Unlocking the power of digital pathology

Paige, a global leader in artificial intelligence-based diagnostic software, has built a flexible and scalable digital pathology platform that streamlines tissue analysis and affords opportunities for novel biomarker discovery. The company has a flexible partnership model designed to maximize outcomes for collaborators and patients.

Paige, a clinical artificial intelligence (AI) company based in New York, has assembled a unique team of experts in AI, computational pathology and clinical practice to build next-generation computational technologies that could transform how doctors diagnose and treat cancer.

Paige’s platform consists of a viewer module called FullFocus, a storage module, and a portfolio of AI products that together provide an intuitive and integrated system for pathologists to triage, organize, evaluate, share, and store their work. The company’s most advanced diagnostic tools are Paige Prostate and Paige Breast, two software products CE-marked for the clinical detection of prostate and breast cancer, respectively. Paige has also developed research tools to quantify and grade prostate, breast, and lymph node tumors, and backed by an extensive partnership network, the company is already working on future applications in areas such as colon, skin, bladder, and lung cancer.

“At Paige we are proud to be at the cutting edge of the application of AI to help optimize clinical workflows and improve clinical outcomes for patients,” said Leo Grady, Chief Executive Officer at Paige. “Our goal is to transform digital pathology by unlocking insights from each patient’s sample so pathologists, care teams and researchers can make diagnostic decisions more confidently and efficiently.”

A FullFocus on optimizing digital pathology

Pathologists are key players in the clinical care continuum for cancer, their role being vital to diagnosis, prevention, treatment and monitoring. With a growing and ageing population, the need for tools to help pathologists keep pace with the increasing demand for their services has grown exponentially. However, traditional pathology workflows rely on the time-consuming review of individual pathology slides under the microscope, creating bottlenecks that can lead to less than optimal outcomes for patients.

To address these challenges, Paige set out to create a diagnostic software platform that would optimize disease detection and characterization, improve capacity without compromising accuracy, keep the pathologist in control, and seamlessly integrate novel scanning technologies and evolving workflows.

The company’s core technology rests on two pillars: a world-class team of engineers, product experts and scientists and establishing a partnership with the Memorial Sloan Kettering Cancer Center (MSK) to secure access to more than 28 million high-quality clinical pathology records to train and refine the company’s tumor detection algorithms. This unique combination of capabilities, powered by the world’s most advanced deep learning cluster for computational pathology with a capacity for processing peta (10^15) bytes of image data, allows Paige to provide diagnostic tools that not only maximize the amount of information extracted from digital slides, but also help reveal new diagnostic signals that could lead to improved individualized treatment courses for patients.

Paige Prostate, a first-in-class software solution for prostate cancer detection, has been granted CE marks for the initial identification of cancerous areas and for determining primary and secondary Gleason patterns and tumor size (Fig. 1). In a recent retrospective clinical study, Paige Prostate afforded increased sensitivity and specificity when comparing its diagnostic performance with pathologists using it versus those who did not. This improvement was seen regardless of the level of expertise of the pathologists and of whether the analysis was done remotely or on-site.

Paige Breast, a breast cancer detection software, has received a CE mark for the detection of suspicious features on breast tissue slides and to provide case level predictions about the presence of cancer, with additional functionality in development.

A flexible partnering model

Whether deployed for digital viewing, collaboration and storage, for disease detection, or as a novel biomarker detection system, Paige strives to maximize the impact of its groundbreaking technology by offering a flexible partnering model that supports AI-based biomarker development programs that accommodate the individual needs of biopharma, clinical or research partners.

“Since its founding in 2017, Paige has rapidly become a reference in the field of digital pathology through a number of firsts, including first FDA breakthrough designation for AI in cancer diagnosis and first CE mark for deep learning in pathology,” said Carla Leibowitz, Chief Business Development Officer at Paige. “As we continue to break ground in the digital pathology space, we believe that Paige’s proprietary AI technology, platform flexibility, and scalability, make us the partner of choice for developing increasingly more effective and personalized diagnostics for patients worldwide.”