

From enzymology to nanotechnology - an overview of our protein science

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-12.15pm-

-Thursday 8th November 2007-

-Abstract-

In this talk I will give a broad overview of the work that we are doing in my research group, and how this might interface with others in the Institute.

Highlights will include:

1. Our work on the quaternary structure of enzymes (the protein scientist's version of supramolecular assembly)

Specifically our interest is in one of the enzymes of the lysine biosynthetic pathway, dihydrodipicolinate synthase, an important antibiotic target. In this talk I will not focus on the drug design angle however, but instead outline how we have probed the role of quaternary structure of this enzyme, as a model for many soluble proteins, how higher order assembly of proteins relates to biochemical function, and how we might use these principles in vitro

2. Self-assembly of higher order proteinaceous structures, especially amyloid fibrils (a protein nanotube)

In this part of the talk I will highlight our work on higher order protein structures of in vitro relevance, how we can harness our biological understanding to create protein nanotubes in the laboratory, and our work on scaling up this process using low value waste materials. This leads to the third part of the talk which will focus on...

3. Early steps towards the use of protein nanotubes for a variety of bionanotechnological applications.

Specifically, I will discuss some preliminary data showing that we can add strength to materials using protein nanotubes, and some early attempts to add additional functionality to these structures, in the form of enzyme activities.

Venues

- Rankine Brown 105, Victoria University of Wellington-

-Video Conference Room, C-Block, IRL, Gracefield Site, Lower Hutt-

-Level-3 lecture theatre (A309), ELEC Dept Building, Canterbury University-

- Turitea Registry1.07, Massey University-



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