gb HEMO PAI1 (4G/5G)

Clinical implications

PAI1 (plasminogen activator inhibitor 1) belongs to a group of serine proteases and is produced by endothelial cells, fibroblasts and hepotycytes. The main function of PAI1 is inhibition of tissue-like and urinokinase-like plasminogen activators. These activators enhance finbrinolysis by activation of plasminogen. Polymorphism 4G/5G results in increased transcriptional activity of the gene PAI1. The basis of the mutation is insertion or deletion of the nucleotide guanine (G) in the position 675 in the gene promoter region. Allele 4G is associated with an increase in expression of gene PAI1 resulting in lower fibrinolysis. In 4G homozygotes the expression level of PAI1 gene is up to 25 % higher compared to 5G homozygotes. In combination with other thrombophilic mutations (F5 Leiden) 4G allele is considered to be a risk factor for thrombosis development. 4G homozygotes are at 2× higher risk of heart attack development and up to 6× higher risk of septic shock during meningococcal infection.

Principle of detection

The kit is intended for detection of mutation 4G/5G in PAI1 gene promotor in human genomic DNA. Detection is based on **real-time polymerase chain reaction (qPCR) using fluorescently labelled probes (allelic discrimination)**.

Available products

Cat. No.	Product	rxn
3204-025	gb HEMO PAI1 (4G/5G)	25
3204-100	gb HEMO PAI1 (4G/5G)	100

1 kit contains reagents to provide 25 or 100 PCR reactions (20 µl volume of each reaction).

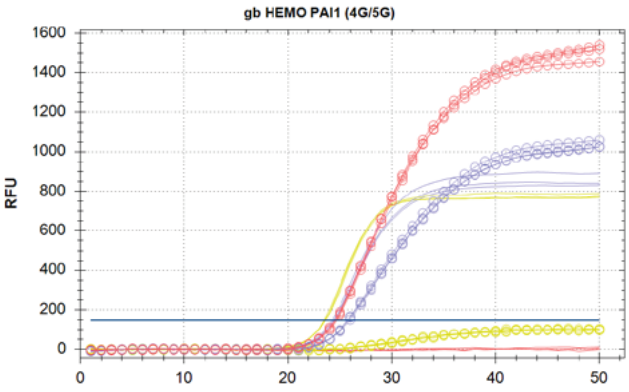
Parameters of the diagnostic kit

- ***in vitro* diagnostics**
- **CE IVD, IVDR certified**
- **ready-to-use assay**
- **sample concentration 10-100 ng/µl**
- **positive and negative controls included**
- **FAM and HEX channels detection**
- **identical amplification profile as gb HEMO, gb GENETIC, gb PHARM kits**

Content of the diagnostic kit

*	Component	Conc.	Purpose
🟢	Assay qPCR PAI1 (4G/5G)	1.25×	Detection assay
⚪	Deionized Water		Negative Control
🟡	Standard WT PAI1 (4G/5G)	10^4 cop/µl	Positive Control
🔴	Standard MUT PAI1 (4G/5G)	10^4 cop/µl	Positive Control
🟣	Standard HET PAI1 (4G/5G)	10^4 cop/µl	Positive Control

** Lid colour*



Validated for cyclers

- **Rotor-Gene 3000/6000/Q (Corbett Research, Qiagen)**
- **iCycler iQ5/CFX96/CFX96 Touch (Bio-Rad)**
- **ABI 7500/7500 Fast/7900HT (Applied Biosystems)**
- **SmartCycler (Cepheid)**
- **MIC (Bio Molecular Systems)**
- **AriaMx (Agilent Technologies)**
- **Light Cycler 480/Cobas z480 (Roche Diagnostics)**
- **QuantStudio 5 (Applied Biosystems)**

Fig. 1 – Detection of PAI1 (4G/5G) standards on CFX96 device; yellow line – wild type; red line – mutant; violet line – heterozygote; smooth line – FAM channel; dotted line – HEX channel