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**Michigan researchers use Raman spectroscopy to study various childhood diseases.**

The Children’s Hospital of Michigan and Wayne State University use a Renishaw inVia confocal Raman microscope in the study of various diseases, with a major focus on childhood diseases.

Dr Michael Klein is a surgeon with the Children’s Hospital of Michigan—a part of the Detroit Medical Center (DMC)—and a researcher with the Department of Surgery at Wayne State University. The medical campus of Wayne State University (because of its close ties to the DMC) is the largest single site medical campus in the United States. Work using Raman spectroscopy is situated within the Electrical and Computer Engineering Department, under faculty member Dr Abhilash Pandya and his colleagues Dr Brady King and Dr Luke Reisner.

One of the various diseases being studied using Raman spectroscopy is Hirschsprung’s disease, a bowel disease. The objective of Dr King and his colleagues is to develop Raman spectroscopy for use in clinical applications. The ultimate goal is to have this type of technology available in the operating room for accurate, real-time diagnosis of tissue during operations.

Describing the choice of the Renishaw inVia system for his work, Dr King said: “It is well suited for a pathological workflow. Its accurate staging and imaging have allowed us to capture spectra from a wide range of tissue samples quickly and easily. While we also use a more compact Raman probe system for preliminary *in vivo* work, the inVia provides a much higher spectral resolution. Additionally, the microscope and movable stage allow us to capture our spectra more quickly and easily. While the inVia is not intended for *in vivo* use, which is our ultimate goal, it does give these benefits while providing a potentially suitable replacement or augmentation of typical pathological analysis.”

Their most recent paper describes the use of Raman spectroscopy in the diagnosis of ulcerative colitis1. This appeared in the *European Journal of Pediatric Surgery*. The group has also developed successful software which is used in the generation of all of their data. This was published in the journal, “*Chemometrics and Intelligent Laboratory Systems*2.”

Please visit [www.renishaw.com/invia](http://www.renishaw.com/invia) for further details of Renishaw’s inVia confocal Raman microscope.

Image: Drs Luke Reisner and Brady King from Wayne State University with their Renishaw inVia confocal Raman microscope.

**References**

*1 Veenstra, Michelle Anne, et al. "Raman Spectroscopy in the Diagnosis of Ulcerative Colitis."* [*Eur J Pediatr Surg.*](http://www.ncbi.nlm.nih.gov/pubmed/25172984) *2015 Feb;25(1):56-9. doi: 10.1055/s-0034-1387951. Epub 2014 Aug 30.*

*2 Reisner, Luke A., Alex Cao, and Abhilash K. Pandya. "An integrated software system for processing, analyzing, and classifying Raman spectra.” Chemometrics and Intelligent Laboratory Systems 105.1 (2011): 83-90.*

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**About Renishaw**

Renishaw is one of the world's leading engineering and scientific technology companies, with expertise in precision measurement and healthcare. The company supplies products and services used in applications as diverse as jet engine and wind turbine manufacture, through to dentistry and brain surgery. It is also a world leader in the field of additive manufacturing (also referred to as 3D printing), where it is the only UK business that designs and makes industrial machines which ‘print' parts from metal powder.

The Renishaw Group currently has more than 70 offices in 33 countries, with over 4,000 employees, of which 2,700 people are employed within the UK. The majority of the company's R&D and manufacturing is carried out in the UK and for the year ended June 2015 Renishaw achieved sales of £494.7 million of which 95% was due to exports. The company's largest markets are the USA, China, South Korea, Germany and Japan.

The Company's success has been recognised with numerous international awards, including eighteen Queen's Awards recognising achievements in technology, export and innovation. Renishaw received a Queen’s Award for Enterprise 2014, in the Innovations category, for the continuous development of the inVia confocal Raman microscope. For more information visit [www.renishaw.com](http://www.renishaw.com)

### For further information

Please contact:

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| David ReeceSpectroscopy Products DivisionRenishaw plc, New MillsWotton-under-EdgeGloucestershire GL12 8JR UKTel: +44 1453 523968 (direct)Tel: +44 1453 524524 (switchboard)Email: david.reece@renishaw.com[www.renishaw.com/raman](http://www.renishaw.com/raman) |  |