

Case Study

CONTROLLING LISTERIA IN FOOD PRODUCTION FACILITIES

Helping industry find academic partners to solve unmet needs

We regularly help our Industrial Partners to find suitable Academic Partners within NBIC to collaborate on solving their applied problem areas. One such partner is the Chilled Food Association (CFA) and we worked with them to create a problem statement around one of these relating to the use of safe visible light for biofilm control and disinfection in the chilled food industry. We sent this statement out to our Academic members.

Ken Johnston, a Consultant and Advisor to The Chilled Food Association, said: "The CFA is constantly looking for new ways to enhance the efficiency of food manufacture. *Listeria monocytogenes* is an organism of particular concern to us because of its public health importance and its toughness in biofilm environments. Through NBIC's network we found a suitable partner, the Quadram Institute, where Dr Mark Webber leads the antimicrobial resistance group, to help us evaluate novel approaches to the control of listeria."

Dr Webber says: "We have been close to NBIC since day one and when we saw the problem statement, were able to respond immediately as we have experience in this area and met with Ken to identify the work needed to address this problem. We submitted an application to NBIC's first Proof of Concept project call for a 6-month project and were delighted to be successful."

The CFA/Quadram Proof of Concept project has recently started and the practical work is led by Dr Chloe Hutchins. The project demonstrates how NBIC can be engaged in understanding and disseminating unmet needs, finding partners and then enabling translation.



SEM of Listeria monocytogenes, magnification: x 3,000.

Dr Webber's research group studies the molecular mechanisms of antibiotic resistance with a focus on understanding how, where, when and why bacteria evolve antibiotic resistance. He is particularly interested in bacterial biofilms and is investigating how bacteria adapt to antimicrobial pressure within a biofilm. Dr Webber has published over 80 articles relating to antimicrobials and acts as an expert advisor on antimicrobial resistance for the WHO. Dr Hutchins is currently working as a Postdoctoral Researcher at the Quadram Institute.

The Chilled Food Association is a trade association representing chilled prepared food producers supplying the UK's ~£13bn market, primarily through major retailers. CFA develops best practice guidance and standards on food production from farm to fork, sustainability and skills, supports and monitors research, and represents the sector in regulatory affairs and the media.



Dr Mark Webber



Dr Chloe Hutchins

Project Summary

Blue light treatment of listeria under environmental conditions. *Listeria monocytogenes* is an important foodborne pathogen, causing recent fatal outbreaks across Europe and South Africa. *Listeria* can persist in food factories in biofilms despite sanitising procedures. Blue light could be an additional operator-safe disinfection measure, however its impact against listeria in factory conditions is unknown.



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