

Names for RAPH (ISBT 025) Blood Group Alleles

Intro

General description: The Raph blood group system consists of one antigen (MER2) carried on a multipass membrane glycoprotein CD151 of the tetraspanin family. It consists of 253 amino acids and both amino and carboxyl termini are predicted to be intracellular. The glycoprotein is encoded by *CD151* (or *RAPH*, if analysis is to predict a blood group antigen). The null phenotype is associated with renal failure.

Gene name: *CD151 (RAPH)*

Number of exons: 9

Initiation codon: Within exon 3

Stop codon: Within exon 9

Entrez Gene ID: 977

LRG: 817

LRG sequence: NG_007478.1 (genomic)

NM_004357.4 (transcript)

NP_004348.2 (protein)

Reference allele: *RAPH*01 (shaded)*

Acceptable: *RAPH*1* or *MER2* if inferred by haemagglutination

Reference allele

*RAPH*01* encodes for: *RAPH1*

Antithetical antigens n.a.

Phenotype	Allele name	Nucleotide change	Exon	Predicted amino acid change	(Reference No.) PMID	Accession number	rs number
RAPH:1 or MER2+	<i>RAPH*01</i>				(1), PMID:15265795	NG_007478	
RAPH:- 1 or MER2-	<i>RAPH*-01.01</i>	c.511C>T c.579A>G	7	p.Arg171Cys p.Gly193	(2), PMID:18522704	MN535383	rs139042921 rs1130663
RAPH:- 1 or MER2-	<i>RAPH*-01.02</i>	c.533G>A	7	p.Arg178His	(1), PMID:15265795	MN535382	rs779114765
RAPH:-1 or MER2-	RAPH*-01.03	c.494G>A	7	p.Arg165Gln	(3), Abstract	MN535384	rs949958895
Null phenotypes							
RAPH _{null}	<i>RAPH*01N.01</i>	c.383_384insG	6	p.Asp128Glufs*13	(1), PMID:15265795	MN339517	n.a.

References

1. PMID: 15265795 Karamatic Crew V, Burton N, Kagan A et al. CD151, the first member of the tetraspanin (TM4) superfamily detected on erythrocytes, is essential for the correct assembly of human basement membranes in kidney and skin. *Blood* 2004;104:2217-23.
2. PMID: 18522704 Karamatic Crew V, Poole J, Long S et al. Two MER2-negative individuals with the same novel CD151 mutation and evidence for clinical significance of anti-MER2. *Transfusion* 2008; 48:1912-6.
3. Abstract Karamatic Crew V, Poole J, Bullock T et al. A new case and a novel molecular background in a MER2-negative (RAPH:-1) individual with anti-MER2. *Vox Sang* 2012;103(s1): 210-211 (P-452).

Track of changes			from v4.0 160662	to v5.0 25-FEB-2020
	Created:			Vered Yahalom, December 2019
	Reviewed:			Vanja Karamatic Crew Nicole Thornton, January 2020
General				First Excel map version. Spread-sheets "Intro", "Allele Table", "References" and "Versioning" created.
Intro	Antithetical alleles line added	n.a.		n.a.
Allele Table	Table column and header additions	n.a.		Table columns "(Reference No.) PMID", "Accession number" and "rs-number" created and content to table columns added.
Allele Table	Antigen/allele added:	n.a. n.a.		RAPH*-01.03 provisional allele added Karamatic Crew V, Poole J, Bullock T et al: A new case and a novel molecular background in a MER2-negative (RAPH:-1) individual with anti-MER2. <i>Vox Sang</i> 2012; 103(s1) : 210-211 (P-452).
References	All references new:	n.a.		All references (1) to (3) added for the first time.
End of changes			from v4.0 160662	to v5.0 25-FEB-2020