Imaging of insulitis and beta cell mass in type 1 diabetes mellitus

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Stellingen behorende bij het proefschrift

'Imaging of insulitis and beta cell mass in type 1 diabetes mellitus'

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1. Approximately 2000 years after the first description of diabetes, adequate treatment of type 1 diabetes is still illusive.

2. The possibility to non-invasively quantify beta-cell mass and the extent and severity of pancreatic insulitis could facilitate early diagnosis and possibly prevention of human type 1 diabetes. *(this thesis, chapter 2)*

3. [^{18}F]FB-IL2 binding to its receptor expressed on human activated T-lymphocytes can be quantified in vivo by compartmental analysis measuring the binding potential of [^{18}F]FB-IL2 to IL2 receptor. This may have important implications for imaging activated T-cells in autoimmune diseases. *(this thesis, chapters 4-5)*

4. [^{18}F]FB-IL2 PET provides a non invasive and quantitative method to measure the extent of T-lymphocyte infiltration in the pancreas of pre-diabetic animals (insulitis) and this could help for early diagnosis of type 1 diabetes. *(this thesis, chapter 6)*

5. Uptake and metabolism of [^{11}C]HTP is different in endocrine and exocrine pancreatic cells. Only in beta cells, [^{11}C]HTP trapping is strongly dependent on the serotonin pathway and this can be used as an imaging strategy to in vivo detect beta-cell mass. *(this thesis, chapter 7)*

6. The important thing in science is not so much to obtain new facts as to discover new ways of thinking about them. *(Sir William Bragg)*

7. The statement ''[…]Intuition and concepts constitute the elements of all our knowledge, so that neither concepts without an intuition in some way corresponding to them, nor intuition without concepts, can yield knowledge[…]'' *(Immanuel Kant*) provides a satisfactory description of a good scientist.

8. The big challenge of nuclear imaging of beta cell mass is looking for a tiny ''radioactive'' needle in the enormous ''pancreatic'' haystack, but this difficulty is also a big challenge.

9. Diabetic research needs multidisciplinary teams able to bring together different expertise for the advancement of scientific discovery as well as for the translation of those into useful clinical practice.

10. There is no growth without addressing obstacles. Is only by sacrifice, commitment and passion that you can achieve your goals.