**Project: Dissecting signaling pathways in platelets**

Platelets are one of the major players in primary hemostasis. Vascular damage leads to platelet adhesion, activation, and aggregation of platelets. Several stimuli can induce these processes in platelets, such as thrombin, ADP, and thromboxane A2. Each of these agonists can induce different responses to platelets. The extent of diverging and converging signaling pathways between the intra-platelet signaling is not fully understood. Therefore, the aim of this project is to dissect agonist-induced platelet signaling.

In this project, signaling pathways induced by well-known platelet agonists will be dissected in freshly isolated platelets using quantitative mass spectrometry-based phosphoproteomics. Platelets will be stimulated and lysed. Cell lysates will be processed into peptides and phosphopeptide enrichment will be performed. The quantification of the phosphosites is performed using an LC-MS based platform.

This project consists of two aims:

1) further optimization of phosphoproteomics workflow to detect the phosphorylation events that occur in platelets upon agonist-induced activation, and

2) using this workflow and available data to investigate the signaling mechanisms upon activation of the platelets via different receptors.

**Duration**: At least 6 months. University students with an interest in biology and affinity for bioinformatics are encouraged to contact Eva Smit: e.smit@sanquin.nl or Maartje van den Biggelaar: m.vandenbiggelaar@sanquin.nl.