



FVII R353Q POLYMORPHISM

ORDERING INFORMATION

REF: GEN-038-25 RDM Code: 2254578/R
Tests: 25 Reactions: 31
REF: GEN-038-50 RDM Code: 2254587/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 R353Q (G>A, rs6046, also known as c.1238G>A; p. Arg413Gln, M2 allele) of the FVII gene by Real-Time PCR technique. Kit optimized for Real-Time PCR instruments Biorad CFX96, Biorad Opus Dx, Agilent AriaDx.

SCIENTIFIC BACKGROUND

Myocardial infarction (MI) occurs due to blockages in the coronary arteries that decrease blood flow to the myocardium, causing the rapid death of myocytes. Coagulation factor VII (FVII), the initiator of the extrinsic coagulation pathway, has been linked to the risk of myocardial infarction. In fact, activated FVII binds to a tissue factor thus activating extrinsic coagulation, which promotes fibrin conversion and thrombosis and leads to the formation of a blood clot in the vessels.

This process also accelerates in the presence of unstable atherosclerotic plaques. Therefore, FVII levels are considered predictive of MI and are influenced by multiple factors such as genetic architecture.

CLINICAL SIGNIFICANCE

The R353Q polymorphism was identified in exon 8 of the FVII gene which could increase or decrease the level of gene expression.

Since guanine is replaced with adenine at codon 353 of the FVII gene, the R353Q polymorphism is related to the missense substitution of the amino acid arginine (R) with glutamine (Q).

Patients with the RR genotype have a higher concentration of FVII than those with the RQ genotype, who, in turn, have a higher concentration of FVII than those with the QQ genotype.

§ Sci Rep. 2025 Jan 24;15(1):3052. The effect of coagulation traits on the risk of retinal vein occlusion: a mendelian randomization study

§ Indian J Hematol Blood Transfus. 2024 Apr;40(2):297-302. Factor VII R353Q (rs6046), FGA A6534G (rs6050), and FGG C10034T (rs2066865) Gene Polymorphisms and Risk of Recurrent Pregnancy Loss in Iranian Women

§ Meta-Analysis J Thromb Thrombolysis. 2021 Jul;52(1):324-330. FVII gene R353Q polymorphism and coronary heart disease: a meta-analysis including 3258 subjects

§ Meta-Analysis Int Heart J. 2020 Jul 30;61(4):641-650. Association Between R353Q (rs6046) Polymorphism in Factor VII with Coronary Heart Disease

§ Polymorphism of R353Q (rs6046) in factor VII and the risk of myocardial infarction: A systematic review and meta-analysis. Medicine (Baltimore) 2018 Sep; 97 (39):e12566.

§ Association between polymorphisms in the coagulation factor VII gene and coronary heart disease risk in different ethnicities: a meta-analysis. BMC Med Genet. 2011 Aug 12; 12: 107.

§ Comparative Study Arterioscler Thromb Vasc Biol. 1997 Nov;17(11):2825-9. The Arg353Gln polymorphism reduces the level of coagulation factor VII. In vivo and in vitro studies

FVII R353Q POLYMORPHISM

ORDERING INFORMATION

REF: GEN-038-25 RDM Code: 2254578/R
 Tests: 25 Reactions: 31
 REF: GEN-038-50 RDM Code: 2254587/R
 Tests: 50 Reactions: 62
 CND Code: W0106010499
 Manufacturer: BioMol Laboratories s.r.l.

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

For in vitro diagnostic use



CONTENTS OF THE KIT

DESCRIPTION	LABEL	VOLUME		STORAGE
		GEN-038-25	GEN-038-50	
Mix oligonucleotides and probes	Mix FVII R353Q (G>A) 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-038-25 / COD. GEN-038-50

STABILITY	18 months
REAGENTS STATUS	Ready to use
BIOLOGICAL MATRIX	Genomic DNA extracted from whole blood, tissue, cells
CONTROLS	Recombinant DNA for at least 3 analytical sessions (GEN-038-25) Recombinant DNA for at least 6 analytical sessions (GEN-038-50)
VALIDATED INSTRUMENTS	Biorad CFX96 Dx, Biorad Opus Dx and Agilent AriaDx
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%