Docket #: S14-198

A method to sort cells on the basis of radionuclide uptake

Dr. Guillem Pratx and colleagues have developed a high-throughput single cell scintillation counting system that can sort cells on the basis of uptake of a small radiolabeled molecule. Flow cytometry is a widely used method for molecular analysis of large populations of single cells. While useful, flow cytometry does not provide a complete picture of the state of the cells. For instance, biochemical processes involving small molecules, such as drugs and metabolites, cannot be analyzed at the single cell level as most small molecules are not fluorescent and therefore cannot be used in flow cytometry. To overcome this limitation, the inventors have developed this technology which adds an extra dimension to flow cytometry by allowing analysis of radiolabeled probes in a conventional flow cytometer. It will allow virtually any small molecule to be measured in single cells with high-throughput.

Stage of research
Proof-of-concept studies are ongoing.

Applications

- Drug development
    - Studies of drug uptake and metabolism at the single cell level
- Biomedical research
    - Investigate molecular processes involved in cancer and other diseases
    - Understand tumor heterogeneity
    - Optimize targeting of a specific phenotype within a tumor
- Imaging agent development

Advantages

- Quantify small molecules in single cells
- High-throughput: analyze up to a million cells in a single assay
- Sort and retrieve cells for additional molecular analysis
- Uses existing flow cytometry technology

Publications

- https://doi.org/10.1016/j.bios.2021.113565

Patents

- Published Application: 20160025701

Innovators

- Guillem Pratx
- Silvan Tuerkcan

Licensing Contact

Evan Elder

Associate Director, Licensing and Strategic Alliances, Physica

Email