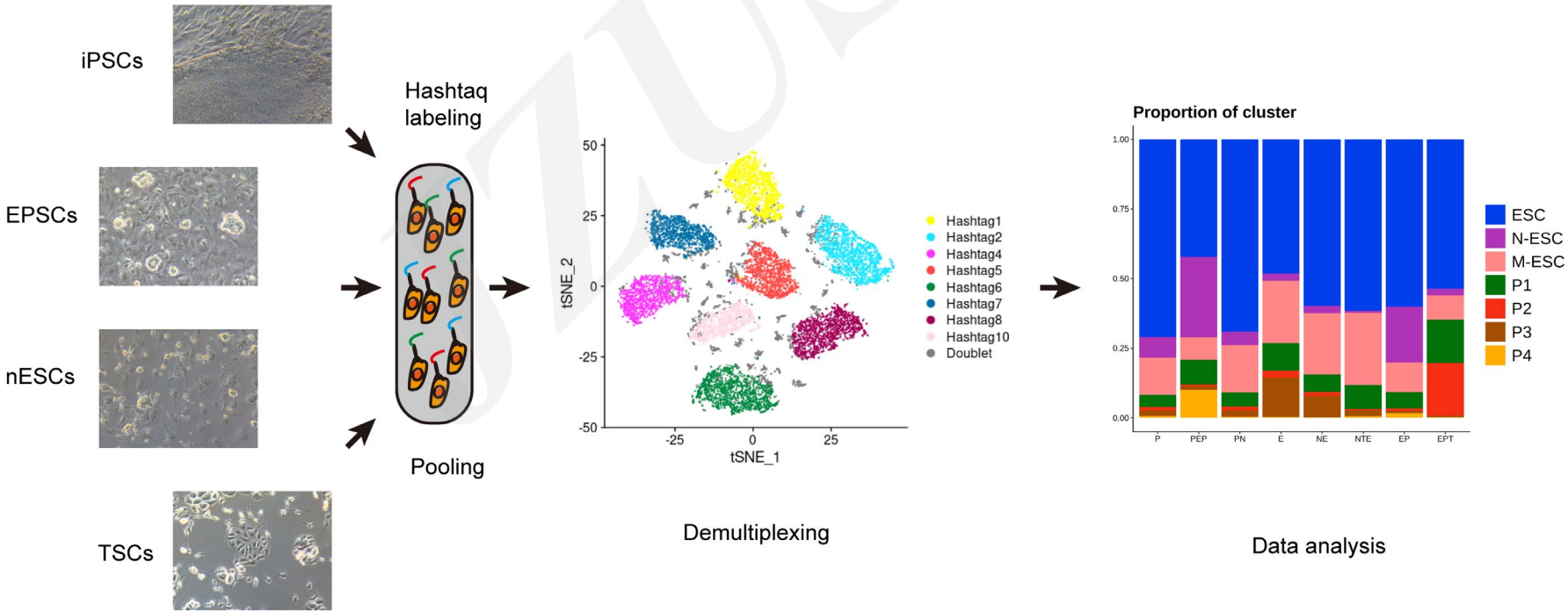
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Multiplexed single-cell transcriptome analysis reveals molecular characteristics of monkey pluripotent stem cell lines

Key words: **Monkey pluripotent stem cell, multiplexed single-cell sequencing, naïve pluripotency, extended pluripotent stem cells**

Research Summary

we introduce a multiplexed single-cell sequencing technique to profile the molecular features of monkey pluripotent stem cells in published culture conditions. The results demonstrate suboptimized maintenance of pluripotency and show that the selected signaling pathways for resetting human stem cells can also be interpreted for establishing monkey cell lines.



Innovation points

- **In this work, we validated for the first time the capability of a multiplexed single-cell transcriptome system to label and analyze monkey PSCs.**
- **Culture conditions that were optimized for maintaining or inducing human pluripotency were shown to be inefficient for non-human primate PSCs, resulting in a complex hybrid of pluripotent cells.**
- **LCDM and 5iLA conditions were sufficient to promote self-renewal and reprogram monkey stem cells to less-developed cell identities.**
- **Conversion or maintenance of cell identity under certain environments was dependent on cell context.**
- **EPS conditions tended to induce earlier developmental stages of cell identity than all the other conditions tested.**
- **This work provides an in silico reference for establishing optimized conditions for non-human primate PSC culture.**

Innovation points

A series of comprehensive figures were generated to summarize the molecular characteristics of monkey pluripotent stem cells under published human culture environments.

Fig. 1| Sample multiplexing of various monkey pluripotent stem cell lines based on 10x genomics.

Fig. 2| Molecular features of monkey pluripotent stem cells in different culture environments.

Fig. 3| Molecular features of different monkey pluripotent stem cells derived under the same culture conditions.

Fig. 4| Mapping monkey pluripotent stem cell lines to in vivo counterparts during embryogenesis.

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