

Saints Pères Neuroscience Seminar Series

Friday, June 21th, 2019 at 11:30

Salle des Conférences (R229)

Centre Universitaire des Saints-Pères

45 rue des Saints-Pères, 75006 Paris

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Professor

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Inducible and deterministic forward programming of human pluripotent stem cells into somatic cell types. - The stem cell promise fulfilled?

The discovery of human stem cells has fueled hopes and expectation of using human cells for drug discovery, research and cell therapy. However, during the past two decades, technical challenges have limited a broad adoption of human stem cells. Many conventional differentiation protocols are challenging, lack consistency, and are not scalable.

Direct cell reprogramming is a novel synthetic biology paradigm that is revolutionising our understanding of cellular identity. An ever-increasing number of protocols mediating transitions between cellular states challenge traditional concepts of cell types.

Reprogramming was thought to be restricted to and predetermined by conducive metastable states of cells. Our recent work challenges these preconceptions. By overcoming gene silencing phenomena in human pluripotent stem cells, it is possible to deterministically reprogram human iPSCs into different human cell types within time scales of less than a week. Large scale 'omics studies provide a detailed insight into the molecular processes that govern these rapid and efficient cellular transitions. In conclusion, cellular reprogramming overcomes known bottlenecks of stem cell research and has the potential of providing reliable cells for research and large-scale applications.

Those interested in meeting with the speaker please contact

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