

Introduction

Vaccine-induced thrombotic thrombocytopenia (VITT) occurs after vaccination with adenovirus vector certain COVID-19 vaccines. In these patients, platelets become activated and lead to platelet degranulation (thrombocytopenia) and agglutination (thrombosis). Although we know platelets play an important role, the pathophysiology is not fully understood. It is believed that besides platelets, neutrophils and endothelial cells play an important role in VITT.

Heparin-induced thrombocytopenia (HIT) occurs after administration of the anticoagulant heparin. HIT shows similarities to VITT; HIT patients also suffer from thrombocytopenia and/or thrombosis. We also investigate the role of platelets, neutrophils and endothelial cells in HIT.

Project

Using live-cell imaging and ELISAs we are assessing whether neutrophil extracellular traps (NETs) contribute to thrombosis in VITT and HIT. We also aim to see how endothelial cells contribute to the pathophysiology of VITT and HIT using flow cytometry and the assessment of barrier-disruption. Some of the main techniques involved in the project are:

- Isolation of polymorphonuclear neutrophils and platelets
- Live-cell imaging
- ELISAs
- Microscopy
- Cell culture

We are currently looking for a motivated student who can assist and work independently on this project.

We are looking for a master student starting as soon as possible who can stay for at least 6-9 months. Students who are interested are encouraged to contact Romy Meier (r.meier@sanquin.nl).