

CBMNet helps shape career of budding scientist

Dr Alan Goddard is Senior Lecturer working in the School of Life Sciences at the University of Lincoln. His research interests mainly comprise membrane proteins and lipid membranes and he uses a variety of techniques to probe their activity including molecular biology, biochemistry and biophysics. A great example of how we help academics is the way in which CBMNet has helped to shape Dr Alan Goddard's career. Before joining CBMNet Dr Goddard had not worked with industry.

"I attended the first CBMNet networking event in September 2014 and that's where I met Dr Preben Krabben from Green Biologics Limited. After discussing potential ways in which we could work together we decided to apply for a CBMNet BIV 'Understanding the effects of n-Butanol on biological membranes'. We obtained results indicating that n-butanol is disruptive to biological membranes, both those synthesised from single lipids and those made from lipids extracted from Clostridia from both high and low n-butanol concentrations. "

"The collaboration and data generated from this project lead to us going on to apply for CBMNet Proof of Concept funding, which we were awarded last year for a project to 'Identify and characterise protective lipid changes under solventogenic stress'. This proposal aims to determine the specific changes in plasma membrane lipid composition during n-butanol formation and to investigate their effects on membrane stability in the presence of n-butanol with a view to being able to modulate this system for enhanced biofuel production. Being awarded this funding has allowed me to recruit a post-doc for the project.

We have also successfully recently applied for another CBMNet BIV to explore an idea of 'In vitro and in silico models of n-butanol membrane interactions' which aims to establish a planar lipid bilayer model for simple and Clostridial membranes to monitor n-butanol transport."



"Having a network like CBMNet on the scale that it is, is truly novel. It is an unparalleled opportunity for researchers like me to reach out to industry and really make all the work we have done over a number of years relevant to the real world."

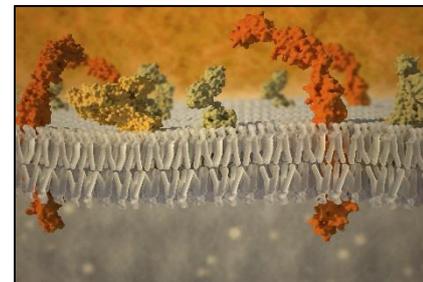
Dr Alan Goddard, University of Lincoln

The funding awarded by CBMNet will provide an exciting opportunity for our lab to continue industrially-relevant collaborations with Green Biologics Limited. The award will benefit the work of Green Biologics Limited as well as provide new opportunities for researchers here at Lincoln. I hope that our partnership will continue to develop based on the findings of this work.”

“I have also recently been awarded a £500 CBMNet Public engagement grant. This funding will allow me to run a project which will focus around providing information to Year 10 and/or Year 12 science students about the processes and products of bioenergy and biomolecule production followed by a debate. It will focus on the production of biofuels such as ethanol and n-butanol which often use feed stocks which can have alternative applications in the human and animal food chains. The aim is to generate debate about the pros and cons of these processes and look at the environmental and social impacts (positive and negative) of IBBE.”

Dr Goddard’s research grant history:

- **Public engagement Grant: processes and products of bioenergy and biomolecule production - Awarded £500 by BBSRC (CBMNet) in 2016**
- **In vitro and in silico models of n-butanol-membrane interactions — Awarded £9,820 by BBSRC (CBMNet) in 2015**
- **Identifying and characterising protective lipid changes under solventogenic stress — Awarded £30,753 by BBSRC (CBMNet) in 2015**
- **Identification of peptide receptors — Awarded £1,000 by UROS in 2015**
- **n-butanol Interactions with Biological Membranes — Awarded £4,895 by BBSRC (CBMNet) in 2014**
- **Life Beyond Postgraduate Research — Awarded £1,346 by FED in 2014**
- **Polarising Light Microscopy to study biological lipid membranes — Awarded £1,837 by Biochemical Society in 2014**
- **Biochemistry of bird eggs — Awarded £1,000 by UROS in 2014**
- **Developing an in vitro model of the human gut using laser-processing techniques — Awarded £12,700 by University of Lincoln RIF in 2013**
- **School of Life Sciences Postgraduate Symposium — Awarded £350 by Biochemical Society in 2013**
- **Purification of *Paracoccus* nitrogen oxyanion transporters — Awarded £1,766 by Society of General Microbiology**



“Before becoming involved in CBMNet, much of my work was basic research without direct real world applications. As a relatively new academic, my involvement with CBMNet has allowed me to create my own research niche as well as adding industrial relevance and collaborators in academia. I hope the partnership with Green Biologics Limited will continue into the future and that I will build new collaborations through CBMNet.”

Dr Alan Goddard, University of Lincoln

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