

M.J. Dunne Fellowship Report 2024

This year's BMSS-BSPR super meeting was held in Shakespeare's country, but what is less known to the public is the University of Warwick's impressive record as a fertile breeding ground for eminent mass spectrometrists the world over. The three-day event reflected this heritage through the presentation of world class science across instrument innovations, biochemistry and clinical applications. My personal highlights, as a member of the protein-MS anorak club (applications welcome), were Prof Helen Cooper's groundbreaking imaging mass spectrometry applications of spatial proteomics for Amyotrophic Lateral Sclerosis (ALS), and Tarick El-Baba's native MS investigation into stoichiometric changes in metabotropic glutamate receptor protein dimerization, within the brain of chronic stress patients.

One of the most relevant challenges of the proteome research community involves the translation of our ever-improving body of scientific knowledge into the clinic. The more successful we are in this endeavour, the more tangible a difference we can make to the lives of patients across the world. It is through this paradigm that Prof Bernhard Küster delivered an incredible closing plenary lecture; describing the decryptE technology as a proteome wide investigation of drug-dose response characteristics in the form of protein expression changes, performed in Jurkat acute T-cell leukaemia cells. Bernhard discussed how we could leverage such technology to tailor medication to patients at the clinic. Further, he demonstrated the complicated relationship between protein activity and protein expression, which is by no means always linear. In this regard, PTM's such as phosphorylation could be important signatures as to the activity of the protein, and should be used in conjunction with other parameters to gauge protein activity in the cell. The Küster lab's work represents real hope for the

trails that must be blazed as we attempt to marry proteomics with tailored patient diagnostics and prescriptions.

Away from the presentations, some of the greatest value that can be acquired from these BSPR meetings comes from discussions with colleagues over a coffee, or perhaps something harder. We all experience the same professional challenges, frustrations and (occasionally) successes- meetings like BSPR provide the platforms for us to support each other as we negotiate our way through what is an exciting, fulfilling and concomitantly stressful academic journey- I certainly know this to be the case for us early career researchers! Of course, BSPR also catalyses hundreds of scientific ideas and eureka moments across the delegate community, whether this is in the presentation sessions, the lobbies or the pubs... This was indeed my experience from discussions with researchers and industry partners during the course of this year's event.

Finally, I owe a huge debt of gratitude to the BSPR committee for selecting me to attend this meeting, courtesy of the M. J. Dunne Fellowship award. To this end, I have a notebook full of ideas that I will spend the next year trying to bring to fruition! A huge thank you goes to the organising committees of BSPR and BMSS for delivering yet another memorable event. I leave with my sights firmly set on BSPR 2025 in Liverpool!