

Project proposal template – Faculty studentships Summer 2014

<i>Project title</i>	Alzheimer's, Bones and Cancer: exploring the roles of vitamin D in health and disease	<i>Director of Study</i>	Prof Declan Naughton
<i>Second Supervisor</i>	Mr Paul Waller	<i>School</i>	Life Sciences <input type="button" value="v"/>
<i>Other members of supervisory team</i>	Prof Andrea Petroczi	<i>Any requirements from applicant (eg degree in specific subject area)</i>	Good degree in molecular sciences

**Project summary
(max 1,000 characters)**

There is a great deal of interest in the role of vitamin D in maintaining health, and also in its association with a wide range of conditions including cancers, dementias and cardiovascular disease. However, our current knowledge is based on imperfect analyses; vitamin D has a complex metabolism, and many studies rely on inaccurate measurements of inactive forms.

We have recently developed a novel assay which can measure 10 forms of vitamin D. Applications of this assay to clinical samples reveal:

- i) one key metabolised form is diminished in Alzheimer's disease, and
- ii) serious diseases are associated with levels of little studied epimer forms.

This project, through advanced assays and metabolomics, will extend our studies into actions of all 10 forms of vitamin D in health and disease. The project will specifically address the fate of supplements to address the conundrum of why supplements are ineffective, which will inform future supplement strategies to optimise the exact forms that are required in vivo.