



FIBRINOGEN -455 G>A POLYMORPHISM

ORDERING INFORMATION

REF: GEN-006-25 RDM Code: 2255483/R
Tests: 25 Reactions: 31
REF: GEN-006-50 RDM Code: 1735836/R
Tests: 50 Reactions: 62
CND Code: W0106010499
Manufacturer: BioMol Laboratories s.r.l.

For in vitro diagnostic use



CONTENTS OF THE KIT

The kit consists of: reagents for Real-Time PCR amplification
*reagents for the extraction of genomic DNA are not supplied in the kit

PRODUCT CHARACTERISTICS

Device belonging to the family of in vitro medical devices **REAL-TIME QUALITATIVE PCR -GENETIC VARIANTS**. Detection of the -455 G>A polymorphism of the FGB gene (fibrinogen) by Real-Time PCR technique. Optimized kit for Real-Time PCR instrumentation Biorad CFX96 Dx, Biorad Opus Dx, Agilent AriaDx, Hyris bCUBE and Hyris bCUBE3 with Hyris bAPP.

SCIENTIFIC BACKGROUND

Fibrinogen is a 340 kDa acute phase dimeric glycoprotein synthesized by the liver. It consists of three polypeptides $\alpha\alpha$, $\beta\beta$ and γ encoded by the alpha (FGA), beta (FGB) and gamma (FGG) genes, respectively. Fibrinogen is an important component of the coagulation cascade and an important determinant of blood viscosity and platelet aggregation. Modulates endothelial function and promotes proliferation and migration of smooth muscle cells. Smoking increases the concentration of fibrinogen in the blood and is a significant risk factor for stroke. Recently, obesity has been associated with an elevated plasma fibrinogen level.

CLINICAL SIGNIFICANCE

It is known that elevated plasma fibrinogen levels can be influenced by environmental and genetic factors. It has been reported that some of the 10 or more genetic polymorphisms of the fibrinogen gene that have been studied to date may be involved in the increase in plasma fibrinogen level. Polymorphisms of the β -fibrinogen (FGB) gene including the -455 G/A polymorphism of the FGB gene have been shown to be closely related to increased plasma fibrinogen levels. Several studies have suggested that the FGB -455 G/A polymorphism is associated with elevated plasma fibrinogen concentration which has been shown to have a positive association with the risk of cardiovascular disease (CVD) such as ischemic heart disease, myocardial infarction, ischemic stroke, as well as chronic kidney disease

§ ACS Omega. 2024 Sep 11;9(38):39836-39845. doi: 10.1021/acsomega.4c05204. eCollection 2024 Sep 24. The Impact of Cardiovascular Disease Gene Polymorphism and Interaction with Homocysteine on Deep Vein Thrombosis.
§ Eur J Clin Invest. 2022 Apr;52(4):e13718. doi: 10.1111/eci.13718. Epub 2021 Nov 21. Fibrinogen β chain and FXIII polymorphisms affect fibrin clot properties in acute pulmonary embolism.
§ Mol Biol Rep. 2021 May;48(5):4397-4404. doi: 10.1007/s11033-021-06455-1. Epub 2021 Jun 1. An association between fibrinogen gene polymorphisms and diabetic peripheral neuropathy in young patients with type 1 diabetes
§ Gynecol Endocrinol. 2017; 33 (supl):32-35. doi: 10.1080/09513590.2017.1404237. Genetic and hemostasiological predictors of IVF pregnancy.
§ Antihypertensive pharmacogenetic effect of fibrinogen-beta variant -455G>A on cardiovascular disease, end-stage renal disease, and mortality: the GenHAT study. Pharmacogenet Genomics. 2009 Jun; 19 (6):415-21.
§ Analysis of the effect of multiple genetic variants of cardiovascular disease risk on insulin concentration variability in healthy adults of the STANISLAS cohort. The role of FGB-455 G/A polymorphism. Atherosclerosis. 2007 Apr; 191 (2):369-76.

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DESCRIPTION	LABEL	VOLUME		STORAGE
		GEN-006-25	GEN-006-50	
Mix oligonucleotides and probes	Mix -455 G>A FGB 10X	1 x 77,5 µl	2 x 77,5 µl	-20°C
Mix buffer and Taq polymerase enzyme	Mix Real-Time PCR 2X	1 x 387,5 µl	2 x 387,5 µl	-20°C
Deionized H ₂ O	Deionized H ₂ O	1 x 1 ml	1 x 1 ml	-20°C
Genomic DNA or recombinant DNA	Control 1	1 x 22 µl	2 x 22 µl	-20°C
Genomic DNA or recombinant DNA	Control 2	1 x 22 µl	2 x 22 µl	-20°C
Genomic DNA or recombinant DNA	Control 3	1 x 22 µl	2 x 22 µl	-20°C

TECHNICAL CHARACTERISTICS

COD. GEN-006-25 / COD. GEN-006-50

STABILITY	18 months
REAGENTS STATUS	Ready to use
BIOLOGICAL MATRIX	Genomic DNA extracted from whole blood, tissue, cells
POSITIVE CONTROLS	Recombinant DNA for at least 3 analytical sessions (GEN-006-25) Recombinant DNA for at least 6 analytical sessions (GEN-006-50)
VALIDATED INSTRUMENTS	Biorad CFX96 Dx, Biorad Opus Dx and Agilent AriaDx, Hyris bCUBE, Hyris bCUBE3 with Hyris bAPP.
TECHNOLOGY	Real-time PCR; oligonucleotides and specific probes; 2 FAM/HEX fluorescence channels
RUNNING TIME	85 min
THERMAL CYCLING PROFILE	1 cycle at 95 °C (10 min); 45 cycles at 95 °C (15 sec) + 60 °C (60 sec)
ANALYTICAL SPECIFICITY	Absence of non-specific pairings of oligonucleotides and probes; absence of cross-reactivity
LIMIT OF DETECTION (LOD)	≥ 0,016 ng of genomic DNA
LIMIT OF BLANK (LOB)	0% NCN
REPRODUCIBILITY	99,9%
DIAGNOSTIC SPECIFICITY / DIAGNOSTIC SENSITIVITY	100%/98%