

Upconverting Tissue Diagnostics

Lumito's novel imaging technology offers a new approach to cancer diagnosis

Early and accurate diagnosis is the key to stopping cancer in its tracks. That's why Lumito, a tissue diagnostics company based in Sweden, develops a product that has potential to release resources, increase accuracy, and minimize error margins at diagnoses of cancer indications. "We want to support pathologists across the globe in the fight against cancer and other severe diseases," says CEO Mattias Lundin. "We are still in the development phase and are eager to verify and validate where our technology creates the most value, build

that into the final product, and launch a valuable solution that makes a difference in healthcare."

Lumito's technology combines a nanoparticle-based reagent kit with a whole-slide imaging scanner that captures histological samples with both brightfield and upconversion nanoparticle (UCNP) illumination to visualize cell and tissue morphology and the locations of specific protein markers. The result? High-contrast digital images with no background.

Björn L. Isfoss, chief physician, has worked with surgical pathology in laboratories in the USA, UK, Sweden, and Norway. He says, "Lumito's UCNP immunolabelling method provides more accurate visual presentation of signals than chromogenic IHC can. The signals appear more granular than in traditional IHC, reflecting punctate occurrence of target molecules. Immunolabelling presentation

is clearer than with immunofluorescence. The target-to-signal ratio appears more linear than is possible with traditional IHC, which promises an improvement in target molecule quantification via digital image analysis."

Isfoss continues, "This is widely relevant for histopathology practice, which today is limited by fuzzy immunolabelling signals and imperfect quantitation of target molecule load. It is possible that pathologists will serve cancer patients better with Lumito's method because it seems to allow more robust target molecule quantitation, which is essential for the selection of patients eligible for hormonal therapy or immunotherapy."

Although Lumito's technology is still pending clinical validation, it seems to have arrived just in time for digital pathology to hit the mainstream – both in academic and in clinical laboratories.

The future immunolabelling method for biopsies?



Lumito's technology

This is what you are used to



LUMITO
 Revolutionary tissue diagnostics

www.lumito.se/en

We are Lumito – a Swedish medtech company – our emerging technology is an immunolabelling system with a precision so high that it has more in common with immunofluorescence than immunohistochemistry. This unique technology is Upconversion NanoParticle (UCNP).

We specialize in the development of novel imaging technologies for immunolabelled cells.

The resulting digital images present immunolabelling as more punctate i.e., less fuzzy than immunohistochemistry, reflecting the true particulate presence of target molecules. The technology holds a promise to allow more accurate quantification of protein targets than immunohistochemistry can offer. Hematoxylin counterstaining on the same FFPE samples causes no interference with UCNP and enables merged-image or side-by-side viewing of the nuclear landscape.

The technology can potentially be used in various applications and we are developing the Acri-scanner, which is an WSI scanner, and reagents for routine use in digital pathology.

We are looking to include more reference laboratories for validation of this product. Interested? Please contact our Product Specialist, Tim Nilsson, tn@lumito.se.