

## CASE STUDY

### DR MANON PRITCHARD

Sêr Cymru II Fellow



## INDUSTRY COLLABORATION

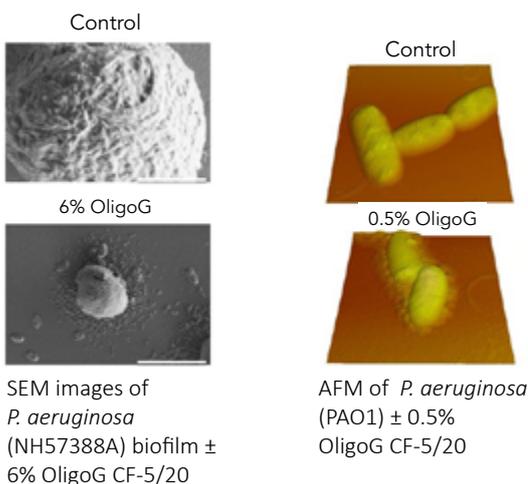
This work has not only supported me, but has also led to completion of a further 3 PhD studentships, 4 MSc theses, funding for 6 PDRA positions and 2 technicians, all working collaboratively on the same antimicrobial compound. Moreover, we have provided placements for 3 Erasmus students from the University of Angers and 4 Nuffield student placements, which provides lab experience for children from deprived backgrounds. It has also led to increased publicity, for our School and Cardiff University, with our research making the news. I am currently also working with the company to edit a special issue of the journal, Marine Drugs.

I personally have a lot to thank KESS for, with regards to my academic achievements over the last 9 years, and I continue to this day to collaborate closely with the same industrial partner established all those years ago.

I was awarded a KESS PhD scholarship in 2011, working with AlgiPharma AS, a biopharmaceutical company based in Norway. The initial aim of my project was to determine the antimicrobial potential of their novel compound derived from seaweed. I worked across both Cardiff and Swansea Universities; thereby gaining access to cutting-edge technologies at both institutions, and able to work with molecular biologists, microbiologists, engineers, rheologists, physicists, computer scientists and physicians to help direct the success of the work. Collaborating with the appropriate centre of excellence led to innovative translational research. It also provided the company access to clinicians, who would provide not only patient samples, but also invaluable, insight and feedback on the project. Further small grants were also obtained which enabled me to learn new techniques e.g. small angle neutron scattering (ILL; Grenoble) and increase our knowledge about the compounds mechanism of action.

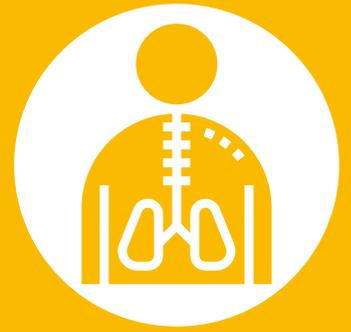
Following completion of my PhD, I obtained a post-doctoral research associate (PDRA) position through a programme grant funded by the Norwegian Research Council in conjunction with AlgiPharma AS. This work directly contributed towards establishing a number of new research collaborations for the company, and over the years, the work presented (at National and International conferences) and published in peer-reviewed journals, has contributed to multiple third-party funding support for the research (>\$10M). I now co-supervise my own KESS 2 PhD student working with the same industrial partner. The continued, on-going success of the industrial partnership (after nearly 10 years of my first working with them) has now led to further industrial partner collaborations on my Sêr Cymru II Precision Medicine Research Fellowship, which I was awarded in 2018.

A PGR funding support programme in Wales, working with industrial collaborators, is vital to keep home-grown research talent within the country. The outcome potential for industrial-academic collaborative work is immense and continues to help drive cutting-edge, translational research for clinical benefit. I am one of many students over the last decade who have undoubtedly benefited from this excellent programme.



# IMPACT

This KESS opportunity has led to multiple successful patent applications for the company, and to date, 13 published journal research papers, 33 abstracts and a book chapter. Furthermore, the *in vitro* work to obtain an understanding of the mechanism of action of their product has helped inform the clinical aspects of the *in vivo* clinical trial. By close collaboration and communication with my industrial partner, the work has developed rapidly and has now reached Phase IIb/III clinical trials as an inhalation therapy for cystic fibrosis patients. We are now also involved in enhancing the portfolio of the company to develop further products to target other clinically unmet needs.



Icon by Eucalypt from Flaticon

## KESS 2 PARTICIPATION HIGHLIGHTS:



During my PhD and PDRA post, I presented a number of abstracts on my research at local and international conferences. This not only enhanced the portfolio of my industrial partner but also increased their global visibility. Our research group in the College of Biomedical and Life Sciences also prestigiously won the Cardiff University Medical Impact and Innovation Award in 2017. We attended the "black tie" awards ceremony at the Glamorgan Building in Cardiff Civic Centre and enjoyed the evening celebrating a very successful collaboration, focused on translation of laboratory findings into the clinical setting, all for the ultimate long-term benefit of patients.

## PUBLICATIONS

**Pritchard MF**, Powell LC, Jack A, Powell K, Florence H, Forton J, Rye PD, Dessen A, Hill KE and Thomas DW. A low molecular weight alginate oligosaccharide disrupts pseudomonal microcolony formation and enhances antibiotic effectiveness. (2017) *Antimicrobial Agents and Chemotherapy*, doi: 10.1128/AAC.00762-17.

**Pritchard MF**, Powell LC, Khan S, Griffiths PC, Mansour OT, Schweins R, Beck K, Buurma NJ, Dempsey CE, Wright C, Rye PD, Hill KE, Thomas DW. The antimicrobial effects of the alginate oligomer OligoG CF-5/20 are independent of direct bacterial cell membrane disruption. (2017) *Scientific Reports*, doi:10.1038/srep44731.

**Pritchard MF**, Powell LC, Menzies GE, Lewis PD, Hawkins K, Wright C, Walsh TR, Onsøyen E, Myrvold E, Dessen A, Rye PD, Myrset AH, Howard HNE, Hodges LA, MacGregor G, Neilly JB, Hill KE and Thomas DW. A new class of safe oligosaccharide polymer therapy to modify the mucus barrier of chronic respiratory disease. (2016) *Molecular Pharmaceutics*, doi: 10.1021/acs.molpharmaceut.5b00794.

Knowledge Economy Skills Scholarships (KESS 2) is a pan-Wales higher-level skills initiative led by Bangor University on behalf of the HE sector in Wales. It is part-funded by the Welsh Government's European Social Fund (ESF) convergence programme for West Wales and the Valleys. For further information about how your organisation could benefit from participating in KESS 2, please contact the KESS 2 Central team at Bangor at: [kess2@bangor.ac.uk](mailto:kess2@bangor.ac.uk)



# AlgiPharma

