Docket #: S23-417

Lusutrombopag is used for stable and reproducible human ex vivo hematopoietic stem/progenitor cells expansion

Hematopoietic stem and progenitor cells, collectively "HSPCs", are multipotent cells that can self-renew and differentiate into all types of blood cells, including cells of both myeloid and lymphoid lineage. As a result, HSPCs are sought after as cell therapy in the treatment of various diseases. Unfortunately, human HSPCs represent a small proportion of cells in the body and difficulties in their ex vivo expansion and maintenance has limited clinical translation. More efficient methods for culturing HSPCs are needed in order to realize the clinical potential of these rare cells.

To address this need, Stanford researchers have specifically identified Lusutrombopag, an FDA-approved drug for the treatment of thrombocytopenia, to allow long-term human HSPCs ex vivo expansion. Stanford researchers have established a protocol of Lusutrombopag-supplemented human HSPC culture that stably and reproducibly expands human HSPCs long-term.

Stage of Development
Proof of concept: in vitro

Applications

- Ex vivo manufactured immune cells for cancer immunotherapy
- Ex vivo manufactured blood cells.
- Ex vivo expanded hematopoietic stem/progenitor cells for transplantation therapy.
- A medium that expands human HSC and HPC for experimental use.

Advantages

- Stable
- Reproducible
- Scalable

Patents

- Published Application: WO2025129033

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