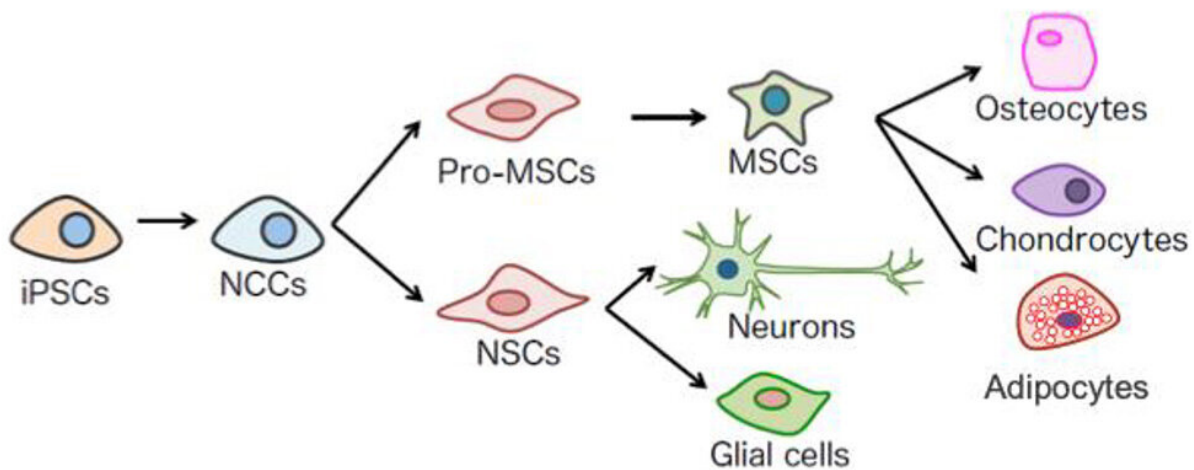


A new method for inducing mesenchymal stem cells from iPS cells without using animal-derived components

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Credit: Kyoto University

A group led by Associate Professor Makoto Ikeya has established a new method to generate mesenchymal stem cells (MSCs) from iPS cells via neural crest cells (NCCs) without animal-derived elements. It is expected to be used for cell therapy with MSC.

MSCs are [stem cells](#) that exist in the adult body and are being used for cell transplantation in regenerative medicine for various diseases. The Makoto Ikeya laboratory previously reported a method for inducing

MSCs from iPS cells, but it was not suitable for use in cell transplantation therapy because the protocol involved animal-derived components.

The research group has established a new protocol to efficiently induce differentiation from iPS cells to MSCs under conditions that were free of animal-derived substances (XF: Xeno-Free). These MSCs (XF-iMSCs) were transplanted into mice. The researchers found that the XF-iMSCs were able to regenerate bone and skeletal muscle in the mice. The XF-iMSCs not only differentiated into bone cells but also secreted factors that promoted the regeneration of surrounding cells. These results suggest that XF-iMSCs have the potential to be used in regenerative medicine.

The results of this study were published online in *npj Regenerative Medicine* on September 15, 2022.

More information: Daisuke Kamiya et al, Induction of functional xeno-free MSCs from human iPSCs via a neural crest cell lineage, *npj Regenerative Medicine* (2022). [DOI: 10.1038/s41536-022-00241-8](https://doi.org/10.1038/s41536-022-00241-8)

Provided by Kyoto University

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