

Project proposal template – Faculty studentships Summer 2014

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<i>Project title</i>	<input style="width: 100%; height: 100%;" type="text" value="High resolution NMR techniques and isotopic enrichment of recombinant proteins for disease biomarker detection."/>	<i>Director of Study</i>	<input style="width: 100%; height: 100%;" type="text" value="Dr Adam Le Gresley"/>
<i>Second Supervisor</i>	<input style="width: 100%; height: 100%;" type="text" value="Dr Andrew Snabaitis"/>	<i>School</i>	<input style="width: 100%; height: 100%;" type="text" value="Pharmacy and Chem"/>
<i>Other members of supervisory team</i>	<input style="width: 100%; height: 100%;" type="text" value="Dr Alex Sinclair
Dr Neil Williams"/>	<i>Any requirements from applicant (eg degree in specific subject area)</i>	<input style="width: 100%; height: 100%;" type="text"/>
Project summary (max 1,000 characters)			
<p>This PhD research project involves using cutting-edge NMR analysis techniques to identify, characterise and quantify salivary protein biomarkers with implications for a range of diseases including pre-eclampsia, rheumatoid arthritis and periodontitis. The student will develop an expertise in state-of-the-art NMR experimentation including DOSY, quantitative NMR and Saturation Transfer Difference using the Bruker Avance III 600MHz Instrument.</p> <p>Using NMR, mixtures of molecules can be analysed in a variety of model saliva matrices. NMR methods can be used for identifying compounds of a certain size and relating this to the quantity of individual components. A component of the project will involve the generation of isotopically enriched (¹⁵N and ¹³C) recombinant proteins (biomarkers) from bacterial expression systems using contemporary molecular biology techniques in the new Biotechnology laboratory.</p> <p>This PhD would suit a keen and adaptable student who wishes to work at the interface between chemistry and biology and develop a breadth of expertise. Our emerging integrated research group is cross disciplinary and already has a number of research student completions and has attracted external research funding.</p>			