Nanotechnology for Life Science

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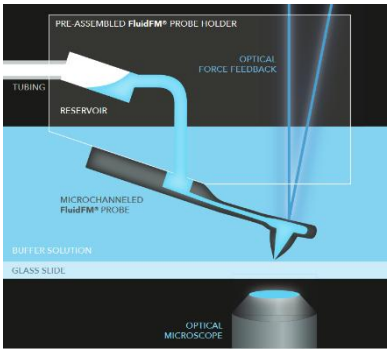
JPK Instruments announce partnership with Swiss company, Cytosurge AG. The partnership makes Cytosurge's FluidFM® technology available on the JPK NanoWizard® AFM platform.

Berlin, 7th December 2017: JPK Instruments, a world-leading manufacturer of nanoanalytic instrumentation for research in life sciences and soft matter, announce an exciting partnership with the Swiss company Cytosurge AG. JPK's NanoWizard® AFM users will now be able to add Cytosurge's unique FluidFM® technology that opens up a new world of applications. In single cell experiments it gives the user, for example, the broadest range of force control available.

JPK Instruments have announced their new partnership with Cytosurge AG whereby JPK users of NanoWizard®, CellHesion® and ForceRobot® systems may now add FluidFM® technology for applications requiring the precise delivery of liquids at the femtoliter scale. Being able to isolate, manipulate and image single & multiple cells in their natural environments is vital to researchers in many fields, notably those involved in drug discovery, early stage diagnosis and cellular force interactions making the addition of FluidFM® to the world of AFM imaging and force spectroscopy an ideal pairing.

FluidFM® technology reinvents the micropipette: It unites the best features of microfluidics and force microscopy by introducing closed microscopic channels into force sensitive probes. This unique combination enables the handling of liquid volumes at the femtoliter scale (10^{-15} l), as well as force controlled manipulations of microscopic objects. This means micro- and nanopipettes can be controlled with utmost precision and without damaging the cells under study. FluidFM® technology has proven to be highly versatile with an impressive portfolio of validated applications in life sciences and beyond. The possibility to carry out all operations, also when fully immersed in liquid render the technology ideal for biological applications at the single cell level.



For use with AFM, a good starting point is the schematic shown here. Specially fabricated microchanneled FluidFM® probes mount directly on the AFM using its standard

optical force feedback control. With the help of a specifically designed microfluidic control system, flow can be controlled through the microfluidic channel inside FluidFM probes, thus dispensing (or aspirating) substances or objects at the cantilever opening.

There are three key user benefits to those using JPK's instrumentation with FluidFM® technology. JPK's Head of Sales, Hauke Kahl, is glad to have these arguments. "First, JPK users can already study materials over a broad range of forces, from piconewton levels with optical tweezers (NanoTracker™) through conventional AFM imaging & force spectroscopy (NanoWizard®, CellHesion® and ForceRobot®) to the low nanonewton range. Adding FluidFM® enables measurements up to 50nN and even higher, giving us a broader range of force control than with any other instrument scanning probe microscopy (SPM) combination. Furthermore, with the special FluidFM® probes, a user may deliver liquid, e.g. a new drug formulation, directly into an individual cell or extracellularly over a larger volume area. The AFM is then used to track any changes in topography or in interactive forces. Lastly, providing a significant benefit over the use of glass pipettes, FluidFM® probes can carry out effective transfection of DNA. This could become very important to those studying sensitive iPS stem cells."

Cytosurge's CEO, Dr Pascal Behr, talks about the new partnership and his expectations of working with JPK: "Our vision at Cytosurge is to provide a new generation of tools to stimulate novel applications at the forefront of nanotechnology, life sciences and single cell biology. Our patented FluidFM® technology and our experience in the market gives us a state of the art leadership position. Seeing how JPK have successfully sold in the bio and pharma markets with their SPM products, JPK is an excellent partner to make our technology available to more AFM users. We are looking forward to a successful partnership with JPK resulting in a win-win-win situation; for our customers, JPK Instruments, and us." Fact sheets on the technology and the components involved in adding FluidFM® to JPK's AFM family are fully detailed on JPK's web site. Just click here to learn more.

For more details about JPK's NanoWizard® AFM and their 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

JPK's NanoWizard® AFM system with the FluidFM® ADD-ON from Cytosurge.

For high resolution copies of the images, 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.

About Cytosurge

Cytosurge AG was founded as an ETH Zurich spin-off in 2009 and successfully develops and distributes scientific measuring instruments and robotic systems based on its patented FluidFM® technology.

Cytosurge is focusing its activities into three distinct customer-focused business units: AFM SOLUTIONS, CELL & BIOSCIENCE and 3DPRINTING, each perfectly adapted to its specific target market.

Whether via the revolutionary FluidFM nanosyringe, the fully integrated FluidFM BOT system, or the award-winning µ3Dprinter, Cytosurge provides leading-edge tools and processes to those who want to go beyond current technological boundaries.

FluidFM – GO BEYOND.

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