On-Column Monitoring of protein purification by spectroscopy techniques

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This 4-year studentship will be a collaboration between GSK and Imperial College London to apply novel spectroscopy approaches to directly monitor different analytes on the Protein A affinity capture step, on-column. This project will combine the spectroscopy technology from Imperial College London with GSK biopharmaceutical processing knowledge and expertise.

Monoclonal antibodies (mAbs) represent effective therapies for the treatment of a range of chronic and life threatening diseases including rheumatoid arthritis and cancer. However, the cost of production of therapeutic antibodies is significantly higher than small molecule drugs, mainly due to the complex isolation process which involves a very expensive Protein A affinity capture step. We have previously shown the power of Attenuated Total Reflection Fourier Transform Infrared spectroscopy (ATR-FTIR) for probing the build-up of contaminants and the effects of cleaning protocols on resin life span using ex situ resin beads and a microfluidic set up. This project focuses on the further development of novel spectroscopy approaches to directly monitor the Protein A affinity capture step, on-column.