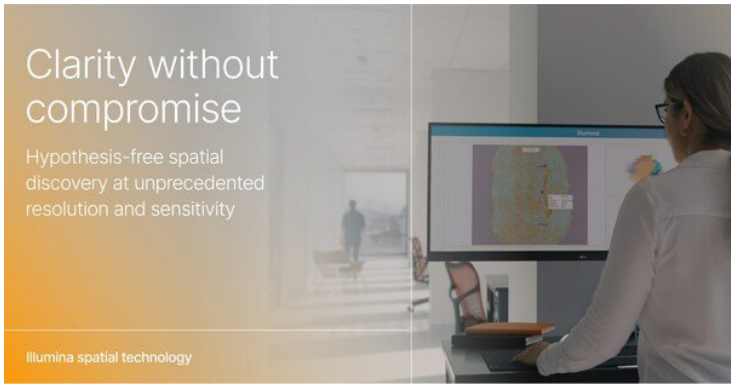
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Illumina unveils first-of-its-kind spatial transcriptomics technology

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Expands software portfolio to decode multimodal data with Illumina Connected Multiomics



US-based Illumina, Inc. has announced a new spatial technology programme that will empower researchers to map complex tissues and understand cellular behavior at an unprecedented scale. Enabled on Illumina sequencers and a new multimodal

analysis platform, Illumina's spatial technology delivers unbiased whole-transcriptome profiling with cellular resolution and high sensitivity. These capabilities are expected to drive expansion of spatial research and unlock applications and experiments that were previously not possible.

Spatial transcriptomics allows researchers to explore biological interactions at the cellular level. For instance, through "cell atlasing," which maps the detailed arrangement of cells, researchers can gain novel insights into complex tissue structures that affect disease. This enables discovery in areas ranging from tumor microenvironments to disease pathways, neurobiology, immuno-oncology, and more.

Planned for commercial release in 2026, Illumina spatial technology will allow researchers to examine the spatial proximity of millions of cells per experiment, enabled by a capture area nine times larger than existing technologies, and with four times greater resolution. By allowing researchers to analyze more cells in a single spatial experiment, the technology provides the ability to identify rare cell populations and improves statistical power for greater confidence in findings.

As a complete end-to-end solution, it will also deliver the highest value for single-cell and spatial researchers at a more affordable price point. The spatial solution surpasses industry standards for scale and accuracy, and is compatible with Illumina NextSeq and NovaSeq sequencers, thereby materially reducing the cost of running large-scale programmes.