

# CASE STUDY: PROTEOMICS

## Research Question

Can we identify trace amounts of protein that stimulate cell migration?

## Our Approach

Cell migration holds the balance between health and disease through processes such as wound healing, immune response, and embryo development. We wanted to identify the active components of a potent stimulator of migration - the secreted proteins of platelets - by correlating protein fractions with activity in a bioassay. Platelets are difficult to work with, and only very small amounts of protein were available for analysis after the bioassay. However, through the use of cation exchange fractionation and highly sensitive nano-electrospray mass spectrometry, we were able to narrow the list of candidates from more than 300 down to three proteins.

## Resulting Publication

O'Connor R et al. (2010) Proteomics strategy for identifying candidate bioactive proteins in complex mixtures: application to the platelet releasate. *J Biomed Biotechnol* 2010;2010:107859

'Our attempt to map protein function in a delicate biofluid was a major challenge but the Core staff designed a configuration that gave us the sensitivity we needed. The hardware in the MSR is world class, but it is the problem solving skills of the staff that makes the difference.'

Dr Gerard Cagney  
UCD

