

What are Stem cells?

What is a stem cell?

A single cell that can

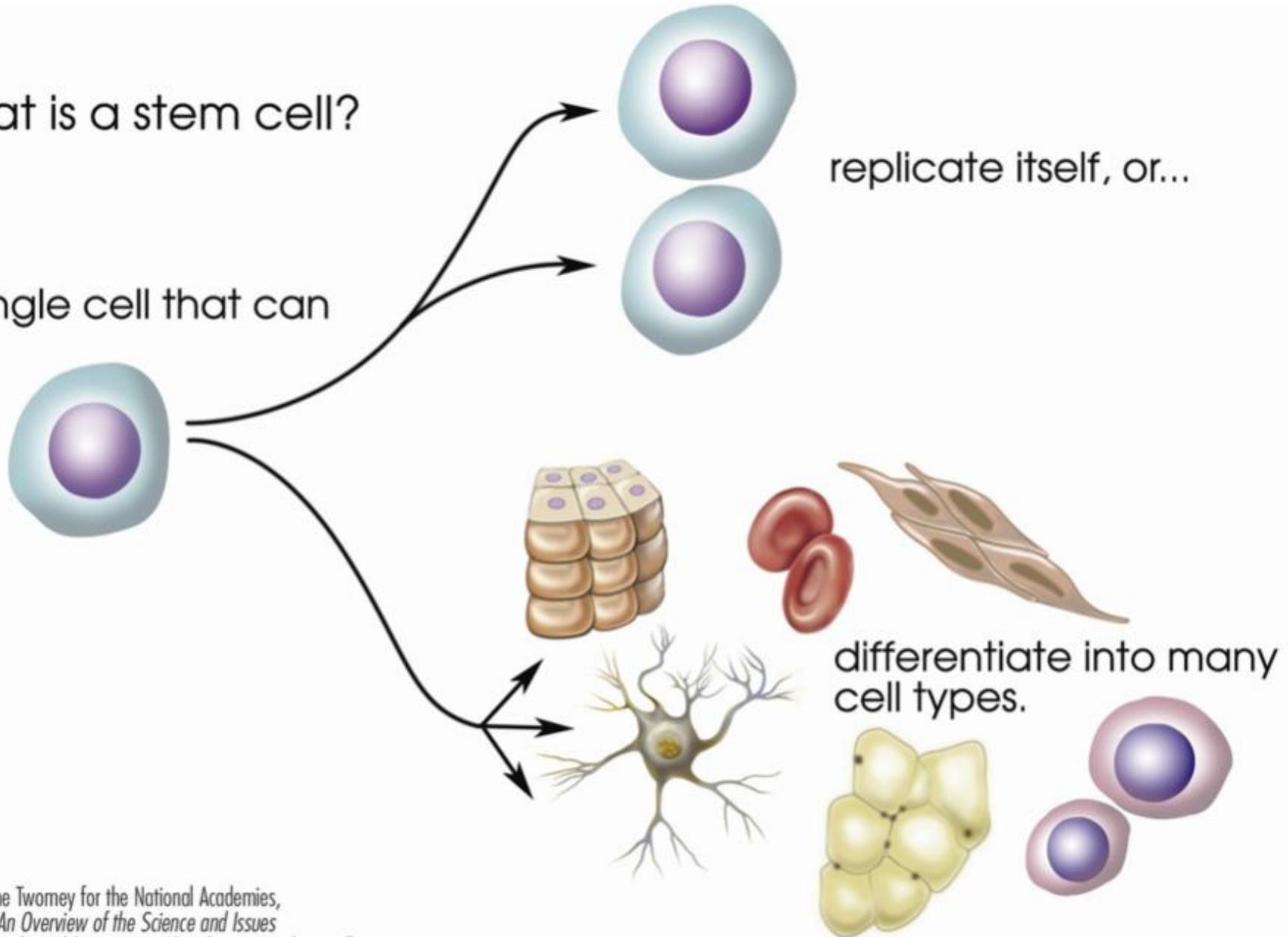
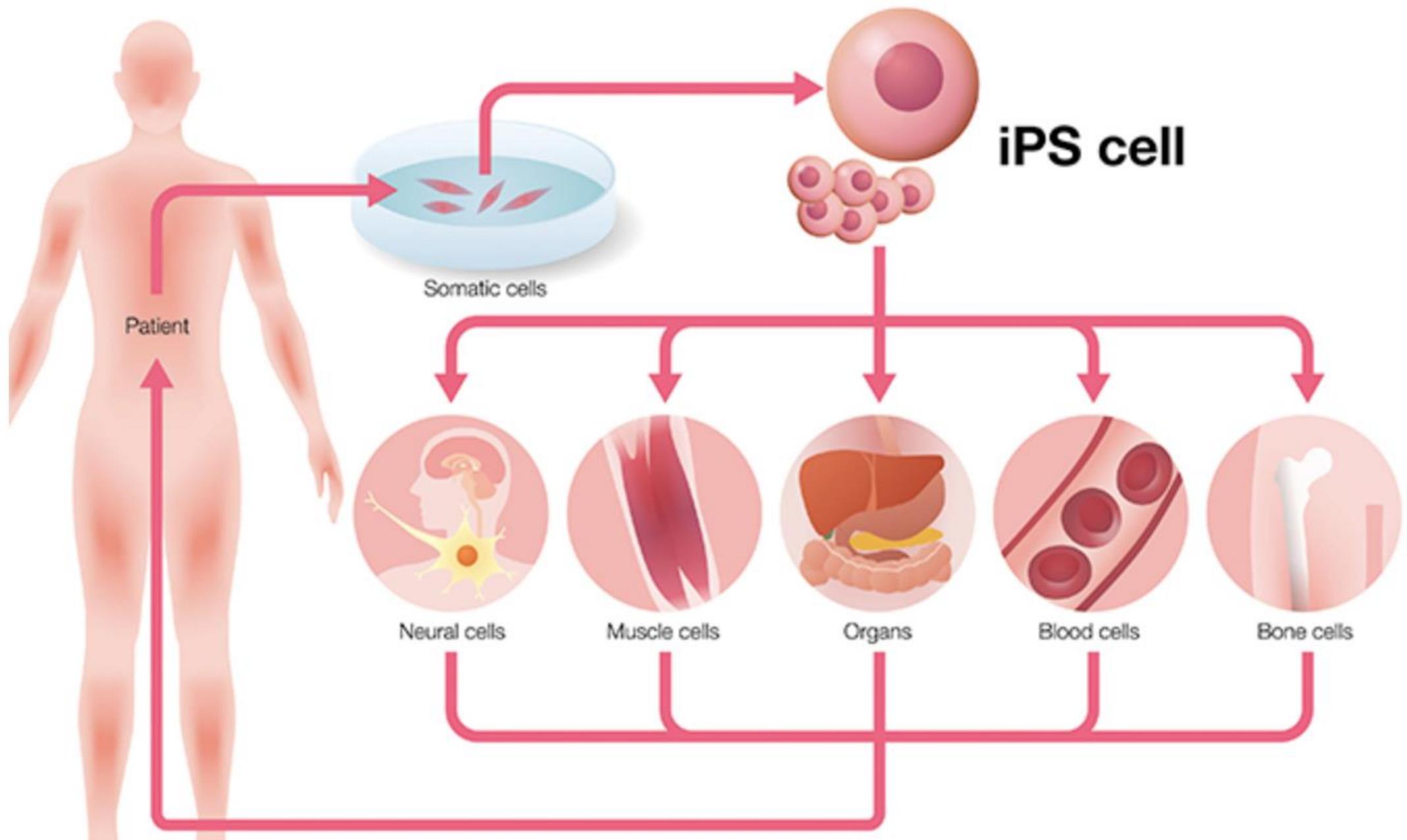


Image prepared by Catherine Twomey for the National Academies, *Understanding Stem Cells: An Overview of the Science and Issues* from the National Academies, <http://www.nationalacademies.org/stemcells>. Academic noncommercial use is permitted.

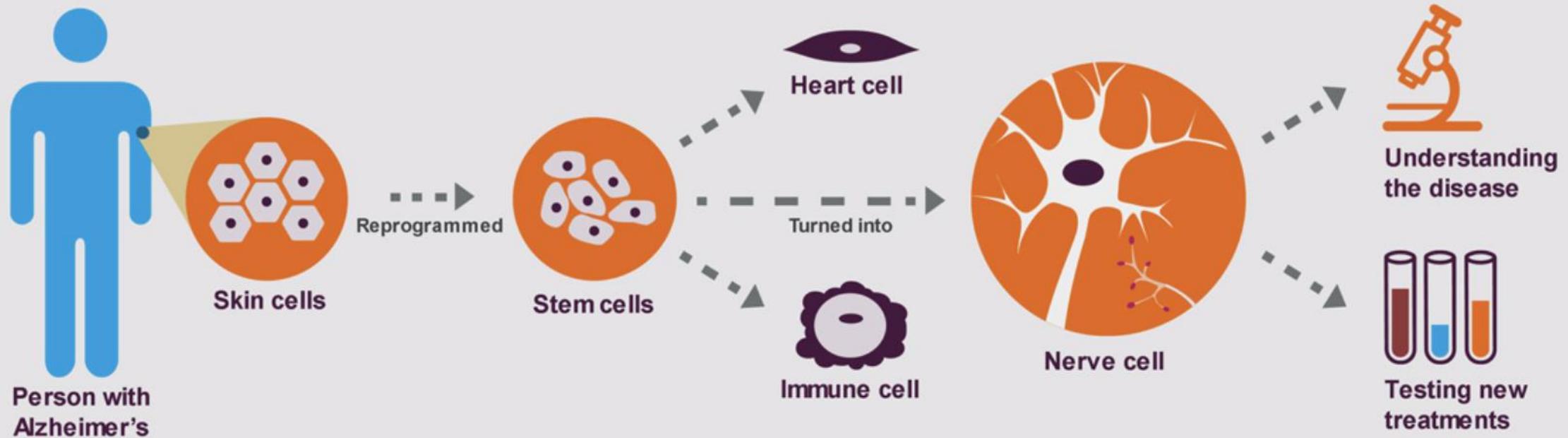
What are Induced Pluripotent Stem cells- iPSCs?

iPSC are derived from skin or blood cells that have been reprogrammed back into an embryonic-like pluripotent state that enables the development of an unlimited source of any type of human cell needed for therapeutic purposes.

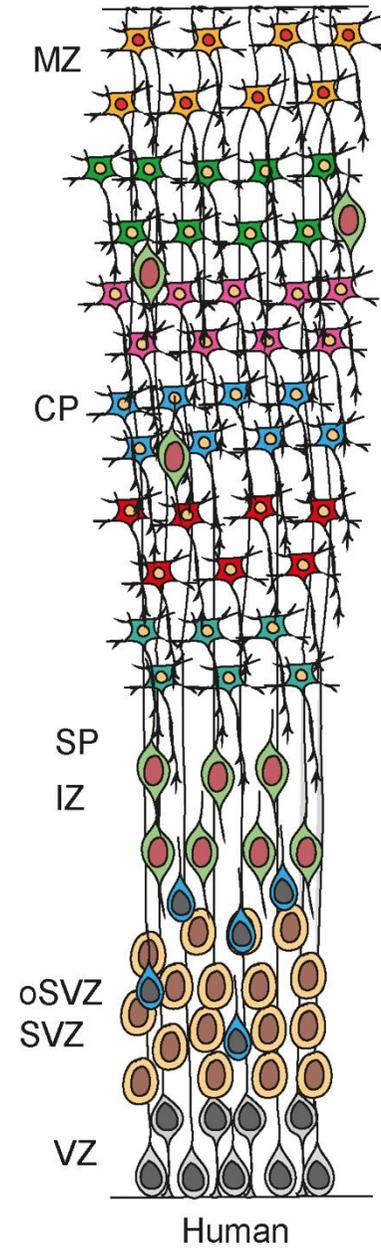
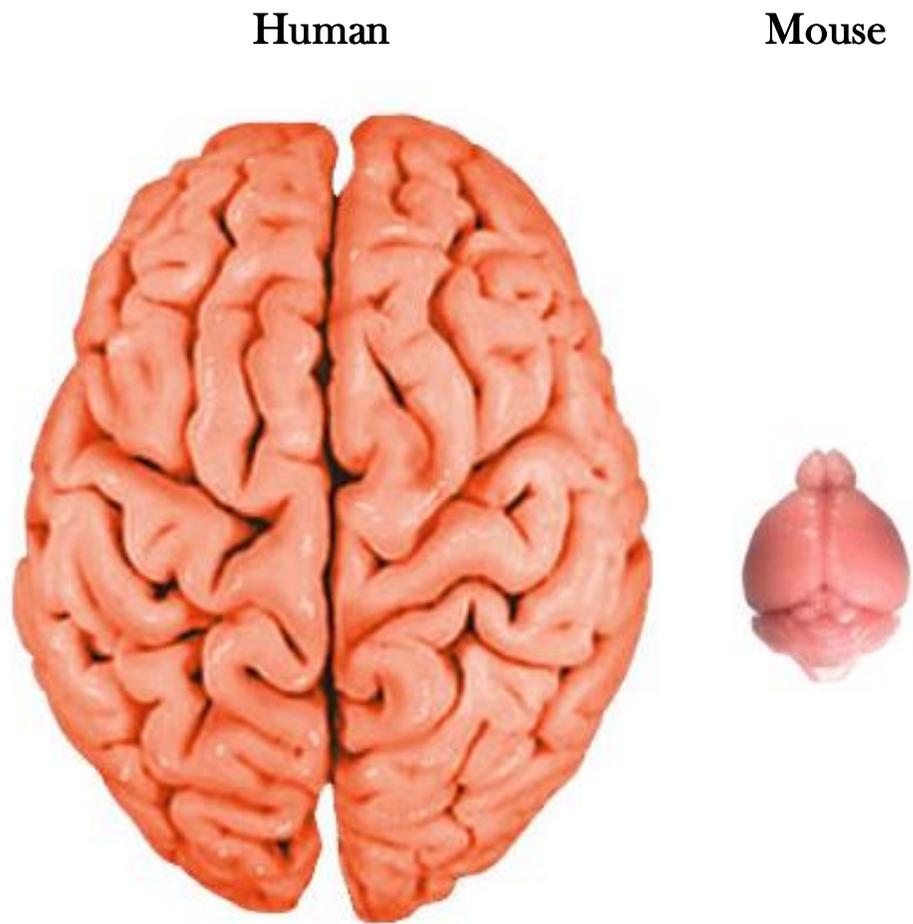


What are Induced Pluripotent Stem cells- iPSCs?

For example, if someone has Alzheimer's disease:

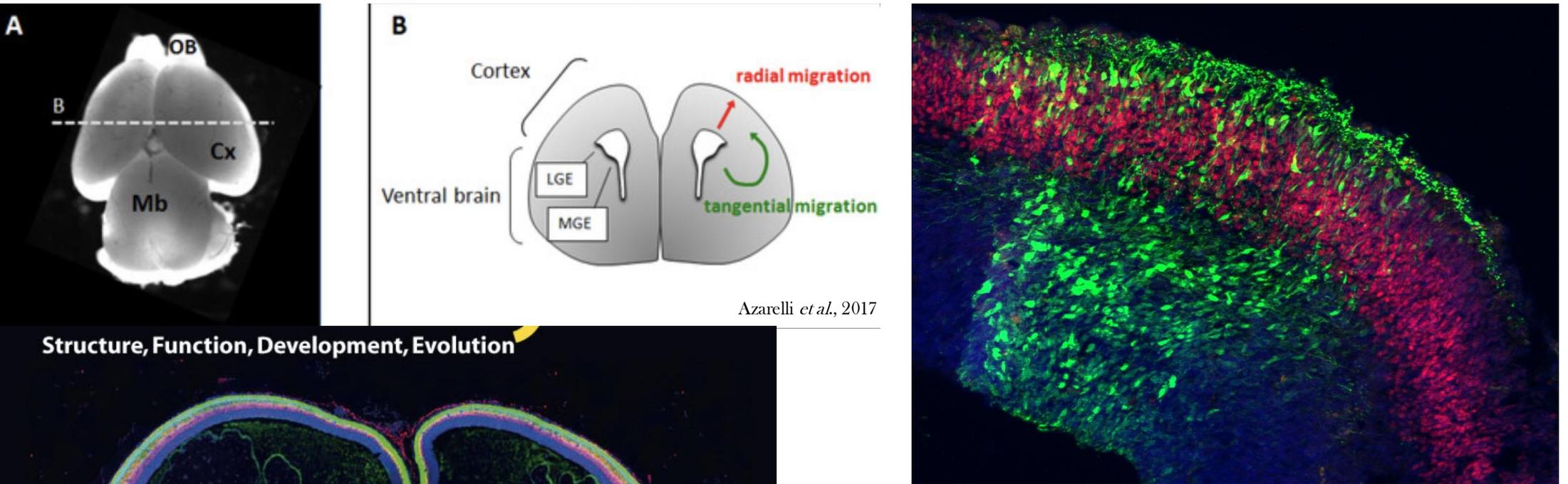


Human Brain versus Mouse Brain



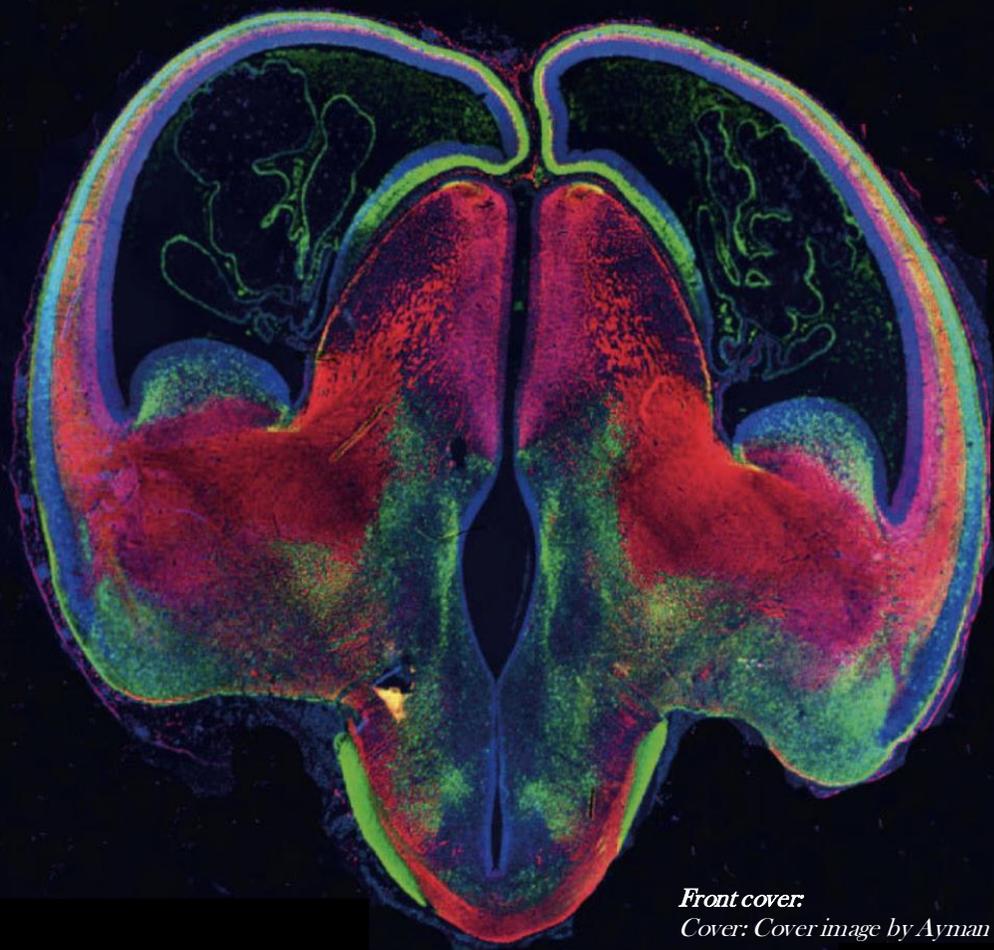
Understanding the complexity of brain development

Embryonic mouse brain section

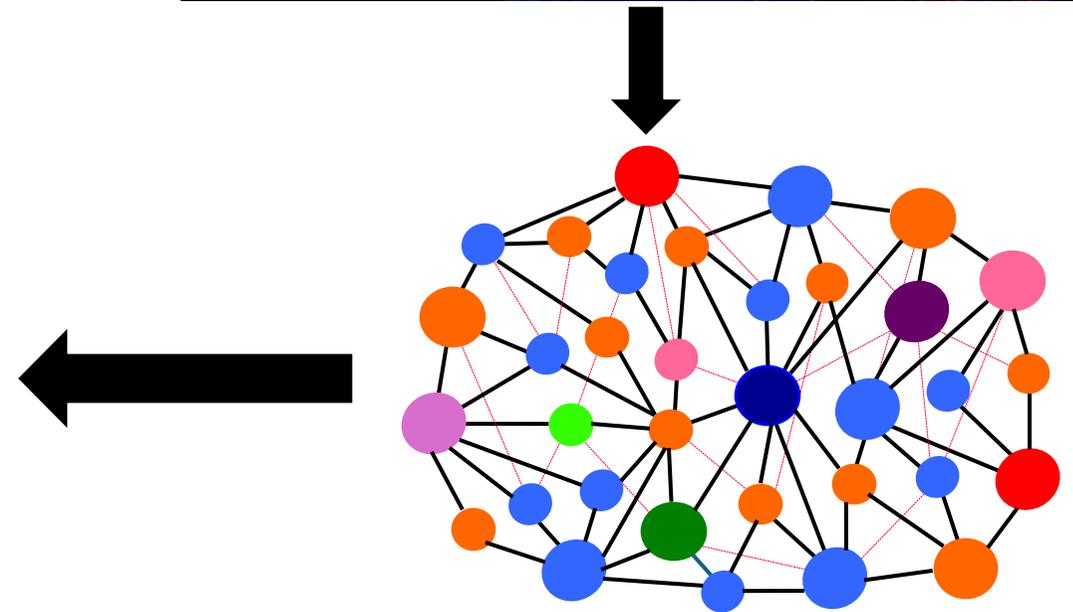


Azarelli *et al.*, 2017

Structure, Function, Development, Evolution

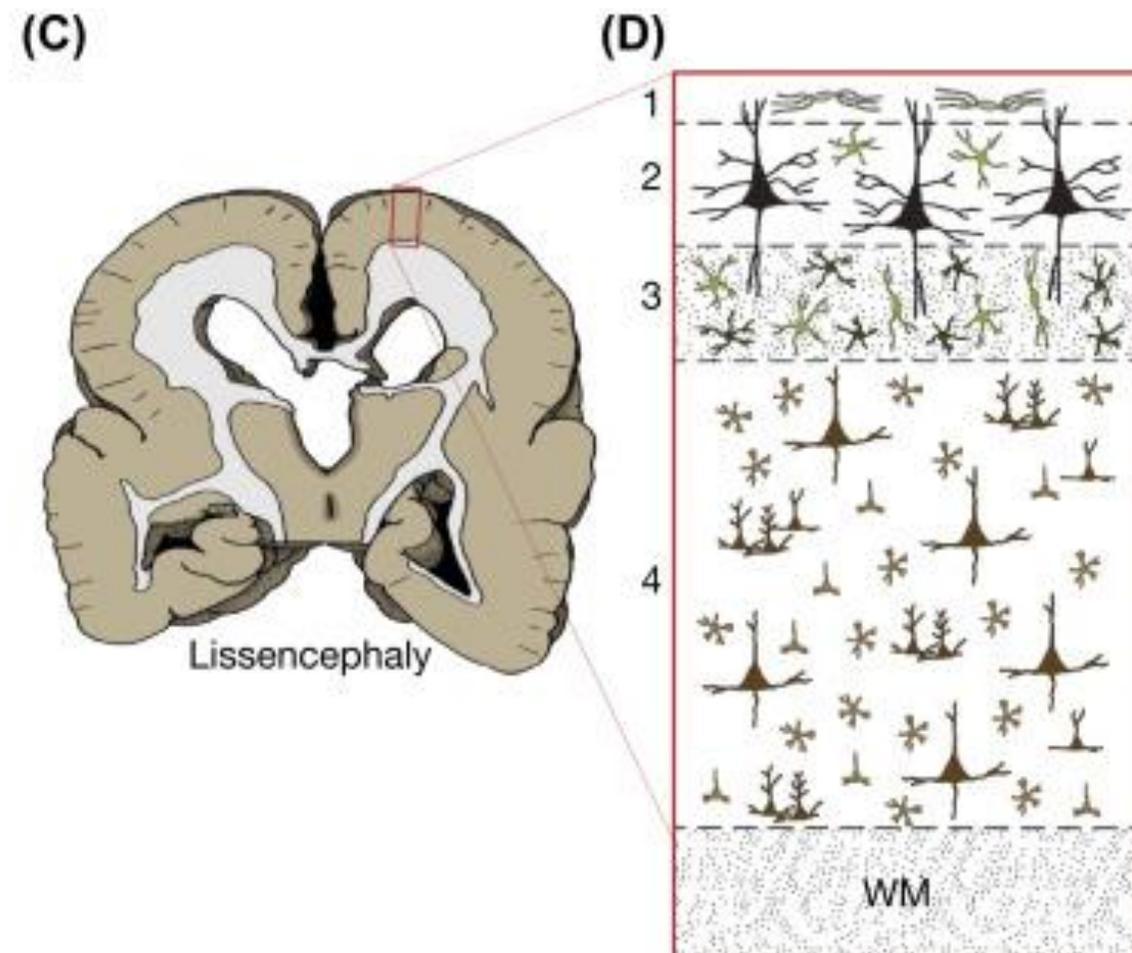
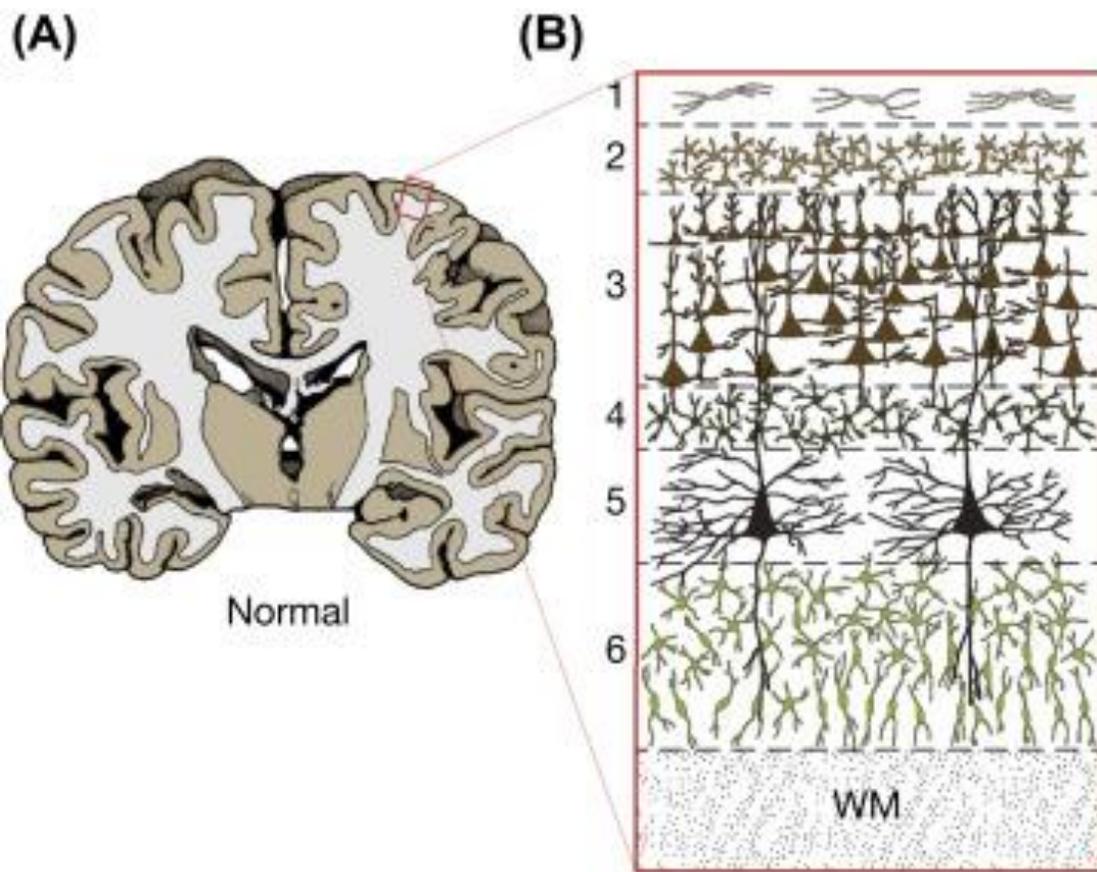


Front cover
Cover image by Ayman Alzu



Signaling and transcriptional networks

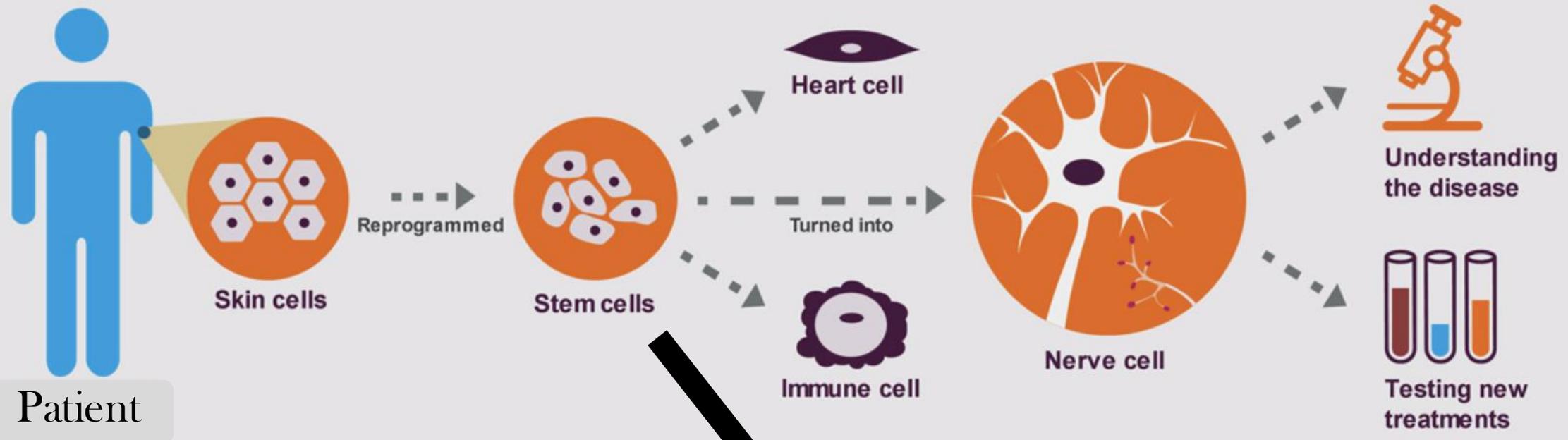
Example of Brain disease



LuTurco and Manent., 2020

What are Induced Pluripotent Stem cells- iPSCs?

For example, patient-derived cells:



Organoids



Induced Pluripotent stem cells to Cerebral Organoids

