Manufacturing of Homogeneous T Cells using Synthetic Exon/Expression Disruptors (SEEDs)

Tech ID: 33616 / UC Case 2022-093-0

TECHNOLOGY DESCRIPTION

Current methods of manufacturing T cells produce heterogeneous mixtures of partially engineered T cells. Our scientists have developed a one-step process to immunomagnetically deplete non-modified and partially edited T cells, while also reprograming three critical loci encoding T cell specificity, co-receptor expression and MHC expression. This strategy produces 98% purity after selection for individual modifications and up to 90% purity for 6 simultaneous edits (3 knock-ins and 3 knockouts). The method is simple, compatible with existing clinical manufacturing workflows and can be readily adapted to other loci to facilitate production of complex gene-edited cell therapies.

STAGE OF DEVELOPMENT

Characterized editing outcomes and transgene function in cells edited with a single or multiple SEEDs and the ability of SEED-selection to enrich for cells with biallelic integrations in a single step. Demonstrate antibody epitope editing enables enrichment of transgenes and facilitates removal of T cells with mispaired TCRs.

RELATED MATERIALS

- Ultra-high efficiency T cell reprogramming at multiple loci with SEED-Selection

PATENT STATUS

Country	Type	Number	Dated	Case
Japan	Issued Patent	7834651	03/13/2026	2020-206
Australia	Published Application	WO 2021/183884	09/16/2021	2020-206

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OTHER INFORMATION

KEYWORDS

Homogeneous T cells, Manufacturing T cells, Edited T cells

CATEGORIZED AS

- Medical
  - Disease: Autoimmune and Inflammation
  - Disease: Cancer
  - Therapeutics

RELATED CASES

2022-093-0, 2020-206-0

Canada	Published Application	WO 2021/183884	09/16/2021	2020-206
China	Published Application	WO 2021/183884	09/16/2021	2020-206
Israel	Published Application	WO 2021/183884	09/16/2021	2020-206
Mexico	Published Application	WO 2021/183884	09/16/2021	2020-206
Brazil	Published Application			2020-206
European Patent Office	Published Application			2020-206

Additional Patents Pending

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