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A general method for large-scale alignment of cellular and molecular properties measured in live beings and postmortem on the same biological sample

Typically, cell live imaging and cell molecular profiling are performed on two different samples without the direct observation of two modalities of information on the exact same cells. The main challenge lies in tissue distortions and loss of spatial information during sample processing, such as slicing or chemical treatments.

Stanford researchers have developed a solution to track the spatial coordinates of the sample throughout the process. By maintaining a coordinated reference system and correcting for distortions, the method allows researchers to map molecular profiles back to the same cells that were observed in vivo. This approach offers a new level of precision in studying organs like the brain, liver, or kidney, where understanding both cellular function and molecular properties is critical.

Stage of Development

In vivo: studies in neurons in the mouse brain

Applications

- Aligning of in vivo cell imaging and ex vivo structural molecular profiling of the same cells
- Research in: Neuroscience, cancer, clinical diagnostics, drug development, immunotherapy

Advantages

- Large-scale alignment
- Precise
- Economical
- Reliable
- Only such method in the market

Patents

- Published Application: [20250299504](#)

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