lead to better treatment of cardiovascular disease, readily available to patients. Professor Dermot Kenny (RCSI, Principal Investigator, BDI) and Professor Antonio Ricco (Adjunct Professor, DCU, Principal Investigator, BDI) have developed a laboratory-based test, which has already been trialled on 400 patients, to identify those who may be at high risk of side effects from heart disease medication.

Small particles in the blood called platelets clump together and can cause heart attacks. However, anti-platelet medication, commonly prescribed to prevent this, can have potentially significant side effects for 10-30% of patients.

The Royal College of Surgeons in Ireland (RCSI), in collaboration with BD (Becton, Dickinson and Company), a leading global medical technology company, Dublin City University (DCU) and the National University of Ireland Galway (NUIG), through a consortium enabled by the Science Foundation Ireland (SFI)-funded Biomedical Diagnostics Institute (BDI), are working together to further develop this test as a diagnostic tool. The collaboration will receive funding of €500,000 from Enterprise Ireland (EI) and BD under the EI Innovation Partnership Programme. This new project aims to translate the current laboratory-based version of the test into a faster, more convenient, benchtop version to increase the availability of this technology to patients.

Professor Dermot Kenny, Professor of Cardiovascular Biology and

Director of the Clinical Research Centre at RCSI said: "This diagnostic tool will add to the ability of doctors to test patients at risk of heart attacks, to guide preventative anti-platelet medication such as aspirin. It has already proven to be a powerful tool in a laboratory setting and we look forward to harnessing the expert technology developed by BD to make this testing widely available, ensuring the optimum treatment for patients."

The novel dynamic platelet function assay (DPFA), developed by BDI, centres on monitoring the interactions of platelets with a vascular protein surface in a microfluidic chip. This whole-blood assay results in a video record of platelet-surface interactions, from which multiple biophysical parameters are extracted and analysed. The assay and microfluidic chip were developed by researchers at RCSI and DCU, while the data analysis is being carried out by researchers at the Irish Centre for High-End Computing (ICHEC) at NUIG.

Joe McManus, Director of the BDI, commented, "This project is an excellent example of the BDI's strengths in translating research in life sciences from early stage work right through to the point of industry partnership and commercialisation. It is also an excellent example of the academic-business-clinical partnership model practised by the BDI, bringing together a multi-institute team under Professor Kenny's clinical leadership at RCSI to partner with a world-leading diagnostics company."

Dr. Noel Harvey, Senior Vice President of R&D, BD Technologies said, "This relationship is a beautiful example of physicians and scientists in distant locales coming together to solve a fundamental problem in human health. We are convinced that this model will translate solutions from the research laboratory into the clinic much faster than if we work in isolation."

Provided by Royal College of Surgeons in Ireland (RCSI)

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