

Case Study

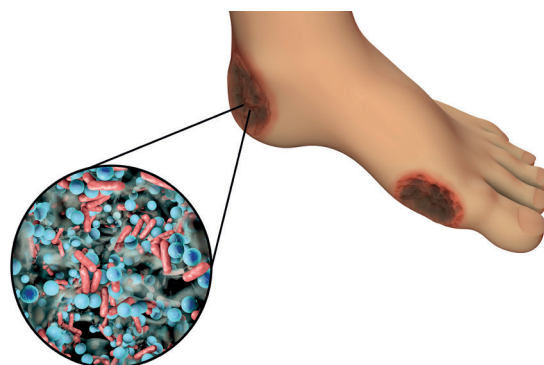
DIAGNOSING INFECTION IN CHRONIC WOUNDS

Assisting the academic community to find the right industrial partner

We regularly help our academic community to find suitable industrial partners to collaborate with on progressing a real-world application of their technology or knowledge either via our workshops, making direct contact or by targeted partner searches. One such partner is Dr Sourav Ghosh (Loughborough University). Loughborough were planning on joining NBIC and as part of our discussions described a diagnostic technology for which they needed a partner. We worked with Dr Ghosh on framing the offering to potentially solve a critical unmet need and then circulating it to our industrial community.

The technology is a simple portable test that can perform within 30-45 minutes a single-step detection of whole bacteria and their antibiotic susceptibility. This could for example be in a chronic wound. Dr Ghosh said: "We were looking to find a company who could validate this as an unmet need and with whom we could work together to further develop the test into a useful format. The search that NBIC did for us led to some useful contacts. Ultimately we ended up putting in a POC application with a global leader in this field (Smith & Nephew) which was successful!"

Smith & Nephew is a leading medical technology company, operating in around 100 countries globally. Dr Iain Webster, Research & Innovation Director at Smith & Nephew said: "Improperly diagnosed wounds place a heavy burden on global healthcare systems. In the UK, approximately 30% of the wounds are not definitively diagnosed. The economic cost of this to the wider society is comparable with that of managing



Diabetic foot infection. Computer illustration showing the common location of ulcers in diabetic foot infection and close-up view of bacteria which cause infection of diabetic foot ulcers.

obesity, which was £27 billion in 2014-15. This proposed rapid, definitive and cost-effective diagnostic test for wound infections could transform the therapy pathways for this problem." The streamlined partner search and NBIC application process allowed both parties to work together to efficiently formulate and submit a POC application. The whole process - from circulating the offering to the community to submitting the NBIC POC application as an industry sponsored collaborative piece of work - only took three weeks. The project will start once the contracting phase is completed.

Project Summary

To feasibility test an optical-fluorescence-based detection technique that seeks to quantitatively detect bacterial biofilms in infected wounds against a complex background of normal flora, and determine antibiotic susceptibility. The rapid single-step test, implementable at the bedside, can potentially transform wound care through improved clinical outcome and reduced costs.



Dr Sourav Ghosh

Dr Sourav Ghosh is a mechanical engineer by background, and specialises in applying engineering and physical science principles to solve biosensing problems. The key areas of application include clinical diagnostics, biomanufacturing and environmental monitoring. Prior to his doctoral research, he worked in industry: heavy engineering, energy and utilities sectors for five years. He completed his postgraduate studies in biomedical engineering at the University of Oxford.



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