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METHODS AND DEVICES FOR HIGH THROUGHPUT, HIGH SPECIFICITY SORTING OF SOMATIC, GAMETES, AND STEM CELLS

Tech ID: 19017 / UC Case 2008-191-0

BRIEF DESCRIPTION

Cells have long been sorted by various means including through electrokinetic sorting, differential uptake of chemicals, magnetic antibodies specific to the target cell surface, and flow-cytometry assays. A key limitation to these methods is that they are either not sufficiently specific to isolate dead cells from live cells or they render the sorted cells unusable for clinical applications.

UC investigators have developed a cell sorting platform that allows sorting live cells from minimally viable cells and dead cells, while minimizing the risk of damage to the live cells during the sorting process. This process does not require that properties of the cell be known a priori, and allows for greater flexibility of sorting patterns. This platform is high-throughput and retrieves groups of sorted cells.

FEATURES/BENEFITS

▶ Unlike some cell sorting procedures that rely on inducing a detectable change in cell specimens (e.g., hypo-osmotic cell swelling test), this platform does not alter the cell shape or properties, thereby minimizing risk of irreversible damage to cells during sorting.

▶ Cells sorted using this method are useful for clinical/experimental use following sorting.

▶ Unlike some cell sorting procedures that rely on labeling the cell surface or intracellular structures with potentially toxic chemicals (e.g. Trypan Blue and all other known viability labeling assays), this platform does not expose cells to any potentially toxic chemical agents, enabling use of sorted cells for clinical and experimental applications.

▶ High through-put- High specificity

▶ Efficient retrieval of the sorted product

▶ Flexibility with respect to sorting parameters.

▶ Means by which to directly manipulate cells in live-time

▶ Low toxicity

APPLICATIONS

▶ Clinical applications including regenerative medicine and cell therapy

▶ Sorting of live sperm from dead sperm, for assisted reproduction procedures (e.g. IVF, ICSI).

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RELATED CASES

2008-191-0

- ▶ Scientific research
- ▶ Veterinary applications including animal breeding and husbandry

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	10,105,712	10/23/2018	2008-191
United States Of America	Issued Patent	9,079,189	07/14/2015	2008-191