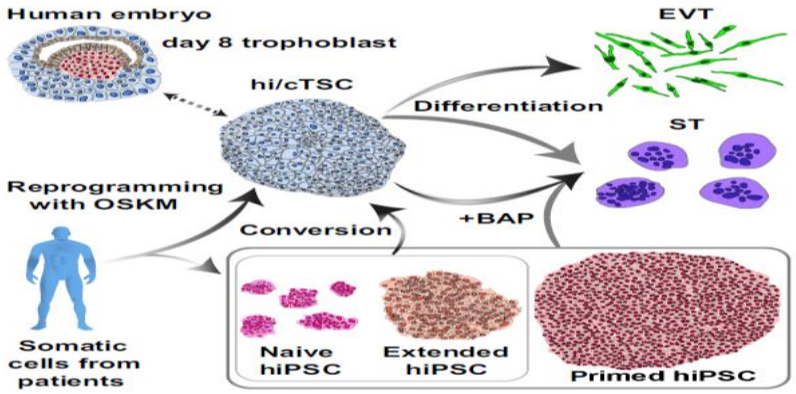
Tohoku Univ. Technology

Cells capable of differentiating into placenta-constituting cells, and method for producing same

Human trophoblast stem cells developed from ES/iPS cells !

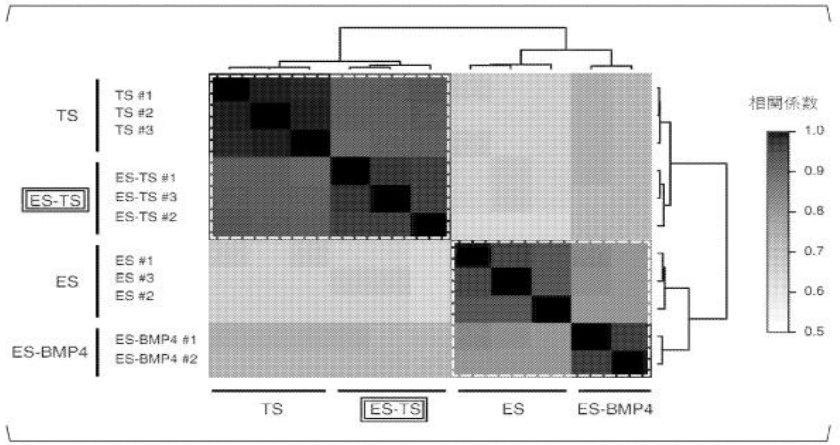


Castel et al (2020) Cell Reprots 33, 108419.

Overview

Human trophoblast stem cells (hTS cells) established from human placenta or blastocyst have been expected to contribute to medical/pharmaceutical R&Ds in the perinatal/gynecological region or development of treatments for infertility due to implantation disorders. The present invention discloses TS cells derived from pluripotent stem cells, such as ES and iPS cells (iTS cells). Like hTS cells, iTS cells can differentiate into cells comprising the placenta, such as ST and EVT cells, under appropriate induction conditions, while maintaining an undifferentiated state through many passages. The gene expression profile of iTS cells is similar to that of hTS cells, but different from that of the underlying ES/iPS cells (see right figure).

Features･Outstandings



Product Application

- Understanding mechanism of placental disorders
- R&D to Improve implantation/pregnancy rates in ART
- Understanding mechanism of placental immune tolerance
- In vitro toxicity assessment methods for any chemicals

Related Works

[1] Okae et al (2018) Cell Stem Cell 22, 50-63.
[2] JP Patent No 6400832 B2
[3] Cinkornpumin et al (2020) Stem Cell Reprots 15, 198-213.
[4] Castel et al (2020) Cell Reprots 33, 108419.

IP Data

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