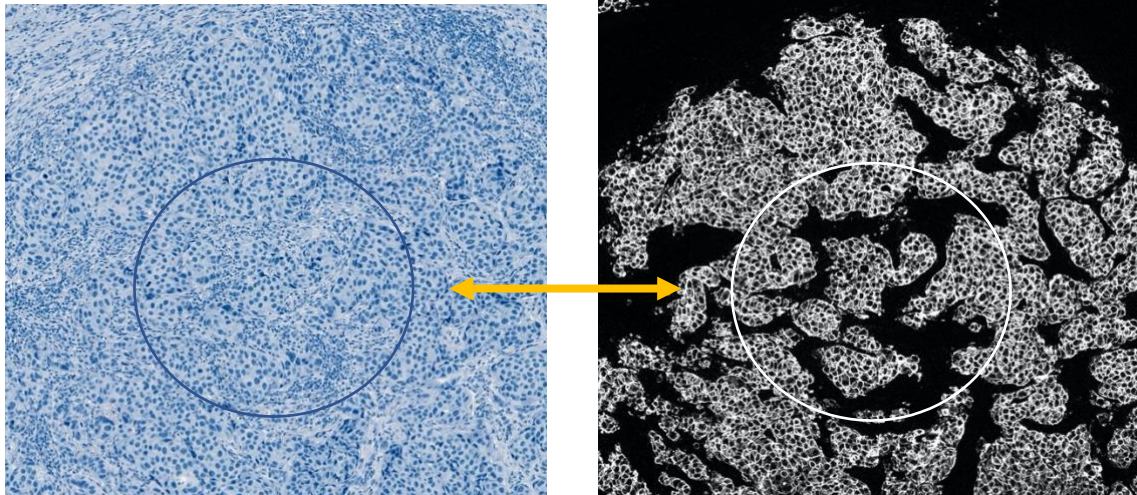


Images of high and stable quality offer excellent assessment possibilities



The left-hand picture shows histological staining, which illustrates the presence of each cell (hematoxylin staining with blue cell nuclei) of a tissue section. The right-hand picture shows the same tissue section with specific staining of the cancer cells with Lumito's UCNP (white, HER2 grade 3-positive cancer cells).

Lumito's objective is to create high-quality stainings of tissue sections and corresponding imaging. A key effort has been to achieve a repeatable and robust staining methodology that can generate imaging that is optimal for a digital, visual evaluation. These objectives have now been achieved, according to Dr. Bo Holmqvist.

Bo Holmqvist (CSO, Imagene-iT AB) has analyzed the latest results from Lumito's stainings of new breast cancer tissue samples, which express HER2 to various degrees. The samples were visualized with Lumito's UCNP (upconverting nanoparticles). For comparison, the same tissue was also stained with traditional methods, that is, with technology that is currently in use by histologists and clinical pathologists in their analyses (DAB reagent). The image documentation of the UCNP technology was generated in Lumito's scanner, which subsequently was assessed by histologists/pathologists using Sectra's Pacs on Demand software environment.

– I consider Lumito's images to be of high quality, histologically and with regard to the staining. Lumito's images offer enhanced possibilities for the histopathological evaluation. Moreover, a digital assessment of the image material, based on image documentation with high image quality, may give additional support to the visual clinical assessment, says Bo Holmqvist.



Presumably, there are differences among the pathologists' assessments and gradings of tissue sections, which may be decisive to the right treatment. Adjacent malignancy grading scores may be difficult to assess visually. Bo Holmqvist argues that the current quality of Lumito's image documentation offers good conditions for the subsequent implementation of a digital quantification and assessment software. It may be both simpler and safer to make an assessment based on such a software in combination with the visual assessment of the digital tissue section, stained with Lumitos UCNP with high image quality. The pathologist and the researcher could look at the images and download them to a digital quantification software. The digital reading can support the grading of stainings that are difficult to interpret, but also make it possible to sort out cases that do not need further analysis, which would save resources.

– The quality of the image material is the result of the joint effort by Imagen-iT and Lumito, which always has focused on quality. Today, we have stable, repeatable deliveries and high image quality, which provides a good basis for the continued work, a product launch in research laboratories and the development of new markers and indications, comments Mattias Lundin, Lumito's CEO.

Facts:

Bo Holmqvist (CSO) is the founder of ImaGene-iT AB. ImaGene-iT is a contract research organization (CRO) that contributes life science knowledge and services with particular skills in imaging and visualization technology; microscopy and imaging; and image processing and digital image analysis, including analyses from cell culture to human histopathology.

Bo Holmqvist has more than 30 years of experience from scientific academic research (senior lecturer in experimental pathology), with expertise in histology and advanced microscopy. He took part in starting up the optical unit of Lund Bioimaging Center. Bo has been a consultant for Lumito since 2018.

The HER2 breast cancer marker and the HER2-UCNP marker

Lumito's technology enables the detection of specific markers, for example for cancer, with nanoparticle-based reagents that feature a specific and high density of staining, consequently enabling a high-quality image detection.

Grading of cancer, that is, differences in staining to make the correct diagnosis, imposes particularly high demands and is currently a subjective, visual assessment, which may vary depending on the staining quality of the laboratory and the individual making the assessment.

In the specific case of HER2 assessments based on immunohistochemical staining with DAB visualization, the pathologist must today make an assessment according to the following criteria:

Grade 0 = absence of staining in cell membranes in less than 10 percent of the tumour cells.

Grade 1+ = weak staining but not staining of the entire cell membrane of tumour cells.

Grade 2+ = slight to moderate staining of the entire cell membrane, in at least 10 percent of the tumour cells.

Grade 3+ = Strong staining of the entire cell membrane in at least 10 percent of the tumour cells.

With regard to HER2 positivity, the assessments between 0 and 1+ and between 1+ and 2+ are the most difficult.

– Lumitos UCNP technology for detection of HER2 positivity may improve this grading, says Bo Holmqvist.

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Lumito specializes in medical technology for digital pathology. Through its proprietary and patented technology, Lumito aims to provide healthcare providers with a powerful tool to meet the demands for fast and safe tissue diagnostics in personalized healthcare. The technology enables higher-contrast imaging where irrelevant background information is filtered out, making it easier for pathologists to identify cancer indications. The technology, based on Up Converting Nano Particles (UCNP), has the potential to significantly improve tissue diagnostics by enhancing the quality of analysis and shortening the analysis time. The technology has several possible application areas, but Lumito has initially decided to focus on digital pathology. The Company is a spin-off from a research group at the Division of Atomic Physics and Lund Laser Centre at Lund University. www.lumito.se.

The share is traded under the ticker LUMITO on the NGM Nordic SME, where the Company's mentor is Mangold Fondkommission telephone: +46 8-503 015 50.