Bacterial contamination of blood products can be a serious risk for patients receiving a transfusion. This risk is highest for platelet concentrates (PC) as their storage conditions, at room temperature and under constant agitation, support the growth of bacteria. At Sanquin, all PCs are screened with the BacT/ALERT culturing method. Although it detects most of the contaminated PCs, the method is limited. Not all positive PCs are detected before they are transfused and septic transfusion reactions due to false negative results do occur.

In this thesis the development of a real time RT PCR to screen PCs for bacteria is described. Despite the high sensitivity and rapid availability of results, the analytical sensitivity of the PCR assay was not high enough to be an alternative for the BacT/ALERT when PCs were screened on the day of production. However, the PCR assay could be an alternative for, or an addition to, culturing when PCs are tested at a later time point.

To gain more insight in the source and risk of the bacteria cultured from PCs, two groups of bacteria; coagulase negative staphylococci (CNS) and Propionibacterium acnes, were further analysed by sequencing and amplified fragment length polymorphism. Both groups were recognized as part of the normal skin flora and thereby likely originate from the skin of the donor. Although virulence and clinical significance of P. acnes strains is questionable, septic transfusion reactions due to CNS are known. It is therefore important to have good methods to detect bacterial contamination in PCs.