

# VU Research Portal

## When it's not a match

Meinderts, S.M.

2019

### **document version**

Publisher's PDF, also known as Version of record

[Link to publication in VU Research Portal](#)

### **citation for published version (APA)**

Meinderts, S. M. (2019). *When it's not a match: Cellular and genetic factors in alloantibody-mediated red blood cell clearance*.

### **General rights**

Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

- Users may download and print one copy of any publication from the public portal for the purpose of private study or research.
- You may not further distribute the material or use it for any profit-making activity or commercial gain
- You may freely distribute the URL identifying the publication in the public portal ?

### **Take down policy**

If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.

### **E-mail address:**

[vuresearchportal.ub@vu.nl](mailto:vuresearchportal.ub@vu.nl)

## **When it's not a Match; Cellular and genetic factors in alloantibody-mediated red blood cell clearance**

*Summary of the thesis written by S.M. Meinderts*

Blood transfusion is a life-saving standard treatment for numerous hematological conditions such as cancer, anemia or trauma. Nonetheless, a red blood cell (RBC) transfusion can lead to alloimmunization, a serious complication in which the development of antibodies directed against the RBCs of the donor can induce enhanced RBC clearance. This complication can lead to life-threatening anemia.

The aim of this thesis was to gain a better understanding of antibody-driven RBC destruction. This knowledge may lead to new treatment strategies of antibody-mediated anemias and can in the future improve transfusion medicine. We have studied RBC degradation in the spleen, the organ that is crucial for this process. By investigating the different phagocytes in the spleen we identified an important role for neutrophils in antibody-mediated RBC clearance and subsequent activation of the immune system.

Additionally, we have studied which genetic factors are associated with alloimmunization in sickle cell disease (SCD) patients. SCD patients often receive RBC transfusions from an early age onwards and are particularly prone to develop antibodies against donor RBC. We identified potential genetic markers for alloimmunization in this group of patients. In the future our findings may help clinicians to recognize patients at risk for this complication, after which measures can be taken to prevent the development of antibodies against donor RBC.