

## **Detection of free $\beta$ -hCG, PAPP-A, PIGF and sFlt-1 in capillary blood**

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### **Objective**

Comparing concentrations of free beta-human chorionic gonadotropin (free  $\beta$ hCG), pregnancy associated plasma protein-A (PAPP-A), placental growth factor (PIGF) and soluble Fms-like tyrosinkinase-1 (sFlt-1) in venous and capillary blood and stability assessment of these four biomarkers at different temperatures.

### **Methods**

This study was conducted at University Hospital of Dresden, Germany between October 2021 and March 2022. We first compared the levels of free  $\beta$ hCG, PAPP-A, PIGF and sFlt-1 in venous and capillary blood using a Tasso-Device and B·R·A·H·M·S KRYPTOR analysis machine in 102 patients. Second, we compared the stability of the 4 markers at different temperatures (5° and 21°C) at day 2 and 4 after blood withdrawal in 80 patients. Free  $\beta$ hCG, PAPP-A and PIGF levels were measured at first trimester screening. sFlt-1 and PIGF measurements were performed at second and third trimesters on patients which were referred to our unit.

### **Results**

The concentrations of all four biomarkers were similar in capillary blood when compared to venous concentrations. PIGF, sFlt-1,  $\beta$ hCG and PAPP-A concentrations were stable in time when kept at 5°C. The concentrations of PAPP-A and sFlt-1 were stable at 21°C.

### **Conclusion**

The measurement of the biomarkers using capillary blood is feasible and could be a method for home sampling if the transport temperature can be kept stable.