

Names for JMH (ISBT 026) Blood Group Alleles

Intro

General description: The JMH blood group system consists of seven antigens carried on a GPI-linked glycoprotein (CD108, Semaphorin, SEMA7A) that consists of 656 amino acids. It has a leader sequence of 44 amino acids and a GPI motif of 19 amino acids, both of which are cleaved from the membrane bound protein.

Gene name: *SEMA7A*
Number of exons: 14
Initiation codon: Beginning of exon 1
Stop codon: Within exon 14
Entrez Gene ID: 8482
LRG: LRG_818
LRG sequence: NG_011733.1 (genomic)
NM_003612.3 (transcript)
Reference allele: Preferred: *JMH*01* (shaded)
Acceptable: *JMH* if inferred by haemagglutination
Reference allele
*JMH*01* encodes: JMH1, JMH2, JMH3, JMH4, JMH5, JMH6, JMH7
Antithetical antigens: n.a.

Phenotype	Allele name	Nucleotide change	Exon	Predicted amino acid change	(Reference No.) PMID	Accession number	rs number
JMH:1 or JMH+	<i>JMH*01</i>				(1), PMID: 11449960	NG_011733.1	n.a.
JMH:-2 or JMHK-	<i>JMH*01.-02</i>	c.619C>T c.1545A>G	6 12	p.Arg207Trp p.Gln515Gln	(2), PMID: 17207242	AM180447	rs56367230 rs741761
JMH:-3 or JMHL-	<i>JMH*01.-03</i>	c.620G>A	6	p.Arg207Gln	(2), PMID: 17207242	AM180445	rs55637216
JMH:-4 or JMHG-	<i>JMH*01.-04</i>	c.1379G>A	11	p.Arg460His	(2), PMID: 17207242	AM180448	rs56204206
JMH:-5 or JMHM-	<i>JMH*01.-05</i>	c.1381C>T	11	p.Arg461Cys	(2), PMID: 17207242	AM180446	rs56001514
JMH: -6 or JMHQ-	<i>JMH*01.-06</i>	c.1040G>T	9	p.Arg347Leu	(3), PMID: 20854351	n.a.	rs387907241
JMH: -7 or JMHN-	<i>JMH*01.-07</i>	c.709G>A c.1545A>G c.1865G>A	7 12 14	p.Asp237Asn p.Gln515Gln p.Arg622His	(4), Abstract	n.a.	rs140707085 rs741761 rs140128092

Additional well documented GenBank Accession Numbers with SNVs not causing any amino-acid exchanges (silent mutations) are: AM180449 to AM180451

References

1. PMID: 11449960 Daniels GL, Anstee DJ, Cartron JP et al.: International Society of Blood Transfusion Working Party on Terminology for Red Cell Surface Antigens. *Vox Sang.* 2001 Apr;80(3):193-7.
2. PMID: 17207242 Seltsam A, Strigens S, Levene C, et al.: The molecular diversity of Sema7A, the semaphorin that carries the JMH blood group antigens. *Transfusion.* 2007 Jan;47(1):133-46.
3. PMID: 20854351 Richard M, St-Laurent J, Perreault J, Long A, St-Louis M.: A new SEMA7A variant found in Native Americans with alloantibody. *Vox Sang.* 2011 Apr;100(3):322-6.
4. Abstract Vrignaud C, Ramelet S, Herb A, et al.: Characterization of a Novel High-Prevalence Antigen in the JMH Blood Group System. *Vox Sanguinis* 2019, 114 (Suppl. 1), 52, Abstract 4C-S20-05

Track of changes		from v3.0 160622	to v4.0 25-FEB-2020
	created:	n.a. v3.0 160622	Christoph Gassner, January 2020
	reviewed:	n.a.	Thierry Peyrard, January 2020
General			First Excel map version. Spread-sheets "Intro", "Allele Table", "References", and "Versioning" created.
Intro	Text changed	The JMH blood group system consists of six antigens carried on a GPI-linked glycoprotein	The JMH blood group system consists of seven antigens carried on a GPI-linked glycoprotein
Intro	LRG ID line added:	n.a.	LRG_818
Intro	Reference allele line moved from Allele Table to Intro and updated:	n.a.	Reference allele JMH*01 encodes: JMH1, JMH2, JMH3, JMH4, JMH5, JMH6, JMH7
Intro	Antithetical Antigens line created in Intro:	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	Text change: Line moved to Intro:	Reference allele JMH*01 encodes JMH1, JMH2, JMH3, JMH4, JMH5, JMH6	see above
Allele Table	Silent mutation added:	n.a.	JMH:–2 or JMHK–, <i>JMH*01.–02</i>
Allele Table	Antigen/allele added:	n.a.	Silent mutation: c.1545A>G, p.Gln515Gln, added to <i>JMH*01.–02</i> .
		n.a.	JMH: –7 or JMHN–, <i>JMH*01.–07</i>
		n.a.	Abstract. Vrignaud C, Ramelet S, Herb A, et al.: Characterization of a Novel High-Prevalence Antigen in the JMH Blood Group System. Vox Sanguinis 2019, 114 (Suppl. 1), 52, Abstract 4C-S20-05
References	All references new:	n.a.	All references (1) to (4) added for the first time.
End of changes		from v3.0 160622	to v4.0 25-FEB-2020