Duct cells in development, regeneration, and transplantation: charting a path to new islets

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Stellingen behorende bij het proefschrift getiteld

Duct Cells in Development, Regeneration, and Transplantation: Charting a Path to New Islets

1. Islet purity is not an important determinant of long-term metabolic outcome in clinical islet transplantation. (*this thesis*)

2. Adult human pancreatic organoids harbour progenitor cells with endocrine differentiation potential, demonstrating the feasibility of *ex vivo* expansion of progenitor cells for regenerative medicine. (*this thesis*)

3. Efficient lentiviral transduction of primary human pancreatic exocrine cells enables targeted genetic modifications, which can be used to investigate the plasticity of these cells and to enhance beta cell differentiation strategies. (*this thesis*)

4. Cytoplasmic expression of SOX9 is present in the developing human pancreas and might play a role in cell specification, which has implications for beta cell development. (*this thesis)*

5. "The historical reliance of biological research on the use of animal models has sometimes made it challenging to address questions that are specific to the understanding of human biology and disease." (Kim et al, *Nature Reviews Molecular Cell Biology,* 2020 Oct;21(10):571-584)

6. "Finding endogenous, renewable sources for insulin-producing beta cells in the adult pancreas is one of the holy grails of stem cell research and regenerative medicine." (Zhao et al, *Cell Metabolism*, 2021 Nov 2;33(11):2105-2107)

7. "Advances in single-cell RNA sequencing have revealed significant heterogeneity within the pancreatic ductal compartment, necessitating refined isolation techniques for progenitor cell research." (Baron et al, *Cell Systems*, 2016 Oct 26;3(4):346-360.e4)

8. "Current differentiation protocols have not been successful in reproducibly generating fully functional human beta cells *in vitro*, partly due to incomplete understanding of human pancreas development." (Olaniru et al, *Cell Metabolism,* 2023 Jan 3;35(1):184-199.e5).

9. Shaped by the brilliance of evolution, the human body is a masterpiece of design, yet our modern lifestyle undermines its natural function, paving the way for disease.

10. We owe deep gratitude and respect to those who chose to donate their organs and tissues, as their selflessness fuels both hope and scientific progress.

11. Science has advanced through the sacrifice of animals, but true innovation lies in learning without their suffering.

12. Promoveren naast een opleiding tot internist is als een dubbele dienst draaien: je weet niet meer precies wanneer het begon, maar je bent blij als het dankzij volharding en toewijding goed wordt afgerond.