

## **Abstract**

Project title: Optimalization of the regime of marker's examination of clinically important infections in blood donors

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The aim of this project is to contribute to the discussion about introducing the methods of molecular biology into the routine blood donor testing in the transfusions departments in the Czech Republic.

The theoretical part includes a brief history and some turning points in transfusion medicine. The next part within the theoretical section is dedicated to the problems of infectious diseases concerning transfusion and the general examination processes used during the selection of blood donors. The end of the theoretical part concentrates on existing possibilities of markers' examination of clinically important infections in blood donors, including the list of processes performed in the Czech Republic, the European Union and other countries.

The practical part describes this study, ie. the routine screening test of blood donors using the CMIA method (a routine method) and using RT-Real Time PCR method (a molecular biology method) for detecting infectious markers (HCV, HBV, HIV). Within this part, the principle of both methods and the process of actual examinations are described in details. The data recorded during the examinations together with the results and non-standard situations are presented and discussed as well.

The final section summarises the outcomes, suggestions and possibilities for markers' examination of clinically important infections in blood donors in the Czech Republic.

Key words: blood transfusion, infectious markers testing of blood donors, HBV, HCV, HIV, transfusion transmitted infection, adverse transfusion reaction, blood donor, CMIA, RT-Real Time PCR.