Advancing regenerative medicine by generating knowledge about the nature of cadherins in human mesenchymal stem cells

Propositions

accompanying the dissertation

Advancing regenerative medicine by generating knowledge about the nature of cadherins in human mesenchymal stem cells

By Fiona Rosaleen Passanha,

Maastricht, 6th December 2021

1. It's the time you spent on your rose that makes your rose so important. (The Little Prince)
2. Cells are very complicated. The inside of a cell is extremely crowded. It's very inhomogeneous. Everything is constantly far away from equilibrium and its material properties are very weird. It's not viscous, it's not elastic, it's not plastic, it's some combination of all those things and can change its material properties over time. (Julie Theriot)
3. Tissue engineering could be more successful if tissue engineers would take lessons from developmental biology.
4. Cadherin-2 expression decreases with an increase in cell density in culture. (this thesis)
5. Cadherin-2 knockdown enhances bone matrix formation, whereas cadherin-11 knockdown diminishes it. (this thesis)
6. Loss of cadherin-11 disrupts adipogenic differentiation. (this thesis)
7. Cells that lack cadherin-11 lack the feedback loops for ERK1/2 phosphorylation and hence have diminished proliferation. (this thesis)
8. The long-term culture of hMSCs in 3D culture systems decreases proliferation. (this thesis)
9. 3D cell culture is transforming the field, however, using 3D cultures with standard cell analysis methods can be challenging.
10. Education in regenerative medicine is lagging behind the scientific advances made.
11. Timing is everything.