



CNBP Researcher
Dr. Erik Schartner

Case Study

Cancer Margin Detection with Optical Fibres

HEALTHY OR CANCEROUS TISSUE?

Dr. Erik Schartner

CNBP researchers, in collaboration with clinicians at the Royal Adelaide Hospital have developed a sensor which can potentially aid surgeons in differentiating between healthy and cancerous tissue during surgery.

This is a key need in applications such as surgery for breast cancer, where current methods are limited in their effectiveness.

In 15-20% of cases the patient requires follow-up surgery to remove tumour tissue that was missed in the initial surgery.

This is naturally extremely traumatic to the patient, as well as adding a significant unnecessary burden to the healthcare system.

As such there's a strong need for a low-cost, rapid and sensitive method that can be used intraoperatively by the surgeon in the theatre.

The probe works by measuring the pH of the surface of the tissue, which results have shown correlates well with whether or not the tissue is healthy or tumorous.

The tip of an optical fibre is coated with a pH sensitive indicator, and the signal read out uses a low-cost light emitting diode and portable spectrometer.

A strong focus on this project was practical applications, with surgeons involved in the development of the project from the outset to ensure that the final outcomes involved a device that would be useful for real-world applications.

The probe works by measuring the pH of the surface of the tissue, which results have shown correlates well with whether or not the tissue is healthy or tumorous.

This work was the basis for successful University of Adelaide Commercial Accelerator Scheme funding and Medical Devices Partnering Program support that has allowed for further development of the probe towards clinical registration, deployment and eventual commercialisation.

Currently the focus of this activity is on collecting additional clinical relevant data, with an emphasis towards being able to engage with commercial partners in the near future.