Researchers develop novel platform to improve immunotherapy
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"A robust method of producing mature T cells from iPSCs is needed to realize their therapeutic potential," says corresponding author Gustavo Mostoslavsky, MD, Ph.D., associate professor of medicine & microbiology. NOTCH1 is known to be required for the production of hematopoietic progenitor cells (an intermediate cell type in blood cell development) with T cell potential in vivo. "We have identify a critical window when Notch activation robustly improves access to definitive intermediate cell type in blood cell development (hematopoietic progenitors) with T/NK cell lineage potential."

According to the researchers, current practices for immunotherapy are prohibitively expensive and are accompanied by serious adverse events. "The establishment of platforms that will make this process safer, simpler and cheaper will have tremendous implications on public health and in general on the way these therapies are applied in the clinic," adds Mostoslavsky who also is co-director of the BU/BMC Center for Regenerative Medicine (CReM).

The researchers believe a novel platform allowing universal off-the-shelf T and NK cell access has enormous potential for future immunotherapies targeting a broad range of diseases, including cancer, autoimmune diseases such as rheumatoid arthritis and lupus, as well as immunodeficiencies.

These findings appear online in the journal Stem Cell Reports.
