

PP Student project 3

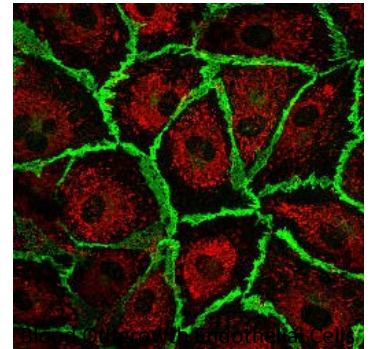
Dissecting endothelial signaling by quantitative mass spectrometry

Introduction:

Blood vessels are covered by a monolayer of endothelial cells which form a barrier between blood and tissue. Upon vascular injury, endothelial cells interact with platelets and coagulation factors to actively assist the process of blood coagulation.

The molecular mechanisms by which platelets and coagulation factors interact with the vessel wall are generally well described. However, detailed information about subsequently induced signaling pathways is lacking. Recently, we dissected the thrombin-induced phosphorylation networks in endothelial cells (van den Biggelaar et al, Blood 2014).

The aim of this project is to further unravel endothelial signaling induced by hemostatic proteins and cells using an unbiased quantitative phosphoproteomic approach. Unravelling these signaling networks will help us understand how endothelial cells perform their basic hemostatic functions and may lead to the identification of new targets for anti-thrombotic treatment.



Techniques:

- Culture of primary human endothelial cells
- Phosphopeptide isolation
- Mass spectrometry
- Isolation and functional testing of platelets
- Endothelial barrier function (ECIS)
- Western blotting
- Confocal laser scanning microscopy

Duration: At least 6 months. University students with an interest in cell biology and/or biochemistry and who are looking for a dynamic and interesting internship are encouraged to contact Arjan Hoogendijk: a.hoogendijk@sanquin.nl or Maartje van den Biggelaar: m.vandenbiggelaar@sanquin.nl

