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A Live/Dead Viability Assay for Mass Cytometry

Stanford researchers have developed an improved method of distinguishing live and dead cells using mass cytometry, a next-generation form of flow cytometry. The approach uses protein-reactive metal compounds that preferentially label dead cells, similar to conventional fluorescent viability dyes. By quantifying these metal isotopes with mass cytometry, live cells (low signal) and dead cells (high signal) are easily distinguished, even after treatment with harsh detergents or fixatives. Eliminating dead cells from the analysis achieves an important signal-to-noise increase for the analysis of any phenotype. The use of a robust viability stain increases the accuracy of mass cytometry assays, especially for analysis of clinical, cryopreserved, or drug-treated specimens.

Applications

- Determining cellular viability enables quantification of drug activity and improves the discrimination of cellular phenotypes.

Advantages

- Currently a robust viability stain for mass cytometry does not exist. This approach enables the use of fixatives and detergents on viability-stained cells.

Publications

- H.G. Fienberg, E.F. Simonds, W.J. Fantl, G.P. Nolan, B. Bodenmiller. "A platinum-based covalent viability reagent for single-cell mass cytometry" *Cytometry Part A*, published online 10 May 2012.

Patents

- Published Application: 20140329272
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