

## Project proposal template – Faculty studentships Summer 2014

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<i>Project title</i>	<input style="width: 95%;" type="text" value="The development of dry powder inhaled formulations to treat infection in cystic fibrosis patients"/>	<i>Director of Study</i>	<input style="width: 95%;" type="text" value="John Fletcher"/>
<i>Second Supervisor</i>	<input style="width: 95%;" type="text" value="Richard Singer"/>	<i>School</i>	<input style="width: 95%;" type="text" value="Pharmacy and Chem"/>
<i>Other members of supervisory team</i>	<input style="width: 95%;" type="text"/>	<i>Any requirements from applicant (eg degree in specific subject area)</i>	<input style="width: 95%;" type="text"/>
<b>Project summary (max 1,000 characters)</b>			
<p>Cystic fibrosis patients tend to suffer from repeated often chronic infections of Staphylococcus aureus, Haemophilus influenzae and Pseudomonas aeruginosa. High-dose oral antibiotics can be effective but treatment resistant strains are common, particularly where the antibiotics are given preventatively, and mucoid forms are particularly problematic. Hence there is interest in delivering antibiotics to the lung.</p> <p>We have developed a formulation that was used for targeted oral delivery. The formulation is spray dried to produce amorphous discrete spherical particles that are between 1-10 µm; the size range typically used to deliver to the deep lung (via sedimentation impaction).</p> <p>We will formulate small molecule antibiotics and look at lung deposition. An osmotic agent (mannitol) may be included to improve lung function.</p> <p>The amorphous nature of our formulation may stabilise protein structures so we will later endeavour to incorporate DNase (or a model protein) to treat mucoid infections.</p>			