

Real time imaging of DNA repair a step toward prevention and treatment of cancer

June 13 2014, by Olivier Heyning

LUMICKS, an Amsterdam-based spin off from VU University, offers for the first time a solution enabling real time imaging of interactions between molecules such as DNA and proteins. Real time is important for observing the dynamics of biological processes like DNA repair, which can now be tracked under representative conditions. This in turn can lead to knowledge of importance in the prevention or treatment of cancer.

Making films of molecular interactions

By combining a technique for manipulating molecules using optical tweezers with super-resolution fluorescence microscopy, detailed, real time images of how molecules interact are suddenly made possible. This technology, called 'Correlative Tweezers Fluorescence Microscopy' or 'CTFM', is the culmination of developments by Professor Gijs Wuite and Professor Erwin Peterman during the past decade at VU University, and recently published in *Nature Methods*. "We can now make films of individual proteins as they interact with a DNA molecule, something that was not possible before", says Gijs Wuite, VU Professor at VU University and one of the founders of LUMICKS. VU University scientist and co-founder Andrea Candelli adds: "Every time we put a biological system into one of our instruments we have to 'rewrite the books'. Until now people have generated all sorts of models on mostly very indirect information. Now for the first time we can actually see what happens, in [real time](#) and at the molecular level. We can learn about the dynamics of [biological processes](#) such as DNA repair."

Lumicks will market complete, ready-to-use, advanced apparatus systems

LUMICKS has entered into a license agreement with the VU University to gain access to the technology and related patents. It is currently launching a product portfolio around integrated systems for correlative optical tweezers-fluorescence. It has attracted an industry CEO with Olivier Heyning joining the team, and will be seeking grants and investors to accelerate the approach to markets. Launch of the company has immediately attracted great interest and LUMICKS is currently talking to several interested customers. Olivier Heyning, LUMICKS CEO: "The first order has been placed and we have a pipeline of well over 2 million euros in projects with customers. The launch of LUMICKS marks the addition of a new high tech manufacturing company in the Netherlands."

Provided by University of Amsterdam

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