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# Prototype Raman probe wins European prize

**A new fibre probe which uses Raman spectroscopy to identify cancer cells has scooped top prize in the recent Photonics21 *Prototype your Idea* competition.**

Research student Calum Ross from Heriot-Watt University, Scotland, working with Heriot-Watt Professor Robert Thomson, and Brian Smith and Nick Weston from Renishaw plc, has developed an innovative method to assess cells for oesophageal cancer without the need for painful biopsies. Using a technique known as optical biopsy, the probe would be used during an endoscopy to provide instantaneous diagnostic feedback to the clinician. This is a promising technology for the future of medical testing with the potential to be used for multiple applications. Calum said, “*We’ve targeted the oesophagus in this project but in fact any tissue or organ accessible via endoscope or hypodermic needle can be analysed”.*

During a Raman-based optical biopsy, light is delivered onto suspect tissue via optical fibres where it interacts with molecules in the tissue to generate a molecular fingerprint. This molecular fingerprint can then be used to differentiate healthy and cancerous tissue in real-time. Calum has developed a novel Raman probe which is used to deliver and collect the light signal efficiently, along with an advanced direct laser writing method which will enable the probe to be mass produced.

The *Prototype your Idea* competition is run by Photonics21, a 2,500 strong membership organisation that unites the majority of Europe’s leading photonics industries and relevant R&D stakeholders. The competition, which supports talented makers and students who have a real interest in becoming entrepreneurs by combining creativity with photonics, is supported by Knowledge Transfer Network ([www.ktn-uk.co.uk](http://www.ktn-uk.co.uk)) and ACTPHAST (<https://actphast.eu/>) - a one-stop shop rapid prototyping incubator for supporting photonics innovations by European companies.

As well as a €5,000 cash prize, Calum and the team will also receive €30,000 worth of support from the ACTPHAST hub to help develop the probe for mass production. The fibre probe technology lends itself well to commercialisation as Calum explains: *“The raw materials used to make the probe are inexpensive and the probe manufacture could be automated for mass production. He continues,* “*The support from ACTPHAST could prove extremely valuable in taking the probe from lab bench to pre-production prototype.”*

This story is adapted from an original article posted by KTN <https://ktn-uk.co.uk/news/uk-researcher-wins-photonics21-competition-to-go-from-concept-to-prototype>

For further information on the world of Raman, visit [www.renishaw.com/Raman](file:///C%3A%5CUsers%5Coh144297%5CAppData%5CLocal%5CMicrosoft%5CWindows%5CINetCache%5CContent.Outlook%5CO06N3UNG%5Cwww.renishaw.com%5CRaman)

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