

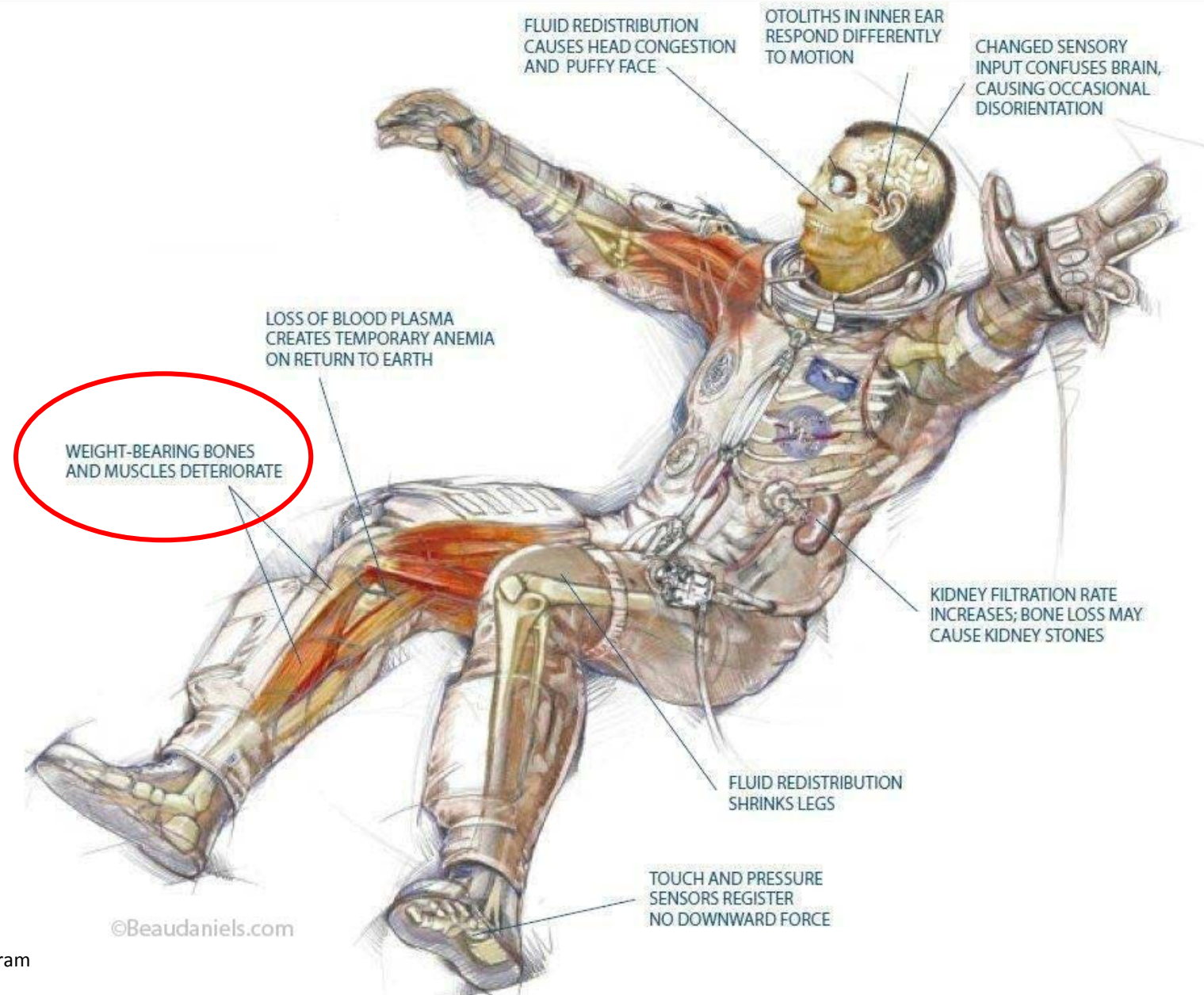


Deciphering the effects of microgravity cell by cell

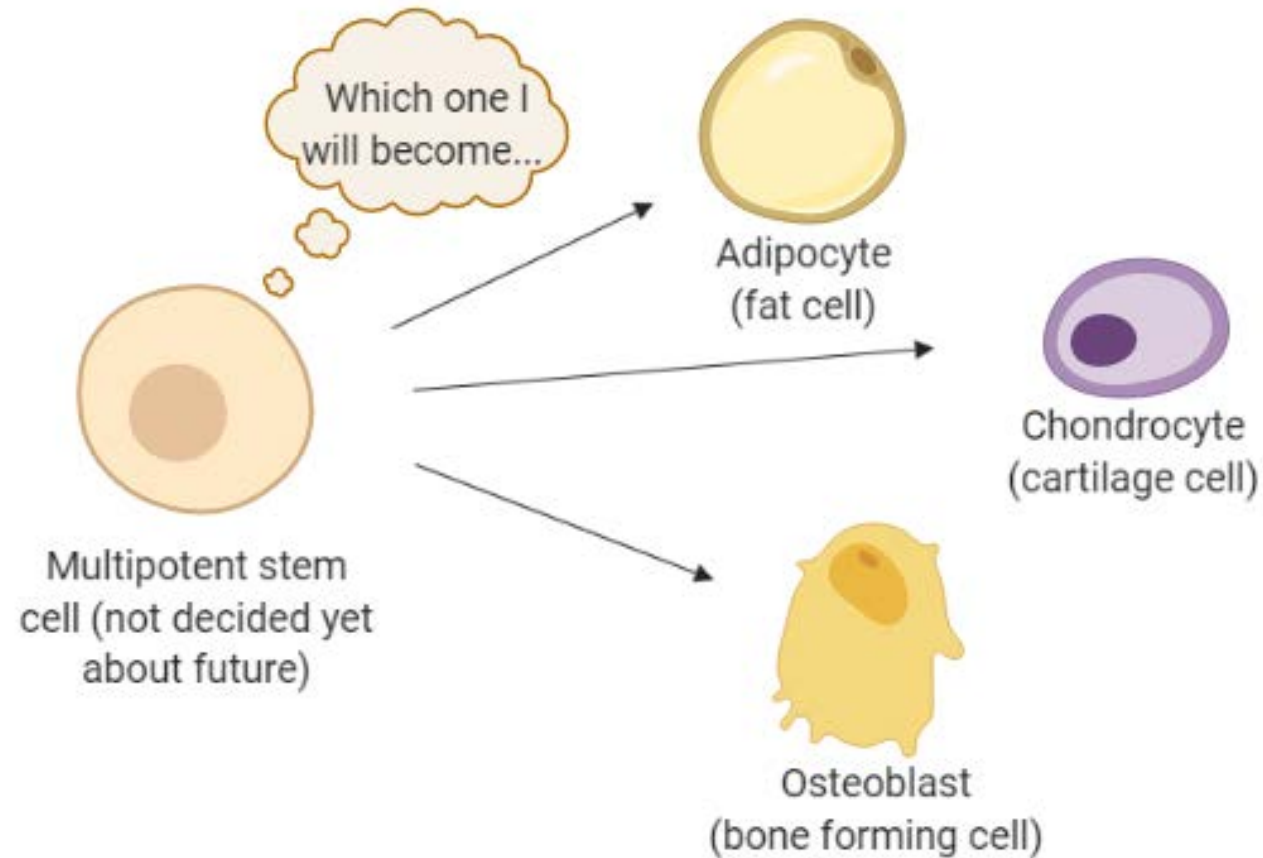
By Justina Žvirblytė

Night of Science, August 15th, 2019

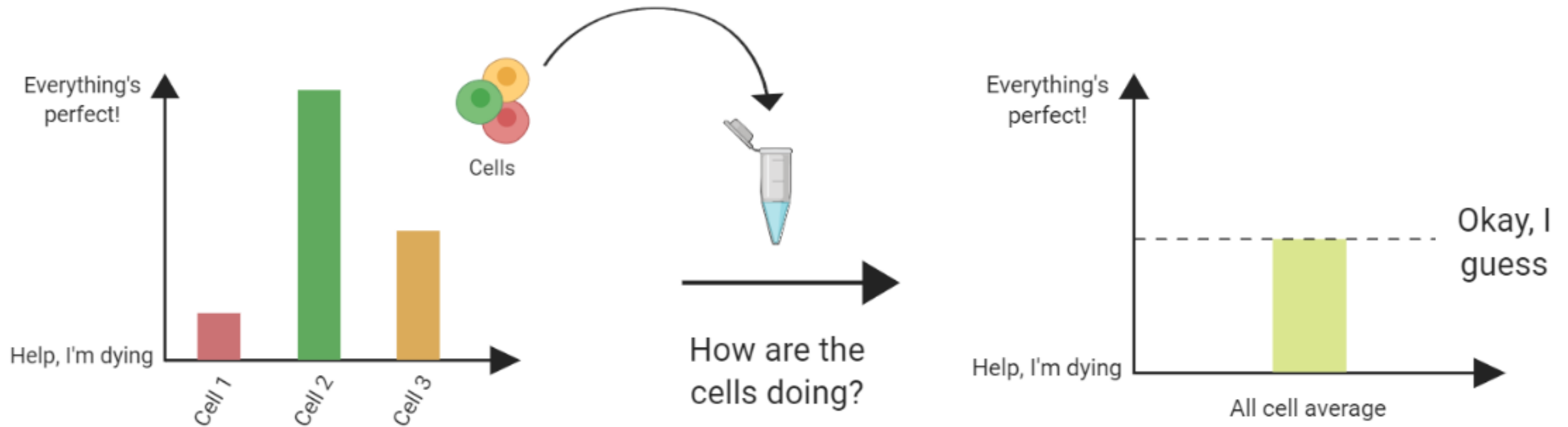
Effects of Space Flight on Human Body:



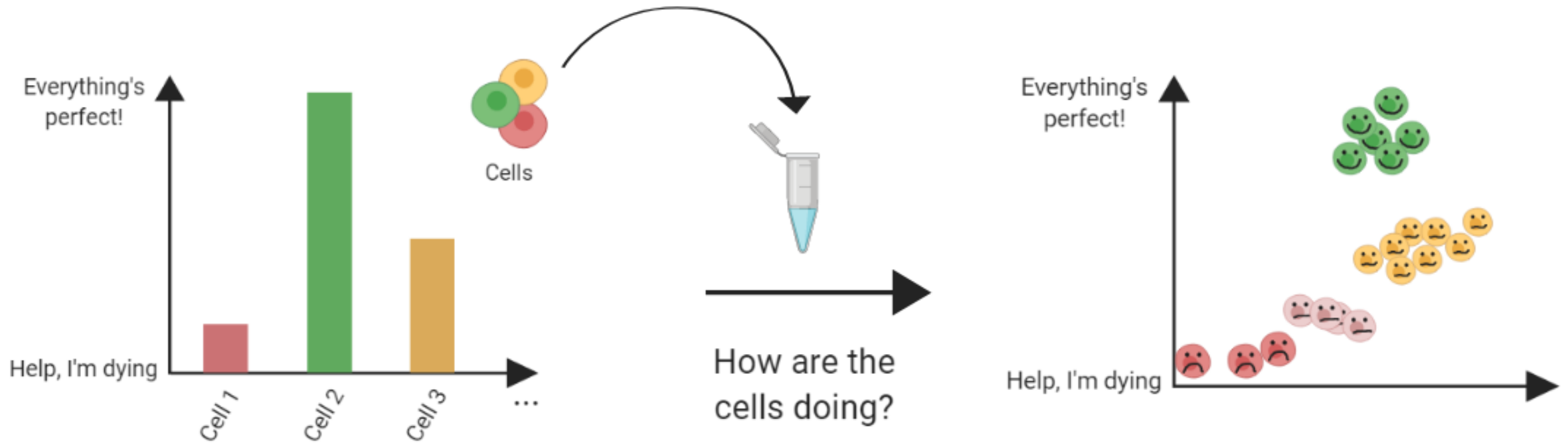
Stem cells: rebuilding you since the day you were born



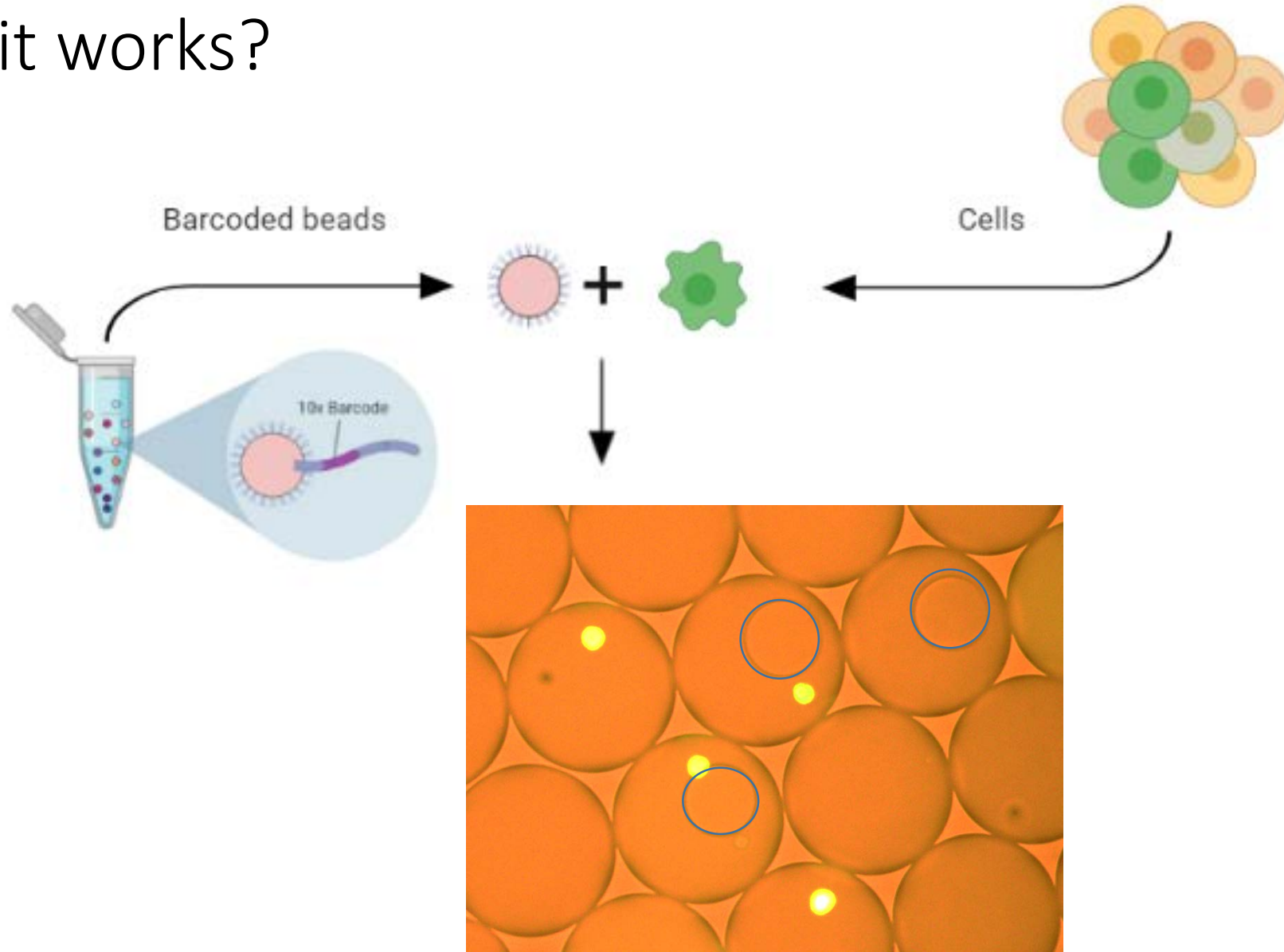
Before single cell sequencing: reality vs output



Single cell sequencing: every cell matters

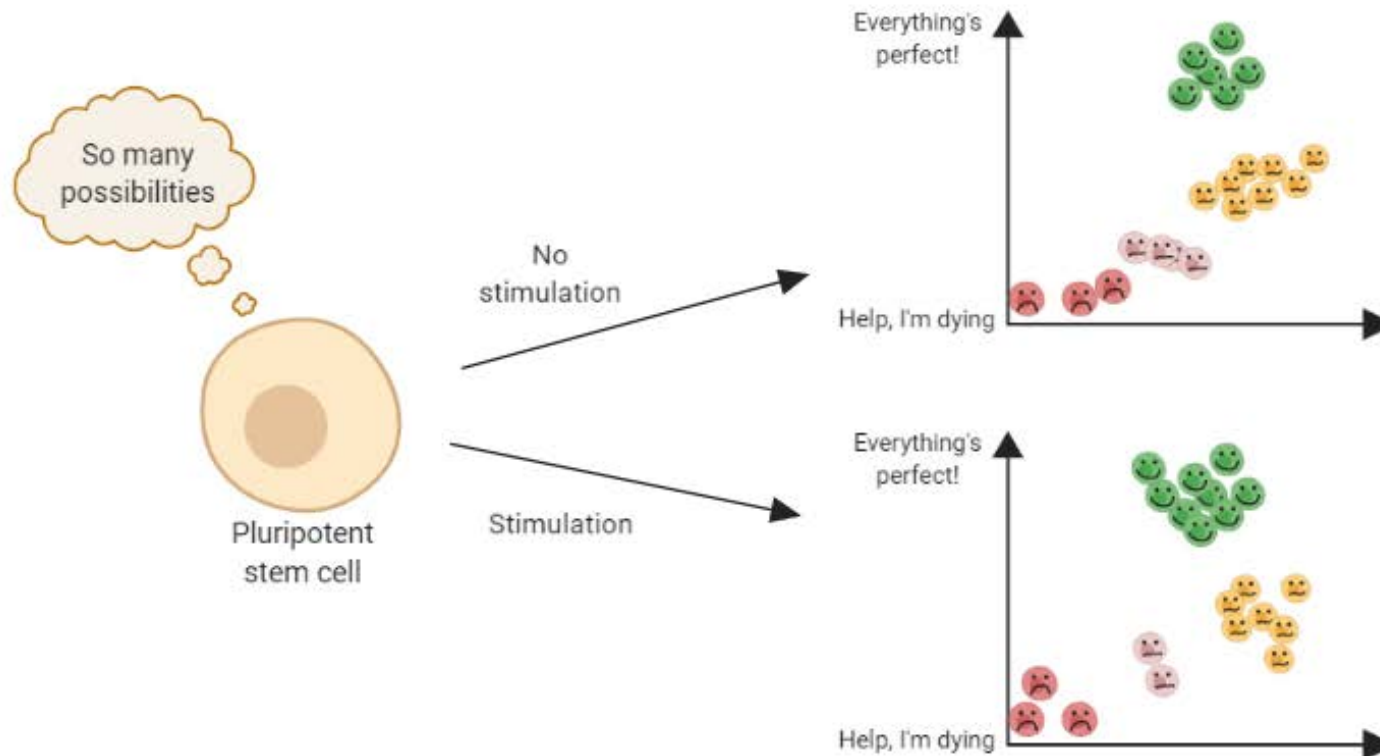


How it works?



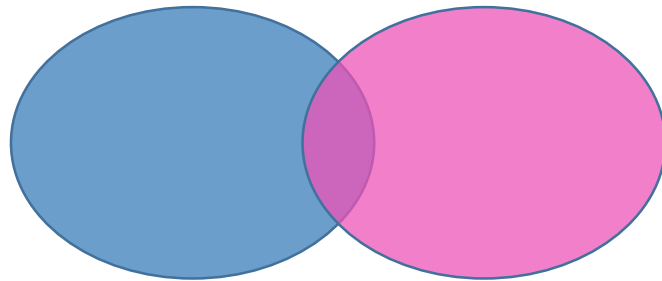
Pilot study: pluripotent stem cells and mechanical stimulation

- Less gravity = less mechanical stimulation to all tissues
- Why mechanical stimulation is important for stem cells?



Cell population heterogeneity

Expectation: Identical cells within the same condition



Stimulated

Unstimulated

Reality: already different cells within the same condition

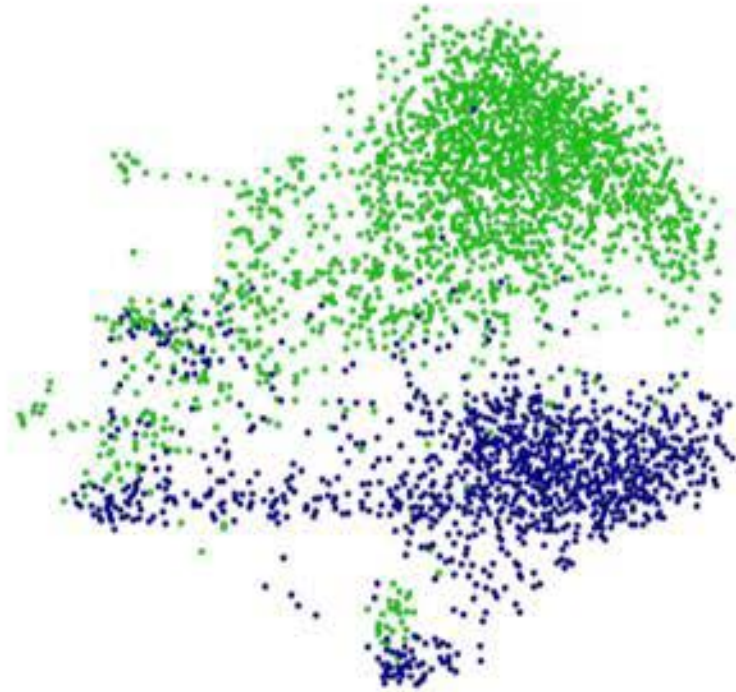


Stimulated



Unstimulated

Different cells react in different ways

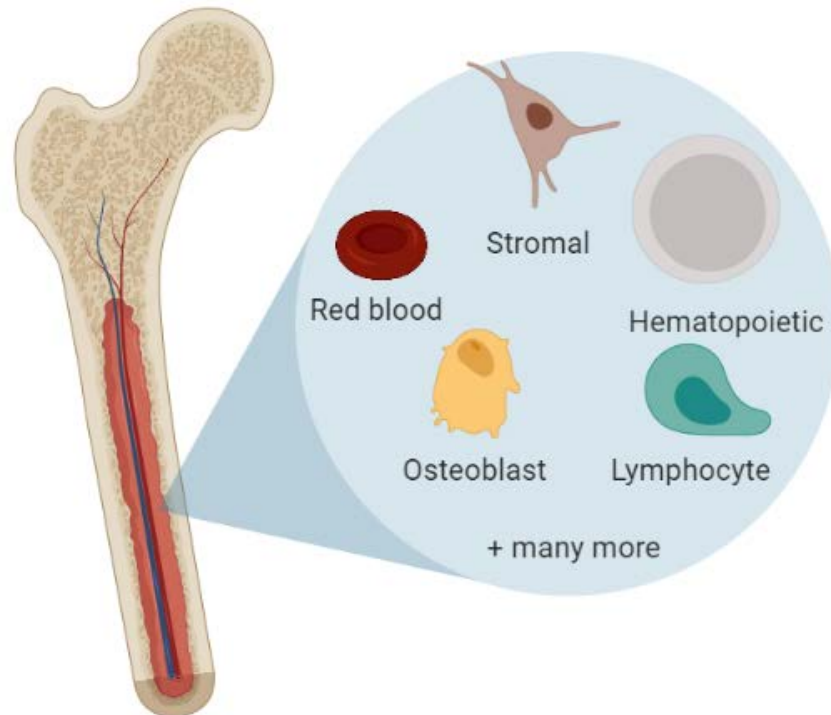


● Mechanical stimulation

● No stimulation

Current project and future ambitions

- Single cell sequencing on multipotent stromal bone marrow cells
- Spaceflight sample sequencing, whole bone marrow and other tissues



Acknowledgements

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