Enabling technology in cell-based therapies: Scale-up, scale-out or program in-place

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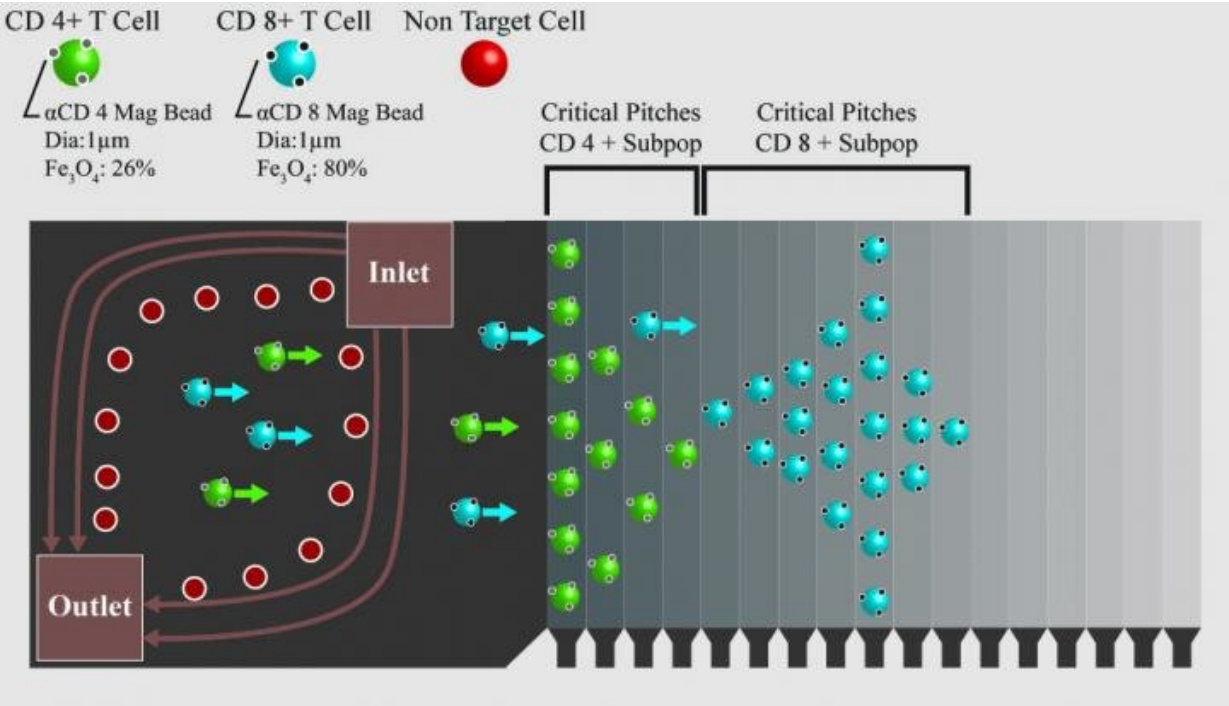

Technologies that are reducing costs and changing the ways in which researchers and clinicians process and use therapeutic cells are showcased in the August 2018 special issue of *SLAS Technology*. Credit: Coleman Murray, University of California, Los Angeles

Technologies that are reducing costs and changing the ways in which researchers and clinicians process and use therapeutic cells are showcased in the August 2018 special issue of *SLAS Technology*. With

leadership from guest editor Christopher Puleo, Ph.D., and colleagues of General Electric Global Research (Niskayuna, NY), the issue presents two review articles that detail the status of cell bioreactors in both stem cell and tissue/organ engineering applications and five original research reports by life sciences researchers from universities, pharma companies and hospitals in Australia and across the United States.

Advances reported in this issue include methods of cell separation that utilize unique microscale forces for use with higher cell concentrations or larger sample volumes; techniques, device packages and footprints that utilize "smart" dynamic magnetic traps, microfluidic separators, and acoustic energy-based cell separation techniques provide new inline and closed-loop systems; and methods to better automate or package complex cell manipulations into closed bioreactor systems.

The arrival of FDA-approved chimeric antigen receptors (CAR) T-cell therapies and the expansion of T-cell and other cell-based therapies beyond oncology applications, have reinvigorated discussions around the ways in which researchers harvest, culture, process, or directly alter therapeutic cells. However, the manufacturing process (i.e. selection of peripheral blood mononuclear cells from whole blood, activation of T cells, transduction with CAR viral vectors or transposons, and expansion in an appropriate bioreactor) for combination gene/cell therapies such as CAR T is complex, and there remain many opportunities to decrease costs and improve safety of these important new clinical tools.

More information: *SLAS Technology*.
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