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The NanoWizard® AFM from JPK is applied for interdisciplinary research at the University of South Australia for applications including smart wound healing and how plants can protect themselves from toxins.

Berlin, July 19th 2016: JPK Instruments, a world-leading manufacturer of nanoanalytic instrumentation for research in life sciences and soft matter, reports on the use of their NanoWizard® AFM system at the University of South Australia, Adelaide. AFM is being applied to many areas including smart wound healing, plant toxicology and novel methods of nanoparticle characterization.

Dr Gordon McPhee is head of production for NextCell Pty in Adelaide, Australia. Situated on the Mawson Lakes Campus, he is located next to the University of South Australia (UniSA), Australia's leading university for interdisciplinary research, where he has access to their instrumentation as part of the group of Professor Nico Voelcker at the Future Industries Institute. Here, he uses JPK's NanoWizard® AFM system in multiple programs. These include investigating advanced materials for smart wound healing alternatives; characterization of live cell behaviour as influenced by substrate properties for skin graft improvements; new methods of mass spectrometry (MS) sample characterization leading to refined MS data analysis; understanding plant resistance methods to toxins; and novel methods of nanoparticle visualization.

Describing the uses of the NanoWizard®, Dr McPhee says "Often the AFM can contribute to more than one aspect of a project. For example, Quantitative Imaging or QI™ mode can deliver data on cell elasticity/morphology complemented by force spectroscopy performed on the substrate of choice. The ability to easily work on temperature controlled liquid immersed samples is also very useful for polymer material investigations. The instrument has proven a versatile addition to a very multidisciplinary group."

Talking of the benefits of the design and operation of the NanoWizard®, Dr McPhee says "The tip-scanning approach of JPK versus the stage scanning approach of some other commercial designs of AFM is essential for combined fluorescence/AFM imaging and other biological applications. Integration with the JPK TopViewOptics™ allows accurate tip positioning on opaque samples such as porous silicon. The BioCell™ makes temperature control in liquids simple and allows live cell work to be performed. The

variety of operating modes such as QI™, Force Mapping, conductive and traditional imaging, plus the ability to switch between them without changing any hardware is very convenient.”

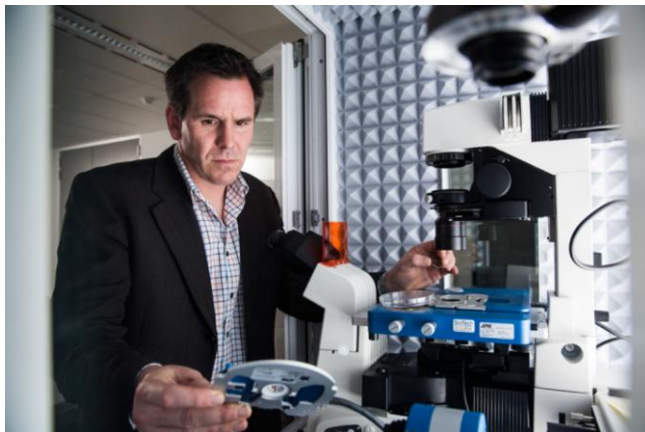
The group publishes quite prolifically. For example, these three recent papers report extensively on the use AFM:

1. A Barley Efflux Transporter Operates in a Na⁺- Dependent Manner, as Revealed by a Multidisciplinary Platform. *Yagnesh Nagarajan, Jay Rongala et al, Dec 15, 2015, **The Plant Cell**.*
2. Silver Coating for High-Mass-Accuracy Imaging Mass Spectrometry of Fingerprints on Nanostructured Silicon. *Taryn M. Guinan, Ove J. R. Gustafsson et al, Oct 13, 2015, **Analytical Chemistry**.*
3. Tunable Thermoresponsiveness of Resilin via Coassembly with Rigid Biopolymers. *Jasmin L. Whittaker, Naba K. Dutta et al, July 15, 2015, **Langmuir**.*

The first of these papers drew tremendous interest from farming communities around the world resulting in several Internet and radio interviews.

For more details about JPK’s NanoWizard® AFM and its applications for the bio & nano sciences, please contact JPK on +49 30726243 500. Alternatively, please visit the web site: www.jpk.com or see more on Facebook: www.jpk.com/facebook and on You Tube: <http://www.youtube.com/jpkinstruments>.

Attachment



Professor Nico Voelcker at the Future Industries Institute of the University of South Australia, Adelaide, works with his JPK NanoWizard® AFM system.

For a high resolution copy of the image, either right click to download or contact Jezz Leckenby at Talking Science.

About JPK Instruments

JPK Instruments AG is a world-leading manufacturer of nanoanalytic instruments - particularly atomic force microscope (AFM) systems and optical tweezers - for a broad range of applications reaching from soft matter physics to nano-optics, from surface chemistry to cell and molecular biology. From its earliest days applying atomic force microscope (AFM) technology, JPK has recognized the opportunities provided by nanotechnology for transforming life sciences and soft matter research. This focus has driven JPK's success in uniting the worlds of nanotechnology tools and life science applications by offering cutting-edge technology and unique applications expertise. Headquartered in Berlin and with direct operations in Dresden, Cambridge (UK), Singapore, Tokyo, Shanghai (China), Paris (France) and Carpinteria (USA), JPK maintains a global network of distributors and support centers and provides on the spot applications and service support to an ever-growing community of researchers.

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