

**P011** Fully automated 2-dimensional gel electrophoresis  
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Two-dimensional electrophoresis (2DE) is the most commonly used separations technique in protein research. Despite its popularity, the technique has undergone few improvements in the last 30 years and remains multi-step and labour-intensive, often resulting in irreproducible data. In this presentation we will describe the design and use of a newly developed fully automated system for 2DE. The system is totally unique and separates solubilised samples of proteins by 2DE without the need for user supervision or intervention. Hydration, IEF, equilibration on conventional IPG strips, and resolution in the second dimension by SDS-PAGE occur automatically. The technology simplifies the separation process and overcomes the limitations of the technique, removing many of the complexities and variability associated with a manual process. The result is increased resolution of individual proteins and the ability to perform rapid separations in a reproducible fashion. For added flexibility, the system automatically casts the 2nd dimension gel to user defined gradients, enabling use of non-standard 2nd dimension conditions to facilitate protein resolution for subsequent analysis via mass spectrometry. This presentation will also describe the precision dispensing microfluidics systems, which remove human error and increase reproducibility.