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## **Metabolic regulation of differentiation and maturation: from induced pluripotent stem cell to endothelial cell**

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## **Metabolic regulation of differentiation and maturation**

### From induced pluripotent stem cell to endothelial cell

1. Organoids were thought to replace animal models; however, they function best after transplantation into animals (this thesis & C.W. van den Berg, et al. Stem Cell Reports 2018).
2. Maturation of organoids requires vascularization, which is stimulated by flow and especially by blood (this thesis & C.W. van den Berg, et al. JASN 2020).
3. The feedback loop of metabolism and (epi-)genetic changes in cell development dynamically changes the cells phenotype. (H. Miyazawa, et al. Development 2018 & this thesis)
4. Endothelial cell dysfunction is causing intravascular coagulation and obstructive thromboinflammatory syndrome in COVID-19 (Y. Jin, et al. Signal Transduction and Targeted Therapy 2020, Z. Varga, et al. the Lancet 2020 & this thesis).
5. A healthy glycocalyx protects against severe COVID disease due to shielding of the interaction of SARS-CoV-2 spike protein with ACE2 receptors (M. Targosz-Korecka, et al. Scientific Reports 2021).
6. Glycocalyx should be used as a clinical marker of vessel health (Glycocheck, H. Vink).
7. Seaweed, rich in polysaccharides including agar and alginate, is the secret to aging and therefore should be made widely available in (hospital) canteens. (N.P. Patil Front Cardiovasc Med. 2018 & Super centarian: K.Tanaka 1903 - present Japan).
8. The main concept of immune modulation is to be “seen” or not to be (Shakespeare 1599-1601).
9. With every major discovery, such as the creation of a mammalian embryo from stem cells in the lab, we lose some of our naïve believes. (P-F. Xu et al. Nature Communications 2021)
10. Evolution, the antithesis of the normal, itself is normal, ubiquitous and ever present. (C. Darwin 1809-1882)
11. If you cannot separate the phenotype of mental illness from creative impulses, then you cannot separate the genotype of mental illness and creative impulse. (Siddhartha Mukherjee, The Gene: An Intimate History 2016)
12. Curiosity, rather than money, is critical for discovery and innovation. (Jennifer Doudna, ISSCR Melbourne 2018 (2020 Nobel Laureate in Chemistry))