Use of Embryonic Stem Cell-Specific microRNAs to Safely Promote Induced Pluripotency

Tech ID: 25702 / UC Case 2009-116-0

INVENTION NOVELTY

Novel use of a family of microRNAs to promote the de-differentiation of somatic cells to induce pluripotent stem cells (iPS cells) for use as therapeutic agents or research tools.

VALUE PROPOSITION

Factors that induce pluripotency in patient-specific somatic cells have the potential for use in therapeutic replacement of damaged or absent tissue, as well as in biological research. Although DNA molecules that encode for the necessary proteins are typically used to reprogram somatic cells, DNA is self-replicative and can be mutagenic. Therefore, alternative approaches for inducing pluripotency that avoid this problem would be desirable. Investigators at UCSF have identified a family of microRNAs that can be used as a substitute for one the factors required for reprogramming somatic cells.

This novel invention offers the following advantages:

- Use of safer non-replicative microRNAs to induce pluripotency in somatic cells

- Reduce the risk of activating oncogenes in the iPS cells

- Can be used in combination with other reprogramming molecules (proteins, small molecule drugs, long RNAs)

TECHNOLOGY DESCRIPTION

Scientists at UCSF have discovered a family of novel microRNAs that enhance pluripotency in somatic cells by replacing the activity of Myc, one of the currently required reprogramming factors. Because these microRNAs do not self-replicate, they offer a safer alternative in the generation of induced pluripotent cells as cell therapeutics and research tools.

LOOKING FOR PARTNERS

To develop and commercialize the technology as a cell therapy or stem cell research tool

STAGE OF DEVELOPMENT

Pre-clinical

RELATED MATERIALS

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OTHER INFORMATION

KEYWORDS

Induced pluripotent stem cells (iPS cells), microRNAs, Cell Reprogramming

CATEGORIZED AS

- **Medical**
  - Research Tools
  - Stem Cell
  - Therapeutics

RELATED CASES

2009-116-0

▶ Not available at this time

DATA AVAILABILITY

Under CDA/NDA

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	9,353,352	05/31/2016	2009-116
United States Of America	Issued Patent	8,852,940	10/07/2014	2009-116

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