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Prof. dr. Peter in't Veld, Promoter

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PhD in Medical Sciences
2020-2021

INVITATION to the Public defence of

Silke SMEETS

To obtain the academic degree of '**DOCTOR OF MEDICAL SCIENCES**'

Inflammatory lesions in human donor pancreas.

The defence will take place on **Wednesday, 9th December 2020 at 5 p.m.**

and will be organised **online** accessible through the following link:

[Click here to join the meeting](#)

Summary of the dissertation

Insulinitis, an inflammatory lesion of the islets of Langerhans, is considered the hallmark injury in recent-onset type 1 diabetes (T1D) and is thought to represent an autoimmune destruction of insulin-producing beta-cells. However, many questions remain regarding the etiopathogenesis of the disease, in part due to the scarcity of (studies on) human pancreas samples of high-risk and recent-onset T1D patients. In this work, we describe histopathological changes in non-diabetic and islet cell auto-antibody (aAB) positive pancreas organ donors as well as those present in the pancreas of a patient with chronic T1D and atypical islet lymphocytic infiltrates. We found that (i) prolonged duration of stay in intensive care is associated with M2 macrophage accumulation, increased parenchymal replication and increased vascularization in non-diabetic human pancreas, (ii) insulinitic lesions are restricted to 'high risk' individuals with multiple aAB positivity and genetic risk status, (iii) these 'high risk' organs show a preserved beta-cell mass and (iv) atypical islet lymphocytic infiltrations resembling tertiary lymphoid structures (TLS) can occur in chronic T1D in human and are associated with a relatively well-preserved beta-cell mass. We conclude that prolonged duration of stay in intensive care is accompanied by signs of tissue repair in donor pancreas and that aAB status does not by default correlate with significant beta-cell loss.

Curriculum Vitae

Silke Smeets obtained her master's degree in Biomedical Sciences at Vrije Universiteit Brussel in 2012 with great distinction. She worked as an academic teaching assistant in the Department of Experimental Pathology from 2012-2020, giving practical courses in Histology and General Pathology to undergraduate students in Medicine and Biomedical Sciences. Her thesis work was performed at the VUB-Diabetes Research Center under the promotorship of Prof. Peter in 't Veld and Prof. Nico De Leu and focussed on inflammatory lesions in human donor pancreas.