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Modeling vascular diseases using human induced pluripotent stem cells

Cao, X.

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Author: Cao, X.

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Stellingen behorend bij het proefschrift getiteld:

Modeling Vascular Diseases Using Human Induced Pluripotent Stem Cells

1. "Multitypic cell cultures from hiPSCs could ultimately lead to better and safer drugs and a better understanding of human disease." *Passier R, Orlova V, Mummery C.L. (2016). Cell Stem Cell, 18(3), 309-321.*
2. "All of that being said, biotechnologies typically mature slowly and translate into reliable means of treatment over the course of decades. We remain confident that the hurdles facing PSC will be surmounted and that it will continue to influence the treatment of disease." *Blau, H., Daley, G. (2019). Stem Cells in the Treatment of Disease. The New England Journal of Medicine, 380(18), 1748-1760.*
3. "New models, such as recent innovations in generating macrophages from induced pluripotent stem cells (iPSCs), must take into account the impact of heterogeneity in the origin and tissue-specific functions of macrophages." *Lee, C. Z. W., Kozaki, T., Ginhoux, F. (2018). Nat Rev Immunol, 18(11), 716-725.*
4. "Hypoxia and inflammation are intertwined at the molecular, cellular, and clinical levels. Oxygen-sensing mechanisms and hypoxia signaling are potential therapeutic targets for the treatment of inflammatory diseases. The value of such approaches could be tested in patients with acute lung injury, myocardial ischemia, inflammatory bowel disease, or cancer." *Schwartz, R., Eltzschig, H., Carmeliet, P. (2011). The New England Journal of Medicine, 364(7), 656-65.*
5. "The overall aim of the work in this thesis was to establish vascular models in culture using hiPSC-ECs and myeloid cells for a genetic vascular diseases HHT1 and a vascular tumor PHE." *This thesis*
6. "Here, we describe a protocol that allows production of erythro-myeloid progenitors (EMPs)-like cells that can be further differentiated towards hiPSC-derived monocytes (hiPSC-mono) with the yield of $15\text{-}20 \times 10^6$ from a single plate in just 15 days." *This thesis*
7. "We demonstrated that blocking CD172a-CD47 signalling in IPSDMs and PBDMs comparably increased tumour cell phagocytosis. This indicates that IPSDMs could be an alternative to PBDMs in developing new cancer immunotherapies." *This thesis*
8. "From one mosaic patient ($ENG^{c.1678C>T}$), we derived diseased and healthy hiPSCs. HHT1^{c.1678C>T}-hiPSC-ECs showed increased inflammatory responses and defective vascular organisation specifically when grown in 3D organ-on-chip devices under microfluidic flow." *This thesis*
9. "Work in this thesis generated an *in vitro* model for HHT1 as well as for the vascular tumor PHE; these models provided valuable tools to investigate underlying pathologies of human vascular diseases and contributed to moving this area of research forward." *This thesis*
10. "On and on stretched my road, long it was and far, I would go high and go low in this search that I made." *Qu Yuan (339 BC-278 BC). Science is an endless road with up and down and I will never stop walking.*
11. "When three men meet together, one of them who is anxious to learn can always learn something of the other two." *Confucius (551 BC-479 BC). Translated by Hongming Gu. It's never been easy for us to be humble enough to learn from strangers or competitors.*
12. "We soon believe what we desire." *Geoffrey Chaucer (1340 -1400). Being objective to every research finding is challenging.*