Names for *RHD* (ISBT 004)

Intro

General description: The Rh blood group system consists of 56 antigens carried on two proteins (RhD and RhCE) each consisting of 417 amino acids. Combinations (hybrids) between the two genes are not uncommon. The proteins consist of 12 membrane-spanning domains.

Gene name:	*RHD*
Number of exons:	10
Initiation codon:	Within exon 1
Stop codon:	Within exon 10
Entrez Gene ID:	6007
LRG:	LRG_796
LRG sequence:	NG_007494.1 (genomic) NM_016124.6 (transcript variant 1)

***RHD* (ISBT 004)**
Reference allele: *RHD*01*

***RHD* (ISBT 004) Blood Group Partial D Alleles**

***RHD* (ISBT 004) Blood Group Null Alleles**

***RHD* (ISBT 004) Blood Group Weak D Alleles**

***RHD* (ISBT 004) Blood Group DEL Alleles**

Phenotype	Allele name	Nucleotide change	Exon Intron	Predicted amino acid change	(Reference No.) PMID	Accession number	rs number	Comment
D RH:1	*RHD*01*					NG_007494.1		
Normal D antigen	*RHD*01.01*	c.48G>C	1	p.Trp16Cys	PMID: 29296782	FR692355 KY617090	rs772865539	
partial D								
DII	*RHD*02* *RHD*DII*	c.1061C>A	7	p.Ala354Asp	PMID: 7518725 PMID: 9163603		rs756982993	
DIIIa RH:54 (DAK+)	*RHD*03.01* *RHD*DIIIa*	c.186G>T c.410C>T c.455A>C c.602C>G c.667T>G c.819G>A	2 3 3 4 5 6	p.Leu62Phe p.Ala137Val p.Asn152Thr p.Thr201Arg p.Phe223Val silent	PMID: 12070041 PMID: 20088832		rs199509194 rs113982491 rs17418085 rs1053355 rs1053356 rs150606530	Also reported as DIIIa type 5 (obsolete) Original DIIIa report missed 186G>T, 410C>T, and 819G>A
DIIIb Caucasian RH:54 (DAK+) RH:–12 (G–)	*RHD*03.02* *RHD*DIIIb*	c.150T>C c.178A>C c.201G>A c.203G>A c.307T>C	2 2 2 2 2	silent p.Ile60Leu silent p.Ser68Asn p.Ser103Pro	PMID: 7742554		rs1132758 rs1053341 rs41302032 rs62621068 rs1132760	
DIIIc	*RHD*03.03* *RHD*DIIIc*	c.361T>A c.380T>C c.383A>G c.455A>C	3 3 3 3	p.Leu121Met p.Val127Ala p.Asp128Gly p.Asn152Thr	PMID: 8669091	S82449	rs41267489 rs201703675 rs758618412 rs17418085	
DIII type 4	*RHD*03.04* *RHD*DIII.4*	c.186G>T c.410C>T c.455A>C	2 3 3	p.Leu62Phe p.Ala137Val p.Asn152Thr	PMID: 10753853		rs199509194 rs113982491 rs17418085	

Phenotype	Allele name	Nucleotide change	Exon Intron	Predicted amino acid change	(Reference No.) PMID	Accession number	rs number	Comment
Not tested	*RHD*03.04.02* *RHD*DII.04.02*	c.186G>T c.307T>C c.410C>T c.455A>C	2 2 3 3	p.Leu62Phe p.Ser103Pro p.Ala137Val p.Asn152Thr			rs199509194 rs1132760 rs113982491 rs17418085	In trans to DAR1
DIII type 6	*RHD*03.06* *RHD*DIII.6*	c.410C>T c.455A>C c.602C>G c.667T>G c.819G>A	3 3 4 5 6	p.Ala137Val p.Asn152Thr p.Thr201Arg p.Phe223Val silent	PMID: 16584437 PMID: 24579654		rs113982491 rs17418085 rs1053355 rs1053356 rs150606530	Recombination of DIVa and weak D type 4 cluster
DIII type 7 (likely the historically defined DIIIb)	*RHD*03.07* *RHD*DIII.07*	c.150T>C c.178A>C c.201G>A c.203G>A c.307T>C c.410C>T c.455A>C c.602C>G c.667T>G c.819G>A	2 2 2 2 2 3 3 4 5 6	silent p.Ile60Leu silent p.Ser68Asn p.Ser103Pro p.Ala137Val p.Asn152Thr p.Thr201Arg p.Phe223Val silent	PMID: 16584437 PMID: 21745213	JF436967	rs1132758 rs1053341 rs41302032 rs62621068 rs1132760 rs113982491 rs17418085 rs1053355 rs1053356 rs150606530	
DIII type 8	*RHD*03.08* *RHD*DIII.08*	c.410C>T c.455A>C	3 3	p.Ala137Val p.Asn152Thr		FR729896	rs113982491 rs17418085	The designation DIII is putative and mainly based on the molecular similarity to other DIII alleles
DIII type 9	*RHD*03.09* *RHD*DIII.09*	c.186G>T c.410C>T c.455A>C c.667T>G	2 3 3 5	p.Leu62Phe p.Ala137Val p.Asn152Thr p.Phe223Val			rs199509194 rs113982491 rs17418085 rs1053356	

Phenotype	Allele name	Nucleotide change	Exon Intron	Predicted amino acid change	(Reference No.) PMID	Accession number	rs number	Comment
DIVa RH30+ (Goa+) DIV type 1.0	*RHD*04.01* *RHD*DIVa*	c.186G>T c.410C>T c.455A>C c.1048G>C	2 3 3 7	p.Leu62Phe p.Ala137Val p.Asn152Thr p.Asp350His	PMID: 24579654 PMID: 23461862 PMID: 23867180 PMID: 19351380	HF549086	rs199509194 rs113982491 rs17418085 rs41307826	Often with *RHCE*ceTI*
DIVa type 2 obsolete								original DIVa report missed 410C>T change
DIVa-like or DIVa type 3	*RHD*04.01.02*	c.186G>T c.410C>T c.455A>C c.667T>G c.1048G>C	2 3 3 5 7	p.Leu62Phe p.Ala137Val p.Asn152Thr p.Phe223Val p.Asp350His			rs199509194 rs113982491 rs17418085 rs1053356 rs41307826	Was found with *RHCE*ceTI*
DIV type 3	*RHD*04.03* *RHD* DIV.3*	c.916G>A c.932A>G c.941G>T c.968C>A c.974G>T c.979A>G c.985G>C c.986G>A c.989A>C c.992A>T c.1025T>C c.1048G>C c.1053C>T c.1057G>T c.1059A>G c.1060G>A c.1061C>A c.1063 G>T c.1170 T>C c.1193 A>T	6 6 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 9 9	p.Val306Ile p.Tyr311Cys p.Gly314Val p.Pro323His p.Ser325Ile p.Ile327Val p.Gly329His p.Gly329His p.Tyr330Ser p.Asn331Ile p.Ile343Thr p.Asp350His silent p.Gly353Trp p.Gly353Trp p.Ala354Asn p.Ala354Asn silent silent p.Glu398Val	PMID: 9864185	HF549087	rs590813 rs590787 rs200762372 rs200415166 n.a. rs780001468 rs1643863219 rs1643863394r s751746562 rs755177266 rs138235491 rs41307826 rs41300142 rs200307239 rs1468536305 rs753613761 rs756982993 rs146093871 rs1132772 rs45549244	

Phenotype	Allele name	Nucleotide change	Exon Intron	Predicted amino acid change	(Reference No.) PMID	Accession number	rs number	Comment
DIV type 4	*RHD*04.04* *RHD*DIV.4*	c.1048G>C c.1053C>T c.1057G>T c.1059A>G c.1060G>A c.1061C>A	7 7 7 7 9 9	p.Asp350His silent p.Gly353Trp p.Gly353Trp p.Ala354Asn p.Ala354Asn		HF549085	rs41307826 rs41300142 rs200307239 rs1468536305 rs753613761 rs756982993	
DIV type 5	*RHD*04.05* *RHD*DIV.5*	c.941G>T c.968C>A c.974G>T c.979A>G c.985G>C c.986G>A c.989A>C c.992A>T c.1025T>C c.1048G>C c.1053C>T c.1057G>T c.1059A>G c.1060G>A c.1061C>A c.1063G>T c.1170T>C c.1193A>T	7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 9 9	p.Gly314Val p.Pro323His p.Ser325Ile p.Ile327Val p.Gly329His p.Gly329His p.Tyr330Ser p.Asn331Ile p. Ile342Thr p.Asp350His silent p.Gly353Trp p.Gly353Trp p.Ala354Asn p.Ala354Asn silent silent p.Glu398Val	PMID: 11054051	AB037270	rs200762372 rs200415166 rs780001468 rs751746562 rs1643863219 rs1643863394 rs755177266 rs138235491 rs138235491 rs41307826 rs41300142 rs200307239 rs1468536305 rs753613761 rs756982993 rs751746562 rs1132772 rs45549244	This allele has been described as DIVb (J) as fifth DIV-like allele

Phenotype	Allele name	Nucleotide change	Exon Intron	Predicted amino acid change	(Reference No.) PMID	Accession number	rs number	Comment
DIVb	*RHD*04.06* *RHD* DIVb*	c.1048G>C c.1053C>T c.1057G>T c.1059A>G c.1060G>A c.1061C>A c.1170T>C c.1193A>T	7 7 7 7 7 7 9 9	p.Asp350His silent p.Gly353Trp p.Gly353Trp p.Ala354Asn p.Ala354Asn silent p.Glu398Val	PMID: 7742554		rs41307826 rs41300142 rs200307239 rs1468536305 rs753613761 rs756982993 rs1132772 rs45549244	
DV type 1	*RHD*05.01* *RHD*DV.1*	c.667T>G c.697G>C	5 5	p.Phe223Val p.Glu233Gln	PMID: 7742554		rs1053356 rs1053359	Kou FK
DV type 2	*RHD*05.02* *RHD*DV.2*	c.667T>G c.697G>C c.712G>A c.733G>C c.744C>T c.787G>A c.800A>T	5 5 5 5 5 5 5	p.Phe223Val p.Glu233Gln p.Val238Met p.Val245Leu silent p.Gly263Arg p.Lys267Met	PMID: 7742554		rs1053356 rs1053359 rs1053360 rs150073306 rs1053362 rs3118454 rs112907722	Hus
DV type 3	*RHD*05.03* *RHD*DV.3*	c.667T>G c.676G>C c.697G>C c.712G>A	5 5 5 5	p.Phe223Val p.Ala226Pro p.Glu233Gln p.Val238Met	PMID: 9018818		rs1053356 rs1053359 rs1053360 rs150073306	Also known as DBS0
DV Type 4 RH:23 (Dw+)	*RHD*05.04* *RHD*DV.4*	c.697G>C	5	p.Glu233Gln	PMID: 9920819	AB012769	rs1053359	SM
DV type 5 RH:-23 (Dw-)	*RHD*05.05* *RHD*DV.5*	c.697G>A	5	p.Glu233Lys	PMID: 9920819	AB012659	rs1053359	DHK, DYO
DV type 6	*RHD*05.06* *RHD*DV.6*	c.667T>G c.697G>C c.712G>A	5 5 5	p.Phe223Val p.Glu233Gln p.Val238Met	PMID: 9920819	AB012658	rs1053356 rs1053359 rs1053360	Jpn

Phenotype	Allele name	Nucleotide change	Exon Intron	Predicted amino acid change	(Reference No.) PMID	Accession number	rs number	Comment
DV type 7	*RHD*05.07* *RHD*DV.7*	c.667T>G c.697G>C c.712G>A c.733G>C c.744C>T c.787G>A	5 5 5 5 5 5	p.Phe223Val p.Glu233Gln p.Val238Met p.Val245Leu silent p.Gly263Arg	PMID: 11161244	AJ276017	rs1053356 rs1053359 rs1053360 rs150073306 rs1053362 rs3118454	DAL
DV type 8	*RHD*05.08* *RHD*DV.8*	c.667T>G c.697G>C c.712G>A c.733G>C c.744C>T	5 5 5 5 5	p.Phe223Val p.Glu233Gln p.Val238Met p.Val245Leu silent	PMID: 9920819	AB012660	rs1053356 rs1053359 rs1053360 rs150073306 rs1053362	TT
DV type 9	*RHD*05.09* *RHD*DV.9*	c.697G>C c.712G>A	5 5	p.Glu233Gln p.Val238Met	PMID: 10765149	AB018967	rs1053359 rs1053360	TO
DV type 10	*RHD*05.10* *RHD*DV.10*	c.667T>G c.697G>C c.712G>A c.733G>C c.744C>T c.787G>A c.800A>T c.916G>A c.932A>G	5 5 5 5 5 5 5 6 6	p.Phe223Val p.Glu233Gln p.Val238Met p.Val245Leu silent p.Gly263Arg p.Lys267Met p.Val306Ile p.Tyr311Cys			rs1053356 rs1053359 rs1053360 rs150073306 rs1053362 rs3118454 rs112907722 rs590813 rs590787	

Phenotype	Allele name	Nucleotide change	Exon Intron	Predicted amino acid change	(Reference No.) PMID	Accession number	rs number	Comment
DVI type 1 RH:–52 (BARC–)	*RHD*06.01* *RHD*DVI.1*	c.505A>C c.509T>G c.514A>T c.544T>A c.577G>A c.594A>T c.602C>G c.667T>G c.676G>C c.697G>C c.712G>A c.733G>C c.744C>T c.787G>A c.800A>T	4 4 4 4 4 4 4 5 5 5 5 5 5 5 5	p.Met169Leu p.Met170Arg p.Ile172Phe p.Ser182Thr p.Glu193Lys p.Lys198Asn p.Thr201Arg p.Phe223Val p.Ala226Pro p.Glu233Gln p.Val238Met p.Val245Leu silent p.Gly263Arg p.Lys267Met	PMID: 9057663		rs17421137 rs17421144 rs17421151 rs17421158 rs1053352 rs569974439 rs1053355 rs1053356 rs3193872 rs1053359 rs1053360 rs150073306 rs1053362 rs3118454 rs112907722	linked to *RHCE*cE*
DVI type 2 RH:52 (BARC+)	*RHD*06.02* *RHD*DVI.2*	c.505A>C c.509T>G c.514A>T c.544T>A c.577G>A c.594A>T c.602C>G c.667T>G c.697G>C c.712G>A c.733G>C c.744C>T c.787G>A c.800A>T c.916G>A c.932A>G	4 4 4 4 4 4 4 5 5 5 5 5 5 5 6 6	p.Met169Leu p.Met170Arg p.Ile172Phe p.Ser182Thr p.Glu193Lys p.Lys198Asn p.Thr201Arg p.Phe223Val p.Glu233Gln p.Val238Met p.Val245Leu silent p.Gly263Arg p.Lys267Met p.Val306Ile p.Tyr311Cys	PMID: 8111052		rs17421137 rs17421144 rs17421151 rs17421158 rs1053352 rs569974439 rs1053355 rs1053356 rs1053359 rs1053360 rs150073306 rs1053362 rs3118454 rs112907722 rs590813 rs590787	linked to *RHCE*cE*

Phenotype	Allele name	Nucleotide change	Exon Intron	Predicted amino acid change	(Reference No.) PMID	Accession number	rs number	Comment
DVI type 3	*RHD*06.03.01*	c.361T>A	3	p.Leu121Met	PMID: 9490704	Z97026	rs41267489	linked to *RHCE*Ce*
RH:52	*RHD*DVI.3*	c.380T>C	3	p.Val127Ala			rs201703675	
BARC+		c.383A>G	3	p.Asp128Gly			rs758618412	
		c.455A>C	3	p.Asn152Thr			rs17418085	
		c.505A>C	4	p.Met169Leu			rs17421137	
		c.509T>G	4	p.Met170Arg			rs17421144	
		c.514A>T	4	p.Ile172Phe			rs17421151	
		c.544T>A	4	p.Ser182Thr			rs17421158	
		c.577G>A	4	p.Glu193Lys			rs1053352	
		c.594A>T	4	p.Lys198Asn			rs569974439	
		c.602C>G	4	p.Thr201Arg			rs1053355	
		c.667T>G	5	p.Phe223Val			rs1053356	
		c.697G>C	5	p.Glu233Gln			rs1053359	
		c.712G>A	5	p.Val238Met			rs1053360	
		c.733G>C	5	p.Val245Leu			rs150073306	
		c.744C>T	5	silent			rs1053362	
		c.787G>A	5	p.Gly263Arg			rs3118454	
		c.800A>T	5	p.Lys267Met			rs112907722	
		c.916G>A	6	p.Val306Ile			rs590813	
		c.932A>G	6	p.Tyr311Cys			rs590787	

Phenotype	Allele name	Nucleotide change	Exon Intron	Predicted amino acid change	(Reference No.) PMID	Accession number	rs number	Comment
DVI type 3.2	*RHD*06.03.02*	c.361T>A	3	p.Leu121Met			rs41267489	
BARC not tested	*RHD*DVI.03.02*	c.380T>C	3	p.Val127Ala			rs201703675	
		c.383A>G	3	p.Asp128Gly			rs758618412	
		c.455A>C	3	p.Asn152Thr			rs17418085	
		c.505A>C	4	p.Met169Leu			rs17421137	
		c.509T>G	4	p.Met170Arg			rs17421144	
		c.514A>T	4	p.Ile172Phe			rs17421151	
		c.544T>A	4	p.Ser182Thr			rs17421158	
		c.577G>A	4	p.Glu193Lys			rs1053352	
		c.594A>T	4	p.Lys198Asn			rs569974439	
		c.602C>G	4	p.Thr201Arg			rs1053355	
		c.667T>G	5	p.Phe223Val			rs1053356	
		c.697G>C	5	p.Glu233Gln			rs1053359	
		c.712G>A	5	p.Val238Met			rs1053360	
		c.733G>C	5	p.Val245Leu			rs150073306	
		c.744C>T	5	silent			rs1053362	
		c.787G>A	5	p.Gly263Arg			rs3118454	
		c.800A>T	5	p.Lys267Met			rs112907722	
		c.916G>A	6	p.Val306Ile			rs590813	
		c.932A>G	6	p.Tyr311Cys			rs590787	
		c.1195G>A	9	p.Ala399Thr			rs150059028	

Phenotype	Allele name	Nucleotide change	Exon Intron	Predicted amino acid change	(Reference No.) PMID	Accession number	rs number	Comment
DVI type 4 RH:52 (BARC+)	*RHD*06.04* *RHD*DVI.4*	c.361T>A c.380T>C c.383A>G c.455A>C c.505A>C c.509T>G c.514A>T c.544T>A c.577G>A c.594A>T c.602C>G c.667T>G c.697G>C c.712G>A c.733G>C c.744C>T c.787G>A c.800A>T	3 3 3 3 4 4 4 4 4 4 4 5 5 5 5 5 5 5	p.Leu121Met p.Val127Ala p.Asp128Gly p.Asn152Thr p.Met169Leu p.Met170Arg p.Ile172Phe p.Ser182Thr p.Glu193Lys p.Lys198Asn p.Thr201Arg p.Phe223Val p.Glu233Gln p.Val238Met p.Val245Leu silent p.Gly263Arg p.Lys267Met	PMID: 16584438	AF312679	rs41267489 rs201703675 rs758618412 rs17418085 rs17421137 rs17421144 rs17421151 rs17421158 rs1053352 rs569974439 rs1053355 rs1053356 rs1053359 rs1053360 rs150073306 rs1053362 rs3118454 rs112907722	linked to *RHCE*cE*
DVII RH:40 (Tar+)	*RHD*07.01* *RHD*DVII.1*	c.329T>C	2	p.Leu110Pro	PMID: 7741145		rs121912762	
DVII type 2	*RHD*07.02* *RHD*DVII.2*	c.307T>C c.329T>C	2 2	p.Ser103Pro p.Leu110Pro	PMID: 11552071		rs1132760 rs121912762	
DFV	*RHD*08.01* *RHD*DFV*	c.667T>G	5	p.Phe223Val	PMID: 12393640	AF510069	rs1053356	
	*RHD*08N.01* *RHD*Pseudogene*	c.-7061del exon 1 to 10 c.609G>A c.654G>C c.667T>G c.674C>T c.807T>G	0 4 5 5 5 6	 p.Met218Ile p.Phe223Val p.Ser225Phe p.Tyr269Ter	PMID: 10607679		 n.a. rs141540728 rs1053356 rs148014996 rs141833592	

Phenotype	Allele name	Nucleotide change	Exon Intron	Predicted amino acid change	(Reference No.) PMID	Accession number	rs number	Comment
DAR(T203A)	*RHD*09.01* *RHD*DAR*	c.602C>G c.607A>G c.667T>G c.744C>T c.957G>A c.1025T>C	4 4 5 5 7 7	p.Thr201Arg p.Thr203Ala p.Phe223Val silent silent p.Ile342Thr	PMID: 22320258	HE613974	rs1053355 n.a. rs1053356 rs1053362 rs146292192 rs138235491	
DAR1 (weak D 4.2)	*RHD*09.01.00* *RHD*DAR1.00*	c.602C>G c.667T>G c.1025T>C	4 5 7	p.Thr201Arg p.Phe223Val p.Ile342Thr	PMID: 10590079		rs1053355 rs1053356 rs138235491	
DAR1.1 (weak D 4.2.1)	*RHD*09.01.01* *RHD*DAR1.01* *RHD*weak 4.2*	c.602C>G c.667T>G c.957G>A c.1025T>C	4 5 7 7	p.Thr201Arg p.Phe223Val silent p.Ile342Thr	PMID: 10753853		rs1053355 rs1053356 rs146292192 rs138235491	
DAR1.2 (weak D 4.2.2)	*RHD*09.01.02*	c.602C>G c.667T>G c.744C>T c.957G>A c.1025T>C	4 5 5 7 7	p.Thr201Arg p.Phe223Val silent silent p.Ile342Thr	PMID: 10753853		rs1053355 rs1053356 rs1053362 rs146292192 rs138235491	
DAR1.3 (weak D 4.2.3)	*RHD*09.01.03* *RHD*DAR1.03*	c.602C>G c.667T>G c.744C>T c.1025T>C	4 5 5 7	p.Thr201Arg p.Phe223Val silent p.Ile342Thr		AM930980	rs1053355 rs1053356 rs1053362 rs138235491	
DAR2 (DARE)	*RHD*09.02* *RHD*DAR2* *RHD*09.02.00*	c.602C>G c.667T>G c.697G>C c.957G>A c.1025T>C	4 5 5 7 7	p.Thr201Arg p.Phe223Val p.Glu233Gln silent p.Ile342Thr	PMID: 16584437		rs1053355 rs1053356 rs1053359 rs146292192 rs138235491	Reported as DAR-E

Phenotype	Allele name	Nucleotide change	Exon Intron	Predicted amino acid change	(Reference No.) PMID	Accession number	rs number	Comment
DAR2.1	*RHD*09.02.01* *RHD*DAR2.01*	c.602C>G c.667T>G c.697G>C c.744C>T c.957G>A c.1025T>C	4 5 5 5 7 7	p.Thr201Arg p.Phe223Val p.Glu233Gln silent silent p.Ile342Thr			rs1053355 rs1053356 rs1053359 rs1053362 rs146292192 rs138235491	
DAR3 (weak partial D 4.0.1)	*RHD*09.03* *RHD*DAR3*	c.602C>G c.667T>G	4 5	p.Thr201Arg p.Phe223Val			rs1053355 rs1053356	
DAR3.1 (weak partial D 4.0)	*RHD*09.03.01* *RHD*DAR3*	c.602C>G c.667T>G c.819G>A	4 5 6	p.Thr201Arg p.Phe223Val silent	PMID: 9864185		rs1053355 rs1053356 rs150606530	
DAR4 (weak D 4.1)	*RHD*09.04* *RHD*DAR4*	c.48G>C c.602C>G c.667T>G c.819G>A	1 4 5 6	p.Trp16Cys p.Thr201Arg p.Phe223Val silent	PMID: 10753853		rs772865539 rs1053355 rs1053356 rs150606530	
DAR5 (weak D 4.3 or Del)	*RHD*09.05* *RHD*DAR5*	c.602C>G c.667T>G c.819G>A c.872C>G	4 5 6 6	p.Thr201Arg p.Phe223Val silent p.Pro291Arg			rs1053355 rs1053356 rs150606530 rs778406196	
DAR6 Or DAR(CE2:V50V-S68N)	*RHD*09.06* *RHD*DAR6* *RHD*DAR(SE2:v50V-S68N)*	c.150T>C c.178A>C c.201G>A c.203G>A c.602C>G c.667T>G c.957G>A c.1025T>C	2 2 2 4 5 7 7 7	silent p.Ile60Leu silent p.Ser68Asn p.Thr201Arg p.Phe223Val silent p.Ile342Thr		HG423860	rs1132758 rs1053341 rs41302032 rs62621068 rs1053355 rs1053356 rs138235491 rs138235491	
DAU0	*RHD*10.00* *RHD*DAU0*	c.1136C>T	8	p.Thr379Met	PMID: 12070041		rs61740966	

Phenotype	Allele name	Nucleotide change	Exon Intron	Predicted amino acid change	(Reference No.) PMID	Accession number	rs number	Comment
DAU0.01	*RHD*10.00.01* *RHD*DAU0.01*	c.579G>A c.1136C>T	4 8	silent p.Thr379Met	PMID: 14505497		rs77813628 rs61740966	
DAU0.02	*RHD*10.00.02* *RHD*DAU0.02*	c.150T>C c.1136C>T	2 8	silent p.Thr379Met			rs1132758 rs61740966	
DAU1	*RHD*10.01* *RHD*DAU1*	c.689G>T c.1136C>T	5 8	p.Ser230Ile p.Thr379Met	PMID: 12070041		rs374920252 rs61740966	
DAU2	*RHD*10.02* *RHD*DAU2*	c.209G>A c.998G>A c.1136C>T	2 7 8	p.Arg70Gln p.Ser333Asn p.Thr379Met	PMID: 12070041		rs142925159 rs144996388 rs61740966	
DAU3	*RHD*10.03* *RHD*DAU3*	c.835G>A c.1136C>T	6 8	p.Val279Met p.Thr379Met	PMID: 12070041		rs139704879 rs61740966	
DAU4	*RHD*10.04* *RHD*DAU4*	c.697G>A c.1136C>T	5 8	p.Glu233Lys p.Thr379Met	PMID: 12070041		rs1053359 rs61740966	
DAU5	*RHD*10.05* *RHD*DAU5*	c.667T>G c.697G>C c.1136C>T	5 5 8	p.Phe223Val p.Glu233Gln p.Thr379Met	PMID: 15987365		rs1053356 rs1053359 rs61740966	
DAU5.1	*RHD*10.05.01* *RHD*DAU5.01*	c.667T>G c.697G>C c.1122C>T c.1136C>T	5 5 8 8	p.Phe223Val p.Glu233Gln silent p.Thr379Met	PMID: 27480171	HG918112	rs1053356 rs1053359 n.a. rs61740966	
DAU6	*RHD*10.06* *RHD*DAU6*	c.998G>A c.1136C>T	7 8	p.Ser333Asn p.Thr379Met	PMID: 16181204		rs144996388 rs61740966	
DAU7	*RHD*10.07* *RHD*DAU7*	c.835G>A c.998G>A c.1136C>T	6 7 8	p.Val279Met p.Ser333Asn p.Thr379Met	PMID: 19351380		rs139704879 rs144996388 rs61740966	
DAU8	*RHD*10.08* *RHD*DAU8*	c.340C>T c.579G>A c.1136C>T	3 4 8	p.Arg114Trp silent p.Thr379Met	PMID: 21950494		rs1170303671 rs77813628 rs61740966	

Phenotype	Allele name	Nucleotide change	Exon Intron	Predicted amino acid change	(Reference No.) PMID	Accession number	rs number	Comment
DAU9	*RHD*10.09* *RHD*DAU9*	c.535T>C c.1136C>T	4 8	p.Phe179Leu p.Thr379Met	PMID: 21950494		n.a. rs61740966	
DAU10	*RHD*10.10* *RHD*DAU10*	c.579G>A c.739G>C c.1136C>T	4 5 8	silent p.Val247Leu p.Thr379Met	PMID: 21950494		rs77813628 n.a. rs61740966	
DAU11	*RHD*10.11* *RHD*DAU11*	c.254C>T c.835G>A c.1136C>T	2 6 8	p.Ala85Val p.Val279Met p.Thr379Met	PMID: 27480171	HE965768	rs139501061 rs139704879 rs61740966	
DAU12	*RHD*10.12* *RHD*DAU12*	c.542T>C c.1136C>T	4 8	p.Leu181Pro p.Thr379Met		JX193761	rs149700508 rs61740966	
DAU13	*RHD*10.13* *RHD*DAU13*	c.48G>C c.1136C>T	1 8	p.Trp16Cys p.Thr379Met		HG423861	rs772865539 rs61740966	
DAU14	*RHD*10.14* *RHD*DAU14*	c.201G>A c.203G>A c.1136C>T	2 2 8	silent p.Ser68Asn p.Thr379Met	PMID: 25179760	KF861938	rs41302032 rs62621068 rs61740966	
RHD(M1V,T379M) Or DAU15	*RHD*10.15* *RHD*DAU15* *Or* *RHD10.15*	c.1A>G c.1136C>T	1 8	p.Met1Val p.Thr379Met			n.a. rs61740966	
weak partial 11 or Del	*RHD*11* *RHD*weak partial 11*	c.885G>T	6	p.Met295Ile	PMID: 9864185 PMID: 11495631		rs371803235	allo-anti-D reported Del phenotype when with *RHCE*Ce*
DOL1 RH:54(DAK+)	*RHD*12.01* *RHD*DOL1*	c.509T>C c.667T>G	4 5	p.Met170Thr p.Phe223Val	PMID: 19309476	FM201788	rs17421144 rs1053356	
DOL2 RH:54(DAK+)	*RHD*12.02* *RHD*DOL2*	c.509T>C c.667T>G c.1132C>G	4 5 8	p.Met170Thr p.Phe223Val p.Leu378Val	PMID: 19309476	AM072761	rs17421144 rs1053356 rs1204257183	

Phenotype	Allele name	Nucleotide change	Exon Intron	Predicted amino acid change	(Reference No.) PMID	Accession number	rs number	Comment
DOL3	*RHD*12.03* *RHD*DOL3*	c.410C>T c.509T>C c.667T>G	3 4 5	p.Ala137Val p.Met170Thr p.Phe223Val		AM087651	rs113982491 rs17421144 rs1053356	
DOL4	*RHD*12.04* *RHD*DOL4*	c.410C>T c.455A>C c.509T>C c.667T>G	3 3 4 5	p.Ala137Val p.Asn152Thr p.Met170Thr p.Phe223Val			rs113982491 rs17418085 rs17421144 rs1053356	
DBS1	*RHD*13.01* *RHD*DBS1*	c.667T>G c.676G>C c.697G>C c.712G>A c.733G>C c.744C>T c.787G>A c.800A>T	5 5 5 5 5 5 5 5	p.Phe223Val p.Ala226Pro p.Glu233Gln p.Val238Met p.Val245Leu silent p.Gly263Arg p.Lys267Met	PMID: 11493738	AB046420	rs1053356 rs3193872 rs1053359 rs1053360 rs150073306 rs1053362 rs3118454 rs112907722	
DBS2	*RHD*13.02* *RHD*DBS2*	c.667T>G c.676G>C c.697G>C	5 5 5	p.Phe223Val p.Ala226Pro p.Glu233Gln	PMID: 21790636	EU335052	rs1053356 rs3193872 rs1053359	

Phenotype	Allele name	Nucleotide change	Exon Intron	Predicted amino acid change	(Reference No.) PMID	Accession number	rs number	Comment
DBT1	*RHD*14.01*	c.667T>G	5	p.Phe223Val	PMID: 8652401		rs1053356	
	*RHD*DBT1*	c.697G>C	5	p.Glu233Gln			rs1053359	
		c.712 G>A	5	p.Val238Met			rs1053360	
		c.733G>C	5	p.Val245Leu			rs150073306	
		c.744C>T	5	silent			rs1053362	
		c.787G>A	5	p.Gly263Arg			rs3118454	
		c.800A>T	5	p.Lys267Met			rs112907722	
		c.916G>A	6	p.Val306Ile			rs590813	
		c.932A>G	6	p.Tyr311Cys			rs590787	
		c.941G>T	7	p.Gly314Val			rs200762372	
		c.968C>A	7	p.Pro323His			rs200415166	
		c.974G>T	7	p.Ser325Ile			rs377051051	
		c.979A>G	7	p.Ile327Val			rs780001468	
		c.985 G>C	7	p.Gly329His			rs1643863219	
		c.986 G>A	7	p.Gly329His			rs1643863394	
		c.989 A>C	7	p.Tyr330Ser			rs751746562	
		c.992 A>T	7	p.Asn331Ile			rs755177266	
		c.1025T>C	7	p.Ile342Thr			rs138235491	
		c.1048G>C	7	p.Asp350His			rs41307826	
		c.1053C>T	7	silent			rs41300142	
		c.1057G>T	7	p.Gly353Trp			rs200307239	
		c.1059A>G	7	p.Gly353Trp			rs1468536305	
		c.1060G>A	7	p.Ala354Asn			rs753613761	
		c.1061C>A	7	p.Ala354Asn			rs756982993	

Phenotype	Allele name	Nucleotide change	Exon Intron	Predicted amino acid change	(Reference No.) PMID	Accession number	rs number	Comment
DBT2	*RHD*14.02* *RHD*DBT2*	c.667T>G c.697G>C c.712G>A c.733G>C c.744C>T c.787G>A c.800A>T c.916G>A c.932A>G c.941G>T c.968C>A c.974G>T c.979A>G c.985G>C c.986G>A c.989A>C c.992A>T	5 5 5 5 5 5 5 6 6 7 7 7 7 7 7 7 7	p.Phe223Val p.Glu233Gln p.Val238Met p.Val245Leu silent p.Gly263Arg p.Lys267Met p.Val306Ile p.Tyr311Cys p.Gly314Val p.Pro323His p.Ser325Ile p.Ile327Val p.Gly329His p.Gly329His p.Tyr330Ser p.Asn331Ile	PMID: 10604255		rs1053356 rs1053359 rs1053360 rs150073306 rs1053362 rs3118454 rs112907722 rs590813 rs590787 rs200762372 rs200415166 rs377051051 rs780001468 rs1643863219 rs1643863394 rs751746562 rs755177266	
		c.1025T>C c.1048G>C c.1053C>T c.1057G>T c.1059A>G c.1060G>A c.1061C>A c.1170T>C c.1193 A>T	7 7 7 7 7 7 7 9 9	p.Ile342Thr p.Asp350His silent p.Gly353Trp p.Gly353Trp p.Ala354Asn p.Ala354Asn silent p.Glu398Val			rs138235491 rs41307826 rs41300142 rs200307239 rs1468536305 rs753613761 rs756982993 rs1132772 rs45549244	
Weak partial Type 15	*RHD*15* *RHD*weak partial 15*	c.845G>A	6	p.Gly282Asp	PMID: 9864185		rs142484009	allo anti-D reported
DCS1	*RHD*16.01* *RHD*DCS1*	c.667T>G c.676G>C	5 5	p.Phe223Val p.Ala226Pro	PMID: 17900276	AJ131502	rs1053356 rs3193872	

Phenotype	Allele name	Nucleotide change	Exon Intron	Predicted amino acid change	(Reference No.) PMID	Accession number	rs number	Comment
DCS2	*RHD*16.02* *RHD*DCS2*	c.676G>C	5	p.Ala226Pro	PMID: 17900276	AM694189	rs3193872	
DCS-3	*RHD*16.03* *RHD*DCS3*	c.667T>G c.676G>C c.697G>C	5 5 5	p.Phe223Val p.Ala226Pro p.Glu233Gln			rs1053356 rs3193872 rs1053359	*linked to RHCE*cE*
DFR1	*RHD*17.01* *RHD*DFR1*	c.505A>C c.509T>G c.514A>T	4 4 4	p.Met169Leu p.Met170Arg p.Ile172Phe	PMID: 7742554	AM491132	rs17421137 rs17421144 rs17421151	
DFR2	*RHD*17.02* *RHD*DFR2*	c.505A>C c.509T>G c.514A>T c.544T>A c.577G>A c.594A>T c.602C>G	4 4 4 4 4 4 4	p.Met169Leu p.Met170Arg p.Ile172Phe p.Ser182Thr p.Glu193Lys p.Lys198Asn p.Thr201Arg		AM491130	rs17421137 rs17421144 rs17421151 rs17421158 rs1053352 rs569974439 rs1053355	
DFR3	*RHD*17.03* *RHD*DFR3*	c.505A>C c.509T>G c.514A>T c.539G>C	4 4 4 4	p.Met169Leu p.Met170Arg p.Ile172Phe p.Gly180Ala	PMID: 17655603	AM491131	rs17421137 rs17421144 rs17421151 rs1210081817	
DFR4	*RHD*17.04* *RHD*DFR4*	c.505A>C c.509T>G	4 4	p.Met169Leu p.Met170Arg	PMID: 21790636	EU604753	rs17421137 rs17421144	

Phenotype	Allele name	Nucleotide change	Exon Intron	Predicted amino acid change	(Reference No.) PMID	Accession number	rs number	Comment
DFR5	*RHD*17.05* *RHD*DFR5*	c.361T>A c.380T>C c.383A>G c.455A>C c.505A>C c.509T>G c.514A>T c.544T>A c.577G>A c.594A>T c.602C>G	3 3 3 3 4 4 4 4 4 4 4	p.Leu121Met p.Val127Ala p.Asp128Gly p.Asn152Thr p.Met169Leu p.Met170Arg p.Ile172Phe p.Ser182Thr p.Glu193Lys p.Lys198Asn p.Thr201Arg		AM902714	rs41267489 rs201703675 rs758618412 rs17418085 rs17421137 rs17421144 rs17421151 rs17421158 rs1053352 rs569974439 rs1053355	
DFW	*RHD*18* *RHD*DFW*	c.497A>C	4	p.His166Pro	PMID: 19309476		rs776018445	
DHMi	*RHD*19* *RHD*DHMi*	c.848C>T	6	p.Thr283Ile			rs766015647	
DHO	*RHD*20* *RHD*DHO*	c.704A>C	5	p.Lys235Thr	PMID: 11161244	AJ276016	n.a.	
Weak partial Type 21	*RHD*21* *RHD*weak partial D 21*	c.938C>T	6	p.Pro313Leu	PMID: 11161244	AJ276015	rs200137267	allo-anti-D reported
DHR	*RHD*22* *RHD*DHR*	c.686G>A	5	p.Arg229Lys	PMID: 9407643		n.a.	
DMH	*RHD*23* *RHD*DMH*	c.161T>C	2	p.Leu54Pro			rs1397052040	
DNAK	*RHD*24* *RHD*DNAK*	c.1070G>A	7	p.Gly357Asp			rs371135217	
DNB	*RHD*25* *RHD*DNB*	c.1063G>A	7	p.Gly355Ser	PMID: 12200394	AJ417868	rs146093871	
DNU	*RHD*26* *RHD*DNU*	c.1057G>A	7	p.Gly353Arg	PMID: 9163603		rs200307239	

Phenotype	Allele name	Nucleotide change	Exon Intron	Predicted amino acid change	(Reference No.) PMID	Accession number	rs number	Comment
DDE	*RHD*27* *RHD*DDE*	c.120T>A	1	p.Asp40Glu		AM177313	rs1376627972	
DFL	*RHD*28* *RHD*DFL*	c.494A>G	4	p.Tyr165Cys	PMID: 17465951	AM072758	rs768146074	
DYU	*RHD*29* *RHD*DYU*	c.700A>T	5	p.Arg234Trp	PMID: 15987365	AJ557827		
(DQC)	*RHD*30* *RHD*DTO*	c.667T>G c.674C>T	5 5	p.Phe223Val p.Ser225Phe	PMID: 16181204		rs1053356 rs148014996	
(DQC)	*RHD*31* *RHD*DVL1*	c.684delGAG	5	p.Arg229del	PMID: 17176329	AJ784312		
DVL2	*RHD*32* *RHD*DVL2*	c.705delGAA	5	p.Lys235del	PMID: 17176329	AM235214		
DWI (DWLLE)	*RHD*33* *RHD*DWI*	c.1073T>C	7	p.Met358Thr	PMID: 15043574	AY170011		
DIM (DIleM)	*RHD*34* *RHD*DIM*	c.854G>A	6	p.Cys285Tyr	PMID: 10753853		n.a.	
DMA	*RHD*35* *RHD*DMA*	c.621G>C	4	p.Leu207Phe	PMID: 14505497		rs141287614	
DLO	*RHD*36* *RHD*DLO*	c.851C>T	6	p.Ser284Leu	PMID: 15318849	AJ585040	rs1242213324	
DUC2	*RHD*37* *RHD*DUC2*	c.733G>C	5	p.Val245Leu	PMID: 15987365	AY864888	rs150073306	
RHD*DNT	*RHD*38* *RHD*DNT*	c.455A>C	3	p.Asn152Thr			rs17418085	
RHD(S103P) RH:–12 (G–)	*RHD*39*	c.307T>C	2	p.Ser103Pro	PMID: 8669081		rs1132760	

Phenotype	Allele name	Nucleotide change	Exon Intron	Predicted amino acid change	(Reference No.) PMID	Accession number	rs number	Comment
D-SPM	*RHD*40*	c.186G>T	2	p.Leu62Phe		JX193763	rs199509194	
	*RHD*D-SPM*	c.410C>T	3	p.Ala137Val			rs113982491	
		c.455A>C	3	p.Asn152Thr			rs17418085	
		c.509T>C	4	p.Met170Thr			rs17421144	
		c.667T>G	5	p.Phe223Val			rs1053356	
	*RHD*41*	c.667T>G	5	p.Phe223Val	PMID: 19243542	AM945964	rs1053356	
	*RHD*DBU*	c.676G>C	5	p.Ala226Pro			rs3193872	
	*RHD*01EL.23*	c.697G>C	5	p.Glu233Gln			rs1053359	
	*RHD*DEL23*	c.712G>A	5	p.Val238Met			rs1053360	
		c.733G>C	5	p.Val245Leu			rs150073306	
		c.744C>T	5	silent			rs1053362	
		c.787G>A	5	p.Gly263Arg			rs3118454	
		c.800A>T	5	p.Lys267Met			rs112907722	
		c.916G>A	6	p.Val306Ile			rs590813	
		c.932A>G	6	p.Tyr311Cys			rs590787	
		c.941G>T	7	p.Gly314Val			rs200762372	
		c.968C>A	7	p.Pro323His			rs200415166	
		c.974G>T	7	p.Ser325Ile			rs377051051	
		c.979A>G	7	p.Ile327Val			rs780001468	
		c.985G>C	7	p.Gly329His			rs1643863219	
		c.986G>A	7	p.Gly329His			rs1643863394	
		c.989A>C	7	p.Tyr330Ser			rs751746562	
		c.992A>T	7	p.Asn331Ile			rs755177266	
		c.1025T>C	7	p.Ile342Thr			rs138235491	
		c.1048G>C	7	p.Asp350His			rs41307826	
		c.1053C>T	7	silent			rs41300142	
		c.1057G>T	7	p.Gly353Trp			rs200307239	
		c.1059A>G	7	p.gly353Trp			rs1468536305	
		c.1060G>A	7	p.Ala354Asn			rs753613761	
		c.1061C>A	7	p.Ala354Asn			rs756982993	

Phenotype	Allele name	Nucleotide change	Exon Intron	Predicted amino acid change	(Reference No.) PMID	Accession number	rs number	Comment
	*RHD*42* *RHD*DCC*	c.677C>A	6	p.Ala226Asp	PMID: 21790636	EF105444	n.a.	
DDN	*RHD*43* *RHD*DDN*	c.490G>A	4	p.Asp164Asn		FM212439	n.a.	
DHQ	*RHD*44* *RHD*DHQ*	c.513C>A	4	p.His171Gln		AJ784309	n.a.	
DKK	*RHD*45* *RHD*DKK*	c.150T>C c.178A>C c.201G>A c.203G>A c.307T>C c.361T>A c.380T>C c.383A>G c.455A>C	2 2 2 2 2 3 3 3 3	silent p.Ile60Leu silent p.Ser68Asn p.Ser103Pro p.Leu121Met p.Val127Ala p.Asp128Gly p.Asn152Thr	PMID: 11724987	AB049754	rs1132758 rs1053341 rs41302032 rs62621068 rs1132760 rs41267489 rs201703675 rs758618412 rs17418085	
DLX	*RHD*46* *RHD*DLX*	c.667T>G c.712G>A c.733G>C c.744C>T c.787G>A c.800A>T c.916G>A c.932A>G	5 5 5 5 5 5 6 6	p.Phe223Val p.Val238Met p.Val245Leu silent p.Gly263Arg p.Lys267Met p.Val306Ile p.Tyr311Cys	PMID: 21790636		rs1053356 rs1053360 rs150073306 rs1053362 rs3118454 rs112907722 rs590813 rs590787	
DMI	*RHD*47* *RHD*DMI*	c.510G>A	4	p.Met170Ile	PMID: 19309476	AM998551		
DMI-1.1	*RHD*47.01* *RHD*DMI-1.1*	c.510G>T	4	p.Met170Ile		FR693374		
DNS	*RHD*48* *RHD*DNS*	c.485A>G	3	p.Asn162Ser			rs762720982	

Phenotype	Allele name	Nucleotide change	Exon Intron	Predicted amino acid change	(Reference No.) PMID	Accession number	rs number	Comment
DWN	*RHD*49* *RHD*DWN*	c.1053C>T c.1057G>T c.1059A>G c.1060G>A c.1061C>A	7 7 7	silent p.Gly353Trp p.Gly353Trp p.Ala354Asn p.Ala354Asn	PMID: 23461862	HF549083	rs41300142 rs200307239 rs1468536305 rs753613761 rs756982993	
RHD(A354T)	*RHD*50*	c.1060G>A	7	p.Ala354Thr	PMID: 25179760	KJ145901	rs753613761	
RHD(del44L)	*RHD*51*	c.130delCTC	1	p.Leu44del	PMID: 25070883	KF142381		
RHD(F223S)	*RHD*52* *RHD* 01W.141* *RHD*weak D type 141*	c.668T>C	5	p.Phe223Ser	PMID: 27189905	KT240043		
RHD(IVS2-2delA)	*RHD*53* *RHD*01EL.22* *RHD*DEL22*	c.336-2delA	i2	Splice site change		KC341996		
RHD(IVS4-2A>C)	*RHD*54*	c.635-2A>C	i4	Splice site change	PMID: 25179760	KF861936		
RHD(L81P)	*RHD*55*	c.242T>C	2	p.Leu81Pro		FN555128		
DBA	*RHD*56* *RHD*DBA*	c.680T>C	5	p.Leu227Pro	PMID: 15318849	AY449385		
weak partial type 57	*RHD*57* *RHD*weak partial 57*	c.640C>T	5	p.Leu214Phe	PMID: 17465951	EF105443	rs138176025	

Phenotype	Allele name	Nucleotide change	Exon Intron	Predicted amino acid change	(Reference No.) PMID	Accession number	rs number	Comment
RHD*D-CE(7)-D	*RHD*58*	c.941G>T	7	p.Gly314Val		HE657775	rs200762372	
		c.968C>A	7	p.Pro323His			rs200415166	
		c.974G>T	7	p.Ser325Ile			rs377051051	
		c.979A>G	7	p.Ile327Val			rs780001468	
		c.985G>C	7	p.Gly329His			rs1643863219	
		c.986G>A	7	p.Gly329His			rs1643863394	
		c.989A>C	7	p.Tyr330Ser			rs751746562	
		c.992A>T	7	p.Asn331Ile			rs755177266	
		c.1025T>C	7	p.Ile342Thr			rs138235491	
		c.1048G>C	7	p.Asp350His			rs41307826	
		c.1053C>T	7	silent			rs41300142	
		c.1057G>T	7	p.Gly353Trp			rs200307239	
		c.1059A>G	8	p.Gly353Trp			rs1468536305	
		c.1060G>A	8	p.Ala354Asn			rs753613761	
		c.1061C>A	8	p.Ala354Asn			rs756982993	
RHD(F175L)	*RHD*59*	c.525C>A	4	p.Phe175Leu	PMID: 23043317		rs1214722999	
weak Partial D	*RHD*60*	c.689G>T	5	p.Ser230Ile			rs1053341	
		c.992A>T	7	p.Asn331Ile			rs374920252	
weak Partial D	*RHD*61*	c.492C>A	4	p.Asp164Glu		KY614793	rs1553143636	
DNT(V270G)	*RHD*62*	c.455A>C	3	p.Asn152Thr		LN554881	rs17418085	
		c.809T>G	6	p.Val270Gly			rs121912763	
Weak partial D	*RHD*63*	c.492C>G	4	p.Asp164Glu	PMID: 28714065	KY614793	rs1553143636	
Partial D	*RHD*64*	c.985G>C	7	p.Gly329His			rs1643863219	
		c.986G>A		p.Gly329His			rs1643863394	
		c.989A>C		p.Tyr330Ser			rs751746562	
		c.992A>T		p.Asn331Ile			rs755177266	
Partial D	*RHD*65*	c.835G>A	6	p.Val279Met			rs139704879	
		c.851C>T	8	p.Ser284Leu			rs1242213324	
		c.1136C>T		p.Thr379Met			rs61740966	

Phenotype	Allele name	Nucleotide change	Exon Intron	Predicted amino acid change	(Reference No.) PMID	Accession number	rs number	Comment
Partial D	*RHD*66*	c.325A>G	2	p.Thr109Ala			rs1376983227	
RHD weak D								
Type 1	*RHD*01W.1* *RHD*weak D type 1*	c.809T>G	6	p.Val270Gly	PMID: 9864185	AJ428455	rs121912763	
Type 1.1	*RHD*01W.1.1* *RHD*weak D type 1.1*	c.52C>G c.809T>G	1 6	p.Leu18Val p.Val270Gly	PMID: 16181206	AJ704215	rs551392307 rs121912763	
Type1.2	*RHD*01W.1.2* *RHD*weak D type 1.2*	c.712G>A c.809T>G	5 6	p.Val238Met p.Val270Gly	PMID: 25179760	KJ145902	rs1053360 rs121912763	
Type 1.3	*RHD*01W.1.3* *RHD* weak D type 1.3*	c.667T>G c.809T>G	5 6	p.Phe223Val p.Val270Gly	(2), Abstract		rs1053356 rs121912763	c.809T>G is shared with weak D type 1
Type 2	*RHD*01W.2* *RHD*weak D type 2*	c.1154G>C	9	p.Gly385Ala	PMID: 9864185		rs71652374	Splice site change also
Type 2.1	*RHD*01W.2.1* *RHD*weak D type 2.1*	c.301T>A c.1154G>C	2 9	p.Phe101Ile p.Gly385Ala		FN568100	n.a. rs71652374	
Type2.2	*RHD*01W.2.2* *RHD*weak D type 2.2*	c.916G>A c.932A>G c.1154G>C	6 6 9	p.Val306Ile p.Tyr311Cys p.Gly385Ala	PMID: 25179760	KF861928	rs590813 rs590787 rs71652374	
Type 3	*RHD*01W.3* *RHD*weak D type 3*	c.8C>G	1	p.Ser3Cys	PMID: 9864185		rs144969459	

Phenotype	Allele name	Nucleotide change	Exon Intron	Predicted amino acid change	(Reference No.) PMID	Accession number	rs number	Comment
Type3.1	*RHD*01W.3.1* *RHD*weak D type 3.1*	c.8C>G c.178A>C	1 2	p.Ser3Cys p.Ile60Leu	PMID: 25179760	KF861930	rs144969459 rs1053341	
Type 4.0, 4.1, 4.2, 4.2.2 weak partial	**See partial DAR* *RHD*09.03, 04, 05* *RHD*weak partial 4*							
Type 5	*RHD*01W.5* *RHD*weak D type 5*	c.446C>A	3	p.Ala149Asp	PMID: 9864185		rs775336070	
Type 6	*RHD*01W.6* *RHD*weak D type 6*	c.29G>A	1	p.Arg10Gln	PMID: 9864185		rs768456998	
Type 7	*RHD*01W.7* *RHD*weak D type 7*	c.1016G>A	7	p.Gly339Glu	PMID: 9864185			
Type 8	*RHD*01W.8* *RHD*weak D type 8*	c.919G>A	6	p.Gly307Arg	PMID: 9864185		rs762881746	
Type 9	*RHD*01W.9* *RHD*weak D type 9*	c.880G>C	6	p.Ala294Pro	PMID: 9864185			
Type 10	*RHD*01W.10* *RHD*weak D type 10*	c.1177T>C	9	p.Trp393Arg	PMID: 9864185		rs201345482	
Type 10.1	*RHD*01W.10.1* *RHD*weak D type 10.1*	c.1145T>C c.1177T>C	8 9	p.Leu382Pro p.Trp393Arg		KT870131	n.a. rs201345482	

Phenotype	Allele name	Nucleotide change	Exon Intron	Predicted amino acid change	(Reference No.) PMID	Accession number	rs number	Comment
Type 10.2	*RHD*01W.10.2* *RHD*weak D type 10.2*	c.1177T>C c.1199A>C	9 9	p.Trp393Arg p.Lys400Thr	PMID: 27183894	LC075281	rs201345482 n.a.	
Type 11 weak partial or Del phenotype	*See partial RHD*11*	c.885G>T	6	p.Met295Ile			rs371803235	allo-anti-D reported Del phenotype when with Ce
Type 12	*RHD*01W.12* *RHD*weak D type 12*	c.830G>A	6	p.Gly277Glu	PMID: 9864185		rs1557543876	
Type 13	*RHD*01W.13* *RHD*weak D type 13*	c.826G>C	6	p.Ala276Pro	PMID: 9864185			
Type 14	*RHD*01W.14* *RHD*weak D type 14*	c.544T>A c.594A>T c.602C>G	4 4 4	p.Ser182Thr p.Lys198Asn p.Thr201Arg	PMID: 9864185		rs17421158 rs569974439 rs1053355	
Type 15 weak partial phenotype	*See partial RHD*15*	c.845G>A	6	p.Gly282Asp			rs142484009	allo-anti-D reported
Type 16	*RHD*01W.16* *RHD*weak D type 16*	c.658T>C	5	p.Trp220Arg	PMID: 9864185			
Type 17	*RHD*01W.17* *RHD*weak D type 17*	c.340C>T	3	p.Arg114Trp	PMID: 10753853		rs1170303671	
Type 18	*RHD*01W.18* *RHD*weak D type 18*	c.19C>T	1	p.Arg7Trp		CAB75731	rs142037235	
Type 19	*RHD*01W.19* *RHD*weak D type 19*	c.611T>C	4	p.Ile204Thr	PMID: 16934070	AJ557826		

Phenotype	Allele name	Nucleotide change	Exon Intron	Predicted amino acid change	(Reference No.) PMID	Accession number	rs number	Comment
Type 20	*RHD*01W.20 RHD*weak D type 20*	c.1250T>C	10	p.Phe417Ser	PMID: 16934070		rs906591455	
Type 21	*See partial RHD*21*	c.938C>T	6	p.Pro313Leu			rs200137267	allo-anti-D reported
Type 22	*RHD*01W.22 RHD*weak D type 22*	c.1224G>C	9	p.Trp408Cys		AJ278873		
Type 23	*RHD*01W.23 RHD*weak D type 23*	c.634G>T	4	p.Gly212Cys	PMID: 11904002			
Type 24	*RHD*01W.24 RHD*weak D type 24*	c.1013T>C	7	p.Leu338Pro	PMID: 12609022		rs770829982	
Type 25	*RHD*01W.25 RHD*weak D type 25*	c.341G>A	3	p.Arg114Gln		AJ548430	rs530929152	
Type 26	*RHD*01W.26 RHD*weak D type 26*	c.26T>A	1	p.Val9Asp	PMID: 15819673	AJ534720	rs1393968550	
Type 27	*RHD*01W.27 RHD*weak D type 27*	c.661C>T	5	p.Pro221Ser		AJ504792		
Type 28	*RHD*01W.28 RHD*weak D type 28*	c.1152A>C	8	p.Thr384Thr		AJ504793		Splice site change only

Phenotype	Allele name	Nucleotide change	Exon Intron	Predicted amino acid change	(Reference No.) PMID	Accession number	rs number	Comment
Type 29	*RHD*01W.29* *RHD*weak D type 29*	c.178A>C c.201G>A c.203G>A c.594A>T c.667T>G c.744C>T c.957G>A c.1025T>C	2 2 4 5 5 7 7 7	p.Ile60Leu silent p.Ser68Asn p.Lys198Asn p.Phe223Val silent silent p.Ile342Thr	PMID: 12675718	AY149684 AH012471	rs1053341 rs41302032 rs62621068 rs569974439 rs1053356 rs1053362 rs146292192 rs138235491	
Type 30	*RHD*01W.30* *RHD*weak D type 30*	c.1018_1019 delinsAT	7	p.Glu340Met		AJ557825		
Type 31	*RHD*01W.31* *RHD*weak D type 31*	c.17C>T	1	p.Pro6Leu	PMID: 16181207	AJ557803	rs555567027	
Type 32	*RHD*01W.32* *RHD*weak D type 32*	c.1121T>A	8	p.Ile374Asn	PMID: 16181207	AJ580942		
Type 33	*RHD*01W.33* *RHD*weak D type 33*	c.520G>A	4	p.Val174Met	PMID: 12898187		rs147421281	
Type 34	*RHD*01W.34* *RHD*weak D type 34*	c.809T>A	6	p.Val270Glu	PMID: 12898187			
Type 35	*RHD*01W.35* *RHD*weak D type 35*	c.260G>A	2	p.Gly87Asp		AJ585038		
Type 36	*RHD*01W.36* *RHD*weak D type 36*	c.842T>G	6	p.Val281Gly		AJ867387		

Phenotype	Allele name	Nucleotide change	Exon Intron	Predicted amino acid change	(Reference No.) PMID	Accession number	rs number	Comment
Type 37	*RHD*01W.37* *RHD*weak D type 37*	c.399G>T	3	p.Lys133Asn	PMID: 15318849	AY449384		
Type 38	*RHD*01W.38* *RHD*weak D type 38*	c.833G>A	6	p.Gly278Asp	PMID: 15318849	AY449381	rs768516914	
Type 39	*RHD*01W.39* *RHD*weak D type 39*	c.1015G>A	7	p.Gly339Arg		AY449383		
Type 40	*RHD*01W.40* *RHD*weak D type 40*	c.602C>G	4	p.Thr201Arg		AJ585039	rs1053355	
Type 41	*RHD*01W.41* *RHD*weak D type 41*	c.1193A>T	9	p.Glu398Val		AY756316	rs45549244	
Type 41.0.1	*RHD*01w.41.0.1* *RHD*weak D type 41.01.*	c.1170T>C c.1193A>T	9 9	p.Leu390Leu p.Glu398Val		KT894159	rs1132772 rs45549244	
Type 42	*RHD*01W.42* *RHD*weak D type 42*	c.1226A>T	9	p.Lys409Met	PMID: 16181204		rs375471538	
Type 43	*RHD*01W.43* *RHD*weak D type 43*	c.605C>T	4	p.Ala202Val	PMID: 17176325	AM049242	rs1571667570	
Type 44	*RHD*01W.44* *RHD*weak D type 44*	c.728A>G	5	p.Tyr243Cys		AJ867386	rs773371990	

Phenotype	Allele name	Nucleotide change	Exon Intron	Predicted amino acid change	(Reference No.) PMID	Accession number	rs number	Comment
Type 45	*RHD*01W.45* *RHD*weak D type 45*	c.1195G>A	9	p.Ala399Thr		AJ867388	rs150059028	
Type45.1	*RHD*01w.45.1* *RHD weak D type 45.1*	c.818C>T c.1195G>A	6 9	p.Ala273Val p.Ala399Thr	PMID: 23550956	FR748226	rs774785863 rs150059028	
Type45.2	*RHD*01w.45.2* *RHD weak D type 45.2*	c.208C>T c.818C>T c.1195G>A	2 6 9	p.Arg70Trp p.Ala273Val p.Ala399Thr	PMID: 24094237		rs542542420 rs774785863 rs150059028	
Type 46	*RHD*01W.46* *RHD*weak D type 46*	c.1221C>A	9	p.Phe407Leu		AJ784310		
Type 47	*RHD*01W.47* *RHD*weak D type 47*	c.340C>G	3	p.Arg114Gly		AM157176		
Type 48	*RHD*01W.48* *RHD*weak D type 48*	c.182G>T	2	p.Gly61Val		AM072759	rs1342457554	
Type 49	*RHD*01W.49* *RHD*weak D type 49*	c.770C>T	5	p.Ser257Phe	PMID: 17655577	AM181333	rs1192006597	
Type 50	*RHD*01W.50* *RHD*weak D type 50*	c.727T>A	5	p.Tyr243Asn		AM234631		
Type 51	*RHD*01W.51* *RHD*weak D type 51*	c.594A>T c.602C>G	4 4	p.Lys198Asn p.Thr201Arg		DQ088170	rs569974439 rs1053355	

Phenotype	Allele name	Nucleotide change	Exon Intron	Predicted amino acid change	(Reference No.) PMID	Accession number	rs number	Comment
Type 52	*RHD*01W.52 RHD*weak D type 52*	c.92T>C	1	p.Phe31Ser		DQ121434		
Type 53	*RHD*01W.53 RHD*weak D type 53*	c.740T>G	5	p.Val247Gly		DQ121435		
Type 54	*RHD*01W.54 RHD*weak D type 54*	c.365C>T	3	p.Ser122Leu		AM396583	rs752408858	
Type 55	*RHD*01W.55 RHD*weak D type 55*	c.895C>G	6	p.Leu299Val		AM746209	rs772372065	
Type 56	*RHD*01W.56 RHD*weak D type 56*	c.65C>A	1	p.Ala22Glu	PMID: 17465951	EF105438	rs1241008915	
Type 57	*RHD*01W.57 RHD*weak D type 57*	c.640C>T	5	p.Leu214Phe				
Type 58	*RHD*01W.58 RHD*weak D type 58*	c.1006G>C	7	p.Gly336Arg	PMID: 17465951	EF105445	rs1160800848	
Type 59	*RHD*01W.59 RHD*weak D type 59*	c.1148T>C	8	p.Leu383Pro	PMID: 17465951	EF105446		
Type 60	*RHD*01W.60 RHD*weak D type 60*	c.1219delTTCTGG	9	p.Phe407_Trp408d	PMID: 17465951	EF105448		

Phenotype	Allele name	Nucleotide change	Exon Intron	Predicted amino acid change	(Reference No.) PMID	Accession number	rs number	Comment
Type 61	*RHD*01W.61* *RHD*weak D type 61*	c.28C>T	1	p.Arg10Trp	PMID: 17029192	DQ534023	rs746827601	
Type 62	*RHD*01W.62* *RHD*weak D type 62*	c.661C>A	5	p.Pro221Thr		AM403488		
Type 63	*RHD*01W.63* *RHD*weak D type 63*	c.758T>A	5	p.Ile253Asn		AM887934		
Type 64	*RHD*01W.64* *RHD*weak D type 64*	c.881C>T	6	p.Ala294Val		AM902713	rs779150774	
Type 65	*RHD*01W.65* *RHD*weak D type 65*	c.68C>A	1	p.Ala23Asp		AM922329		
Type 66	*RHD*01W.66* *RHD*weak D type 66*	c.916G>A	6	p.Val306Ile		AM922514	rs590813	
Type 67	*RHD*01W.67* *RHD*weak D type 67*	c.722C>T	5	p.Thr241Ile		FM201787		
Type 68	*RHD*01W.68* *RHD*weak D type 68*	c.165C>T c.1213C>G	2 9	silent p.Gln405Glu		AM183924	rs2301155 n.a.	
Type 69	*RHD*01W.69* *RHD*weak D type 69*	c.953G>A	7	p.Arg318Gln		FM212559	rs764473605	

Phenotype	Allele name	Nucleotide change	Exon Intron	Predicted amino acid change	(Reference No.) PMID	Accession number	rs number	Comment
Type 70	*RHD*01W.70* *RHD*weak D type 70*	c.1012C>G	7	p.Leu338Val		FM212558		
Type 71	*RHD*01W.71* *RHD*weak D type 71*	c.29G>C	1	p.Arg10Pro		EU335051	rs768456998	
Type 72	*RHD*01W.72* *RHD*weak D type 72*	c.1212C>A	9	p.Asp404Glu		EF103573	rs767611524	
Type 73	*RHD* 01W.73* *RHD*weak D type 73*	c.1241C>T	10	p.Ala414Val		EU604751		
Type 74	*RHD* 01W.74* *RHD*weak D type 74* *RHD(S68T)*	c.203G>C	2	p.Ser68Thr		FN594775	rs62621068	
Type 75	*RHD* 01W.75* *RHD*weak D type 75*	c.1194G>C	9	p.Glu398Asp	PMID: 23550956	FR748224		
Type 76	*RHD* 01W.76* *RHD*weak D type 76*	c.1215A>C	9	p.Gln405His	PMID: 23550956	FR748225	rs752237488	
Type 77	*RHD* 01W.77* *RHD*weak D type 77*	c.766T>C	5	p.Ser256Pro	PMID: 20723165	FN908866		
Type 78	*RHD* 01W.78* *RHD*weak D type 78*	c.1228T>G	10	p.Phe410Val	PMID: 20723165	FN908868		

Phenotype	Allele name	Nucleotide change	Exon Intron	Predicted amino acid change	(Reference No.) PMID	Accession number	rs number	Comment
Type 79	*RHD* 01W.79 RHD*weak D type 79*	c.560T>C	4	p.Leu187Pro		JQ782890		
Type 80	*RHD* 01W.80 RHD*weak D type 80*	c.539G>A	4	p.Gly180Glu		JX114751		
Type 81	*RHD* 01W.81 RHD*weak D type 81*	c.1199A>C	9	p.Lys400Thr		HE965766		
Type 82	*RHD* 01W.82 RHD*weak D type 82*	c.1184C>T	9	p.Ala395Val		HF545925	rs1484877972	
Type 83	*RHD* 01W.83 RHD*weak D type 83*	c.1238T>G	10	p.Leu413Trp		HF545924		
Type 84	*RHD* 01W.84 RHD*weak D type 84*	c.227G>A	2	p.Ser76Asn		HF674882		
Type 85	*RHD* 01W.85 RHD*weak D type 85*	c.209G>A	2	p.Arg70Gln		FN998904	rs142925159	
Type 86	*RHD* 01W.86 RHD*weak D type 86*	c.1034T>A	7	p.Val345Glu		KJ722727	rs774889533	
Type 87	*RHD* 01W.87 RHD*weak D type 87*	c.374T>A	3	p.Ile125Asn	PMID: 25646655	KM061058	rs869221624	

Phenotype	Allele name	Nucleotide change	Exon Intron	Predicted amino acid change	(Reference No.) PMID	Accession number	rs number	Comment
Type 88	*RHD* 01W.88* *RHD*weak D type 88*	c.182G>C	2	p.Gly61Ala		LN612637	rs1342457554	
Type 89	*RHD* 01W.89* *RHD*weak D type 89*	c.67G>C	1	p.Ala23Pro	PMID: 25179760	KJ145904		
Type 90	*RHD* 01W.90* *RHD*weak D type 90*	c.993C>G	7	p.Asn331Lys	PMID: 25179760	KF861926	rs369751348	
Type 91	*RHD* 01W.91* *RHD*weak D type 91*	c.1187C>G	9	p.Pro396Arg	PMID: 25179760	KF861927	rs760802800	
Type 92	*RHD* 01W.92* *RHD*weak D type 92*	c.1145T>C	8	p.Leu382Pro	PMID: 25179760	KJ145907	n.a.	
Type 93	*RHD* 01W.93* *RHD*weak D type 93*	c.359C>A	3	p.Ala120Asp		KU847398	rs868537949	
Type 94	*RHD* 01W.94* *RHD*weak D type 94* *RHD*01EL.46* *RHD*DEL46*	c.884T>C	6	p.Met295Thr	PMID: 24094237	HE861896	rs1553144518	
Type 95	*RHD* 01W.95* *RHD*weak D type 95*	c.730G>C	5	p.Ala244Pro	PMID: 24094237			
Type 96	*RHD* 01W.96* *RHD*weak D type 96*	c.731C>T	5	p.Ala244Val	PMID: 24094237	KU363610	rs763237896	

Phenotype	Allele name	Nucleotide change	Exon Intron	Predicted amino acid change	(Reference No.) PMID	Accession number	rs number	Comment
Type 97	*RHD* 01W.97 RHD*weak D type 97*	c.542T>C	4	p.Leu181Pro	PMID: 24094237		rs149700508	
Type 98	*RHD* 01W.98 RHD*weak D type 98*	c.751A>C	5	p.Thr251Pro	PMID: 24094237	LC075277		
Type 99	*RHD* 01W.99 RHD*weak D type 99*	c.1107A>C	8	p.Glu369Asp	PMID: 24094237			
Type 100	*RHD* 01W.100 RHD*weak D type 100*	c.787G>A	5	p.Glu263Arg	PMID: 26340140	FJ041199	rs3118454	
Type 101	*RHD* 01W.101 RHD*weak D type 101*	c.62A>C	1	p.Glu21Ala		LC075263		
Type 102	*RHD* 01W.102 RHD*weak D type 102*	c.73A>T	1	p.Ile25Phe		LC075264	rs759981711	
Type 103	*RHD* 01W.103 RHD*weak D type 103*	c.91T>A	1	p.Phe31Ile		LC075265		
Type 104	*RHD* 01W.104 RHD*weak D type 104*	c.157G>T	2	p.Asp53Tyr		LC075266		
Type 105	*RHD* 01W.105 RHD*weak D type 105*	c.200C>G	2	p.Ser67Trp	PMID: 26340140	LC053436		

Phenotype	Allele name	Nucleotide change	Exon Intron	Predicted amino acid change	(Reference No.) PMID	Accession number	rs number	Comment
Type 106	*RHD* 01W.106 RHD*weak D type 106*	c.220T>G	2	p.Trp74Gly	PMID: 26340140	LC053437		
Type 107	*RHD* 01W.107 RHD*weak D type 107*	c.223A>T	2	p.Ser75Cys		LC075269		
Type 108	*RHD* 01W.108 RHD*weak D type 108*	c.287G>A	2	p.Gly96Asp	PMID: 26340140	LC053438	rs1164589620	
Type 109	*RHD* 01W.109 RHD*weak D type 109*	c.376T>C	3	p.Ser126Pro		LC075272		
Type 110	*RHD* 01W.110 RHD*weak D type 110*	c.413A>G	3	p.Gln138Arg	PMID: 26340140	LC053440		
Type 111	*RHD* 01W.111 RHD*weak D type 111*	c.634G>A	4	p.Gly212Ser		LC075275		
Type 112	*RHD* 01W.112 RHD*weak D type 112*	c.635G>A	5	p.Gly212Asp	PMID: 26340140	LC053442		
Type 113	*RHD* 01W.113 RHD*weak D type 113*	c.874T>C	6	p.Trp292Arg		LC075279		
Type 114	*RHD* 01W.114 RHD*weak D type 114*	c.968C>T	7	p.Pro323Leu	PMID: 26340140	LC053445		

Phenotype	Allele name	Nucleotide change	Exon Intron	Predicted amino acid change	(Reference No.) PMID	Accession number	rs number	Comment
Type 115	*RHD* 01W.115 RHD*weak D type 115*	c.983T>A	7	p.Met328Lys	PMID: 26340140	LC053446		
Type 116	*RHD* 01W.116 RHD*weak D type 116*	c.346G>C	3	p.Ala116Pro	PMID: 26340140	LC053439		
Type 117	*RHD* 01W.117 RHD*weak D type 117*	c.346G>A	3	p.Ala116Thr		LC075271		
Type 118	*RHD* 01W.118 RHD*weak D type 118*	c.347C>T	3	p.Ala116Val		FR745439		
Type 119	*RHD* 01W.119 RHD*weak D type 119*	c.818C>T	6	p.Ala273Val		FJ041201	rs774785863	
Type 120	*RHD* 01W.120 RHD*weak D type 120*	c.818C>A	6	p.Ala273Glu	PMID: 25179760	FR745441		
Type 121	*RHD* 01W.121 RHD*weak D type 121*	c.176C>A	2	p.Ala59Asp		LC075267		
Type 122	*RHD* 01W.122 RHD*weak D type 122*	c.208C>T	2	p.Arg70Trp		JF816274	rs542542420	
Type 123	*RHD* 01W.123 RHD*weak D type 123*	c.379G>T	3	p.Val127Leu		LC075273		

Phenotype	Allele name	Nucleotide change	Exon Intron	Predicted amino acid change	(Reference No.) PMID	Accession number	rs number	Comment
Type 124	*RHD* 01W.124 RHD*weak D type 124*	c.594A>T	4	p.Lys198Asn		LC075274	rs569974439	
Type 125	*RHD* 01W.125 RHD*weak D type 125*	c.671A>G	5	p.Asn224Ser		LC075276	rs756129923	
Type 126	*RHD* 01W.126 RHD*weak D type 126*	c.1199A>T	9	p.Lys400Ile		LC075282	rs1333746082	
Type 127	*RHD* 01W.127 RHD*weak D type 127*	c.1200A>T	9	p.Lys400Asn	PMID: 23228153	JQ405078		
Type 128	*RHD* 01W.128 RHD*weak D type 128*	c.1207G>T	9	p.Asp403Tyr		LC075283		
Type 129	*RHD* 01W.129 RHD*weak D type 129*	c.1208A>T	9	p.Asp403Val	PMID: 22320258	JQ405077		
Type 130	*RHD* 01W.130 RHD*weak D type 130*	c.163A>C	2	p.Thr55Pro	PMID: 22320258	JF816273		
Type 131	*RHD* 01W.131 RHD*weak D type 131*	c.254C>G	2	p.Ala85Gly	PMID: 22320258	HE613970	rs139501061	
Type 132	*RHD* 01W.132 RHD*weak D type 132*	c.394G>A	3	p.Gly132Arg	PMID: 22320258	FJ041200		

Phenotype	Allele name	Nucleotide change	Exon Intron	Predicted amino acid change	(Reference No.) PMID	Accession number	rs number	Comment
Type 133	*RHD* 01W.133 RHD*weak D type 133*	c.395G>A	3	p.Gly132Glu	PMID: 22320258			
Type 134	*RHD* 01W.134 RHD*weak D type 134*	c.1168C>G	9	p.Leu390Val	PMID: 23228153	JQ608469		
Type 135	*RHD* 01W.135 RHD*weak D type 135*	c.884T>A	6	p.Met295Lys		KT819195		
Type 136	*RHD* 01W.136 RHD*weak D type 136*	c.41C>T	1	p.Pro14Leu		KU363603		
Type 137	*RHD* 01W.137 RHD*weak D type 137*	c.780C>A	5	p.His260Gln		KU363612	rs1170243924	
Type 138	*RHD* 01W.138 RHD*weak D type 138*	c.871C>T	6	p.Pro291Ser		KU363614		
Type 139	*RHD* 01W.139 RHD*weak D type 139*	c.1169T>C	9	p.Leu390Pro		KU363615		
Type 140	*RHD* 01W.140 RHD*weak D type 140*	c.1229T>C	10	p.Phe410Ser	PMID: 27189905	LN999843		
Type 141	*RHD* 01W.141 RHD*weak D type 141*	c.668T>C	5	p.Phe223Ser				

Phenotype	Allele name	Nucleotide change	Exon Intron	Predicted amino acid change	(Reference No.) PMID	Accession number	rs number	Comment
Type 142	*RHD* 01W.142 RHD*weak D type 142*	c.67G>T	1	p.Ala23Ser		LN999948		
Type 143	*RHD* 01W.143 RHD*weak D type 143*	c.173C>T	2	p.Ala58Val		LN885096	rs370947145	
Type 144	*RHD* 01W.144 RHD*weak D type 144*	c.579G>C	4	p.Glu193Asp		LT574827	rs77813628	
Type 145	*RHD* 01W.145 RHD*weak D type 145*	c.41C>G	1	p.Pro14Arg				
Type 146	*RHD* 01W.146 RHD*weak D type 146*	c.438G>C	3	p.Glu146Asp	PMID: 24333088	JN007073		
Type 147	*RHD* 01W.147 RHD*weak D type 147*	c.436G>A	3	p.Glu146Lys	PMID: 24333088	JQ937026		
Type 148	*RHD* 01W.148 RHD*weak D type 148*	c.670A>G	5	p.Asn224Asp	PMID: 25070883	KF142384		
Type 149	*RHD* 01W.149 RHD*weak D type 149*	c.779A>G	5	p.His260Arg				
Type 150	*RHD* 01W.150 RHD*weak D type 150*	c.327_487-4164dup	2 4		PMID: 29479713	MG190353		

Phenotype	Allele name	Nucleotide change	Exon Intron	Predicted amino acid change	(Reference No.) PMID	Accession number	rs number	Comment
Type 151	*RHD* 01W.151 RHD*weak D type 151*	c.175G>A	2	p.Ala59Thr	PMID: 29479713	MG190347		
Type 152	*RHD* 01W.152 RHD*weak D type 152*	c.187G>T	2	p.Gly63Cys	PMID: 29479713	MG190348		
Type 153	*RHD* 01W.153 RHD*weak D type 153*	c.365C>G	3	p.Ser122Trp	PMID: 21950494	JF816276		
Type 154	*RHD* 01W.154 RHD*weak D type 154*	c.648G>C	5	p.Leu216Phe	PMID: 29479713	JQ405073		
Type 155	*RHD* 01W.155 RHD*weak D type 155*	c.710C>T	5	p.Ala237Val	PMID: 29479713	KU189197		
Type 156	*RHD* 01W.156 RHD*weak D type 156*	c.1190A>G	9	p.His397Arg				
Type 157	*RHD* 01W.157 RHD*weak D type 157*	c.83_85delTCT	1	p.Phe28del		LT574827	n.a.	
Type 158	*RHD* 01W.158 RHD*weak D type 158*	c.526G>C	4	p.Ala176Pro				
Type 159	*RHD* 01W.159 RHD*weak D type 159*	c.1213C>A	9	p.Gln405Lys				

Phenotype	Allele name	Nucleotide change	Exon Intron	Predicted amino acid change	(Reference No.) PMID	Accession number	rs number	Comment
Type 160	*RHD* 01W.160 RHD*weak D type 160*	c.917T>A	6	p.Val306Asp		Ter		
Type 161	*RHD* 01W.161 RHD*weak D type 161*	c.611T>A	4	p.Ile204Lys				
Type 162	*RHD* 01W.162 RHD*weak D type 162*	c.782C>T	5	p.Pro261Leu	PMID: 33057632	MN366000		
Type 163	*RHD* 01W.163 RHD*weak D type 163*	c.1016G>C	7	p.Gly339Ala	PMID: 33057632	MN366002		
Type 164	*RHD* 01W.164 RHD*weak D type 164*	c.76C>T	1	p.Leu26Phe		OX344916		
Type 165	*RHD* 01W.165 RHD*weak D type 165*	c.661C>G	5	p.Pro221Ala		OX336332		
Del defined as weak D expression primarily detectable only by adsorption and elution								
Del	*RHD*01EL.01 RHD*DEL1*	c.1227G>A	9	p.Lys409Lys	PMID: 11495631	JQ424879	rs549616139	Splice site affected
Del	*RHD*01EL.02 RHD*DEL2*	c.3G>A	1	p.Met1Ile	PMID: 17029192	DQ310735	n.a.	
Del	*RHD*01EL.03 RHD*DEL3*	c.53T>C	1	p.Leu18Pro	PMID: 17029192	DQ451877	n.a.	
Del	*RHD*01EL.04 RHD*DEL4*	c.147delA	1	p.Val50Leufs*5	PMID: 19243542	AM998539	n.a.	

Phenotype	Allele name	Nucleotide change	Exon Intron	Predicted amino acid change	(Reference No.) PMID	Accession number	rs number	Comment
Del	*RHD*01EL.05* *RHD*DEL5*	c.148+1G>A	i1	Splice site variant	(1), Abstract		n.a.	
Del or weak D	*RHD*01EL.06* *RHD*DEL6*	c.251T>C	2	p.Leu84Pro	PMID: 17029192	DQ310734	n.a.	
Del or weak D	*RHD*01EL.07* *RHD*DEL7*	c.410C>A	3	p.Ala137Glu	PMID: 19490579	DQ534022		
Del	*RHD*01EL.08* *RHD*DEL8*	c.486+1G>A	i3	Splice site variant	PMID: 11495631		rs149598033	
Del or D negative	*RHD*01EL.09* *RHD*DEL9*	c.486+2T>A	i3	Splice site variant	PMID: 19243542	AM998540	rs1307580717	
Del	*RHD*01EL.10* *RHD*DEL10*	c.1222T>C	9	p.Trp408Arg	PMID: 15752151		n.a.	
Del	*RHD*01EL.11* *RHD*DEL11*	c.1252_1253 insT	10	p.*418Leuext*70	PMID: 15819673	AJ630384	n.a.	
Del	*RHD*01EL.12* *RHD*DEL12*	c.458T>C	3	p.Leu153Pro	PMID: 19243542	AM998545	n.a.	
Del or D negative	*RHD*01EL.13* *RHD*DEL13*	c.785del A	5	p.Lys264Argfs*24	PMID: 19243542	AM998549		
Del	*RHD*01EL.14* *RHD*DEL14*	c.634+5G>T	i4	Splice site variant	PMID: 23216299	FJ041198		G>A associated with weak D
Del or D negative	*RHD*01EL.15* *RHD*DEL15* *RHD*01N.52*	c.922G>T	6	p.Gly308Ter		FN998907		
Del	*RHD*01EL.16* *RHD*DEL16*	c.634G>C	4	p.Gly212Arg	PMID: 19243542	AM998546	n.a.	212Cys reported as weak D 212Val as D neg
Del	*RHD*01EL.17* *RHD*DEL17*	c.1203T>A	9	p.Tyr401Ter			rs759513820	

Phenotype	Allele name	Nucleotide change	Exon Intron	Predicted amino acid change	(Reference No.) PMID	Accession number	rs number	Comment
Del	*RHD*01EL.18* *RHD*DEL18* *RHD*01N.50*	c.93_94insT	1	p.Thr32Tyrfs*4	PMID: 18694461	EU447199		
Del	*RHD*01EL.19* *RHD*DEL19*	c.635-2A>G	i4	Splice site variant	PMID: 20723165	FN908869		
Del	*RHD*01EL.20* *RHD*DEL20*	c.1154-8T>A	i8	Splice site variant	PMID: 17465951	EF105447		
Del	*RHD*01EL.21* *RHD*DEL21*	c.148+5G>C	i1	Splice site variant		KC290446		
Del	*RHD*01EL.22* *RHD*DEL22*	c.336-2delA	i2	Splice site variant				
Del Partial D	*RHD*01EL.23* *RHD*DEL23*	RHD-CE(5-7)-D	5 6 7	Hybrid allele				DBU
Del	*RHD*01EL.24* *RHD*DEL24*	c.838G>A	6	p.Ala280Thr	PMID: 24884404	KJ558353		
Del	*RHD*01EL.25* *RHD*DEL25*	c.1252T>A	10	p.Ter418Lysext*?	PMID: 25953588	LC004699		
Del	*RHD*01EL.26* *RHD*DEL26*	c.1248_1249 insG	10	p.Phe417Valfs*?	PMID: 25179760	KJ145906		
Del	*RHD*01EL.28* *RHD*DEL28*	c.993delC	7	p.Phe332Serfs*27		LN680540		
Del	*RHD*01EL.29* *RHD*DEL29*	c.1210G>C	9	p.Asp404His		JX114749		
Del	*RHD*01EL.30* *RHD*DEL30*	c.1074-649 del Ex8	i7 8 i8	Large Deletion	PMID: 17465950		n.a.	
Del	*RHD*01EL.31* *RHD*DEL31*	c.148+1G>T	i1	Splice site variant	PMID: 25179760	KF861925		

Phenotype	Allele name	Nucleotide change	Exon Intron	Predicted amino acid change	(Reference No.) PMID	Accession number	rs number	Comment
Del	*RHD*01EL.32* *RHD*DEL32*	c.149-29G>C	i1	Intron polymorphism		HE971139	rs2301153	
Del	*RHD*01EL.33* *RHD*DEL33*	c.336-2A>G	i2	Splice site variant	PMID: 21569040	HQ444177	rs1187956199	
Del	*RHD*01EL.35* *RHD*DEL35*	c.802-38_35del	5	Intron polymorphism				
Del	*RHD*01EL.36* *RHD*DEL36*	c.1227G>A c.1073+152C>A	9 i7	Splice site variant	PMID: 12201845	AF390111	rs41307824 rs549616139	
Del	*RHD*01EL.37* *RHD*DEL37*	c.1154-31C>T	i8	Intron polymorphism				
Del	*RHD*01EL.38* *RHD*DEL38* *RHD*01N.57*	c.1010T>G	7	p.Leu337Arg	PMID: 25179760	KF861923		
Del	*RHD*01EL.39* *RHD*DEL39*	c.113T>A	1	p.Leu38Ter		FN998906		
Del	*RHD*01EL.40* *RHD*DEL40*	c.278T>G	2	p.Leu93Arg	PMID: 25179760	KF861931		
Del	*RHD*01EL.41* *RHD*DEL41*	c.872C>G	6	p.Pro291Arg		HE999545	rs778406196	
Del	*RHD*01EL.42* *RHD*DEL42*	c.335G>C c.149-29G>C	2 i1	p.Ser112Thr		HE999547	rs2301153	
Del	*RHD*01EL.43* *RHD*DEL43*	c.46T>C	1	p.Trp16Arg		HE999546	rs1234095130	
Del	*RHD*01EL.44* *RHD*DEL44*	RHD-CE(4-9)-D	4-9	Hybrid allele	PMID: 19490579			
Del	*RHD*01EL.45* *RHD*DEL45*	c.721A>C	5	p.Thr241Pro			rs1553143921	

Phenotype	Allele name	Nucleotide change	Exon Intron	Predicted amino acid change	(Reference No.) PMID	Accession number	rs number	Comment
Del	*RHD*01EL.46* *RHD*DEL46*	c.884T>C	6	p.Met295Thr			rs1553144518	
DEL Partial D	*RHD*01EL.47* *RHD*DEL47*	c.510_511insG	4	p.His171Alafs*28	PMID: 28714065	KR611039		also known as c.510dupG
DEL Partial D	*RHD*01EL.48* *RHD*DEL48* *RHD*Ex9del* *RHD*DKG*	Exon 9 deletion	9	p.Gly385Valfs*80	PMID: 29214630	KX793704		
Del	*RHD*01EL.49* *RHD*DEL49*	c.1016G>T	7	p.Gly339Val				
Del	*RHD*01EL.50* *RHD*DEL50*	c.1151C>G	8	p.Thr384Arg				

D negative								
D-	*RHD*01N.01*	*RHD deletion*	1-10	p.0	PMID: 1824267 PMID: 10845894			
D-	*RHD*08N.01* *RHD*Pseudo-gene* *RHD* Ψ*	37- bp insertion c.609G>A c.654G>C c.667T>G c.674C>T c.807T>G	i3 4 5 5 5 6	p.0	PMID: 10607679 PMID: 19351380 PMID: 29296782 PMID: 11495631 PMID: 22420413		n.a. rs114032679 rs141540728 rs1053356 rs148014996 rs141833592	
D-	*RHD*01N.02*	CE exons 1-9	1-9	Hybrid	PMID: 11495631 PMID: 7701812			
D-	*RHD*01N.03*	CE exons 2-9	2-9	Hybrid				Ce in trans

Phenotype	Allele name	Nucleotide change	Exon Intron	Predicted amino acid change	(Reference No.) PMID	Accession number	rs number	Comment
D-	*RHD*01N.04*	CE exons 3-9	3-9	Hybrid	PMID: 15819673	AJ633649		
D-	*RHD*01N.05*	CE exons 2-7	2-7	Hybrid	PMID: 11495631 PMID: 15819673 PMID: 23634715			
D− C+ very weak	*RHD*01N.06*	CE exons 4-7 with 733C>G 1006G>T	4-7	Hybrid with p.Leu245Val p.Gly336Cys	PMID: 19040491		void rs150073306 rs1160800848	(Part of r'^{S} Haplotype) type 2 hybrid
D− C+	*RHD*03N.01*	c.186G>T c.410C>T c.455A>C CE exons 4-7 with 733C>G 1006G>T	2 3 3 4-7	p.Leu62Phe p. Ala137Val p. Asn152Thr hybrid with p.Leu245Val p.Gly336Cys	PMID: 19351380 PMID: 29296782 PMID: 11495631 PMID: 22420413 PMID: 19040491 PMID: 7701812 PMID: 9024488 PMID: 9767746 PMID: 14505497	KF515558	rs199509194 rs113982491 rs17418085 void rs150073306 rs1160800848	(Part of r'^{S} haplotype)
	*RHD*03N.02*	c.186G>T c.410C>T c.455A>C CE exons 4-9 with 733C>G 1006G>T	2 3 3 4-9	p.Leu62Phe p. Ala137Val p. Asn152Thr hybrid with p.Leu245Val p.Gly336Cys				

Phenotype	Allele name	Nucleotide change	Exon Intron	Predicted amino acid change	(Reference No.) PMID	Accession number	rs number	Comment
D-G+	*RHD*01N.07*	CE exons 4-7	4-7	Hybrid	PMID: 19351380 PMID: 29296782 PMID: 11495631 PMID: 22420413 PMID: 19040491 PMID: 7701812 PMID: 9024488 PMID: 9767746 PMID: 14505497 PMID: 8669081 PMID: 15819673			in cis to cE (r''G) or Ce
D-	*RHD*01N.08*	c.48G>A	1	p.Trp16Ter	PMID: 11495631		rs772865539	premature stop codon
D-	*RHD*01N.09*	c.121C>T c.643T>C c.646T>C c.988T>C	1 5 5 7	p.Gln41Ter	PMID: 9116304			
D-	*RHD*01N.10*	c.270G>A	2	p.Trp90Ter	PMID: 12201845	AF390115		premature stop codon
D-	*RHD*01N.11*	c.325del A	2	p.Thr109Hisfs*10	PMID: 17348873	DQ309581		Frameshift and premature stop codon
D-	*RHD*01N.12*	c.449del T	3	p.Leu150Ter				Premature stop codon
D-	*RHD*01N.13*	c.487_490delACAG	4	p.Asp164Thrfs*3	PMID: 9716619	AF037626		Frameshift and premature stop codon
D-	*RHD*01N.14*	c.554G>A	4	p.Trp185Ter	PMID: 15752151		rs1199559517	premature stop codon
D-	*RHD*01N.15*	c.635G>T	5	p.Gly212Val	PMID: 11495631			splice site change
D-	*RHD*01N.16*	c.711del C	5	p.Val238Cysfs*8	PMID: 12201845	AF390112		frameshift and premature stop codon
D-	*RHD*01N.17*	c.652delA c.653T>G	5	p.Met218Glyfs*11		EF010986		Frameshift and premature stop codon

Phenotype	Allele name	Nucleotide change	Exon Intron	Predicted amino acid change	(Reference No.) PMID	Accession number	rs number	Comment
D-	*RHD*01N.18*	c.807T>G	6	p.Tyr269Ter	PMID: 19243542	AM998550	rs141833592	premature stop codon
D-	*RHD*01N.19*	c.933C>A	6	p.Tyr311Ter	PMID: 15663721	DQ132882		premature stop codon
D-	*RHD*01N.20*	c.941G>T	7	p.Gly314Val	PMID: 9218514		rs200762372	splice site change
D-	*RHD*01N.21*	c.990C>G	7	p.Tyr330Ter	PMID: 11495631			premature stop-codon
D-	*RHD*01N.22*	c.1203T>A	9	p.Tyr401Ter	PMID: 15819673	AJ630385	rs759513820	premature stop-codon
D-	*RHD*01N.23*	c.343del C	3	p.Leu115Trpfs*4	PMID: 19243542	AM998542	rs1364237973	Frameshift and premature stop codon
D-	*RHD*01N.24*	c.335+1G>A	i2	Alternative splicing	PMID: 17348873	DQ309582		splice site change
D-	*RHD*01N.25*	c.336-1G>A	i2	Alternative splicing	PMID: 15752151			splice site change
D-	*RHD*01N.26*	c.1153+1G>A	i8	Alternative splicing	PMID: 11495631		rs1292183494	splice site change
D-	*RHD*01N.27*	c.908_909insTGGCT c.939+2_939+5delTAAG	6 i6	p.Leu303Glyfs*3	PMID: 12201845	AF390113		Frameshift and premature stop codon & splice site change
D-	*RHD*01N.28*	c.970delCAC c.976delTCCATCATGGGCTACA	7 7	p.His324Serfs*29	PMID: 19392776	EF195359		Frameshift and premature stop codon
D-	*RHD*01N.29* *RHD*660delG* *RHD*01N.78* *RHD*659delG*	c.660delG	5	p.Trp220Cysfs*9	PMID: 19243542	AM998547		Frameshift and premature stop codon
D-	*RHD*01N.30*	c.745_757del13	5	p.Val249Serfs*35				Frameshift and premature stop codon

Phenotype	Allele name	Nucleotide change	Exon Intron	Predicted amino acid change	(Reference No.) PMID	Accession number	rs number	Comment
D-	*RHD*01N.31*	c.93delC	1	fs at 31			rs761850698	Frameshift (T at position c.93 in consensus sequence and no reference found, therefore obsolete)
D-	*RHD*01N.32*	c.78delC	1	p.Leu27Serfs*12	PMID: 20136792	GQ477180		Frameshift and premature stop codon
D-	*RHD*01N.33*	c.712delG	5	p.Val238Cysfs*8	PMID: 19243542	AM998548		Frameshift and premature stop codon
D-	*RHD*01N.34*	c.615_616delCA	4	p.Ser206Phefs*111	PMID: 22964318	GQ289585		Frameshift and premature stop codon
D-	*RHD*01N.35*	c.330_331delGT	2	p.Phe111Glnfs*48	PMID: 17465951	EF105440	rs758701720	Frameshift and premature stop codon
D-	*RHD*01N.36*	c.1080_1089delCTTCCAGGTC	8	p.Phe361Serfs*12		GU362076		Frameshift and premature stop codon
D-	*RHD*01N.37*	c.297_319delCCAGTTCCCTTCTGGGAAGGTGG	2	p.Gln100Hisfs*52		KC290447		Frameshift and premature stop codon
D-	*RHD*01N.38*	c.939+2T>A	i6	Alternative splicing		KC290445		splice site change
D-	*RHD*01N.39*	c.767C>G	5	p.Ser256Ter	PMID: 23634715	HE814563	rs780356470	premature stop-codon
D-	*RHD*01N.40*	c.1029C>A	7	p.Tyr343Ter	PMID: 23634715	HE814564		premature stop-codon
D-	*RHD*01N.41*	c.361delTTGTCGGTGCT	3	p.Leu121Aspfs*35	PMID: 22612274		rs751933696	Frameshift and premature stop codon
D-	*RHD*01N.42*	CE exons1, 7-10	1 7-10	Hybrid	PMID: 12201845	AF390114		

Phenotype	Allele name	Nucleotide change	Exon Intron	Predicted amino acid change	(Reference No.) PMID	Accession number	rs number	Comment
D-	*RHD*01N.43*	CE exons 1-3	1 2 3	Hybrid	PMID: 19243542			
D-	*RHD*01N.44*	c.1228-1_1248delgTTTCCTCATTTGGCTGTTGGA	i9	p.?		LN680543		splice site change
D-	*RHD*01N.45*	c.216_217dupCA c.1195G>A	2 9	p.Ser73Thrfs*27		JX193764	rs150059028	Frameshift and premature stop codon
D-	*RHD*01N.46*	c.545_548delCTGT	4	p.Ser182Trpfs*46	PMID: 22320258	HE613975		Frameshift and premature stop codon
D-	*RHD*01N.47*	c.745_759delinsAG	5	p.Val249Serfs*35		EU499361		Frameshift and premature stop codon (may be the same allele as *RHD*01N.30*)
D-	*RHD*01N.48*	c.822delG	6	p.Leu275Trpfs*13		HG779212		Frameshift and premature stop codon
D-	*RHD*01N.49*	c.915delC	6	p.Val306Serfs*53	PMID: 25179760	KF861933		Frameshift and premature stop codon
D-	*RHD*01N.50*	c.93dupT	1	p.Thr32Tyrfs*4				Frameshift and premature stop codon
D-	*RHD*01N.51*	c.950delA	7	p.Asn317Thrfs*42		JN644481		Frameshift and premature stop codon
D-	*RHD*01N.52*	c.922G>T	6	p.Gly308Ter				premature stop codon
D-	*RHD*01N.53*	c.1154G>A	9	p.Gly385Asp	PMID: 25179760	KJ145905		Splice site change
D-	*RHD*01N.54*	c.801+1G>A	i5	Alternative splicing		JQ846090	rs1399683971	Splice site variant

Phenotype	Allele name	Nucleotide change	Exon Intron	Predicted amino acid change	(Reference No.) PMID	Accession number	rs number	Comment
D-	*RHD*01N.55*	c.939+1G>A	i6	Alternative splicing	PMID: 25179760	KF861934		Splice site variant
D-	*RHD*01N.56*	c.1073+2T>C	i7	Alternative splicing		JQ862601		Splice site variant
D-Del	*RHD*01N.57*	c.1010T>G	7	p.Leu337Arg				Could be DEL per publication as no adsorption elution was performed
D-	*RHD*01N.58*	c.802-41_802-38delCTCT c.1157T>A	i5 9	p.Leu386Ter	PMID: 15819672		rs1399683971	premature stop codon
D-	*RHD*01N.59*	c.598C>T	4	p.Gln200Ter		HE572746		premature stop codon
D-	*RHD*01N.60*	c.1213C>T	9	p.Gln405Ter		LC004700		premature stop codon
D-	*RHD*01N.61*	c.952C>T	7	p.Arg318Ter	PMID: 19243542	AM998543	rs760262848	premature stop codon
D-	*RHD*01N.62*	c.761C>G	5	p.Ser254Ter	PMID: 25953588	LC004698	rs1264388315	premature stop codon
D-	*RHD*01N.63*	c.933C>G	6	p.Tyr311Ter				premature stop codon
D-	*RHD*01N.64*	c.1084C>T	8	p.Gln362Ter			rs1553147937	
D-	*RHD*01N.65*	c.124_125delAA	1	p.Lys42Glyfs*117				frameshift
D-	*RHD*01N.66*	c.1174delA	9	p.Ile392Tyrfs*25				frameshift
D-	*RHD*01N.67*	RHD exon 1 deletion (intron breakpoints unknown)	1	p.0				
D-	*RHD*01N.68*	c.335G>T	2	p.Ser112Ile	PMID: 23228153	JQ405075	rs765216289	splice site change
D-	*RHD*01N.69*	c.634+1G>T c.1136C>T	i4 8	Alternative splicing			rs751341830 rs61740966	splice site change

Phenotype	Allele name	Nucleotide change	Exon Intron	Predicted amino acid change	(Reference No.) PMID	Accession number	rs number	Comment
D-	*RHD*01N.70*	c.1073+1G>T	i7	Alternative splicing			rs1553145693	splice site change
D-	*RHD*01N.71*	c.1074-1G>A	i7	Alternative splicing			rs1556425114	splice site change
D-	*RHD*01N.72*	c.361T>A c.380T>C c.383A>G c.455A>C c.602C>G c.667T>G c.819G>A	3 3 3 3 4 5 6	p.Leu121Met p.Val127Ala p.Asp128Gly p.Asn152Thr p.Thr201Arg p.Phe223Leu silent			rs41267489 rs201703675 rs758618412 rs17418085 rs1053355 rs1053356 rs150606530	
D-	*RHD*01N.73*	c.443C>G	3	p.Thr148Arg	PMID: 23043317	HE861895	rs757700094	
D-	*RHD*01N.74*	c.424_426delATG	3	p.Met142del				In-frame deletion
D-	*RHD*01N.75*	c.581_582insG	4	p.Thr195Asnfs*4	PMID: 24819281	KU899995		Frameshift and premature stop codon
D-	*RHD*01N.76*	c.1179G>A	9	p.Trp393Ter	PMID: 25179760	KF861935		premature stop codon
D-	*RHD*01N.77*	c.1228-1G>A	i9	Alternative splicing	PMID: 25179760	KF861924		splice site change
D-	*RHD*01N.78*	c.659delG	5	p.Trp220Cysfs*9				Frameshift and premature stop codon
D-	*RHD*01N.79*	c.896T>C	6	p.Leu299Pro		HQ659021		
D-	*RHD*01N.80*	c.1007G>A	7	p.Gly336Asp		HQ659022	rs1391779105	
D-	*RHD*01N.81*	c.1074-2A>C	i7	Alternative splicing		HQ665313	rs1176954465	splice site change

Phenotype	Allele name	Nucleotide change	Exon Intron	Predicted amino acid change	(Reference No.) PMID	Accession number	rs number	Comment
D-	*RHD*01N.82*	c.697delG	5	p.Glu233Lysfs*13				Frameshift and premature stop codon
D-	*RHD*01N.83*	c.702delG	5	p.Lys235Argfs*11		KY229721		Frameshift and premature stop codon
D-	*RHD*01N.84*	c.150T>C c.186G>T c.410C>T c.455A>C c.543G>C c.609G>A c.654G>C c.667T>G c.674C>T c.807T>G	2 2 3 3 4 4 5 5 5 6	p.Ile60Leu p.Leu62Phe p.Ala137Val p.Asn152Thr Silent Silent p.Met218Ile p.Phe223Val p.Ser225Phe p.Tyr269Ter				
D-	*RHD*01N.85*	c.4A>T c.5G>C c.6_7insG	1 1 1					
D-	*RHD*01N.86*	c.806_807insA	6	p.Tyr269Ter	PMID: 35834428	OL472882		

References

PMID 1824267 Colin Y et. al. Blood. 1991 Nov 15;78(10):2747-52.

PMID 7518725 Avent ND et. al. Br J Haematol. 1997 May;97(2):366-71.

PMID 7701812 Blunt T et. al. Vox Sang. 1994;67(4):397-401.

PMID 7741145 Rouillac C et. al. Am J Hematol. 1995 May;49(1):87-8.

PMID 7742554 Rouillac C et. al. Blood. 1995 May 15;85(10):2937-44.

PMID 8111052 Mouro I et. al. Blood. 1994 Feb 15;83(4):1129-35.

PMID 8652401 Beckers EA et. al. Br J Haematol. 1996 Jun;93(3):720-7.

PMID 8669081 Faas BH et. al. Transfusion. 1996 Jun;36(6):506-11.

PMID 8669081 Faas BH et. al. Transfusion. 1996 Jun;36(6):506-11.

PMID 8669091 Beckers EA et. al. Transfusion. 1996 Jun;36(6):567-74.

PMID 8822955 Huang CH Blood. 1996 Sep 15;88(6):2326-33.

PMID 9018818 Avent ND et. al. Transfus Clin Biol. 1996;3(6):511-6.

PMID 9024488 Faas BH et.al. Transfusion. 1997 Jan;37(1):38-44. doi: 10.1046/j.1537-2995.1997.37197176949.x.

PMID 9057663 Avent ND et. al. Blood. 1997 Mar 1;89(5):1779-86.

PMID 9116304 Avent ND et. al. Blood. 1997 Apr 1;89(7):2568-77.

PMID 9163603 Avent ND et. al. Br J Haematol. 1997 May;97(2):366-71. doi: 10.1046/j.1365-2141.1997.632710.x.

PMID 9218514 Okuda H et. al. J Clin Invest. 1997 Jul 15;100(2):373-9.

PMID 9407643 Jones JW et. al. Vox Sang. 1997;73(4):252-6.

PMID 9490704 Wagner FF et. al. Blood. 1998 Mar 15;91(6):2157-68.

PMID 9716619 Andrews KT et. al. Blood. 1998 Sep 1;92(5):1839-40.

PMID 9767746 Daniels GL et. al. Transfusion. 1998 Oct;38(10):951-8. doi: 10.1046/j.1537-2995.1998.381098440860.x.

PMID 9864185 Wagner FF et. al. Blood. 1999 Jan 1;93(1):385-93.

PMID 9920819 Omi T et. al. Biochem Biophys Res Commun. 1999 Jan 27;254(3):786-94.

PMID 10590079 Hemker MB et. al. Blood. 1999 Dec 15;94(12):4337-42.

PMID 10604255 Huang CH et. al. Transfusion. 1999 Nov-Dec;39(11-12):1259-65.

PMID 10607679 Singleton BK et. al. Blood. 2000 Jan 1;95(1):12-8.

PMID 10753853 Wagner FF et. al. Blood. 2000 Apr 15;95(8):2699-708.

PMID 10765149 Hyodo H et. al. Vox Sang. 2000;78(2):122-5.

PMID 10845894 Wagner FF, Flegel WA, Blood. 2000 Jun 15;95(12):3662-8.

PMID 11054051 Hyodo H et. al. Vox Sang. 2000;79(2):116-7.

PMID 11161244 Muller TH et. al. Transfusion. 2001 Jan;41(1):45-52.

PMID 11493738 Wagner FF et. al. Transfusion. 2001 Aug;41(8):1052-8.

PMID 11495631 Wagner FF et. al. BMC Genet. 2001;2:10. Epub 2001 Jul 16.

PMID 11552071 Faas BH et. al. Transfusion. 2001 Sep;41(9):1136-42.

PMID 11724987 Kashiwase K et. al. Transfusion. 2001 Nov;41(11):1408-12.

PMID 11889898 Flegel WA et. al. Transfus Clin Biol. 2002 Jan;9(1):33-42.

PMID 11904002 Kamesaki T et. al. Vox Sang. 2001 Nov;81(4):254-8.

PMID 12070041 Wagner FF et. al. Blood. 2002 Jul 1;100(1):306-11.

PMID 12200394 Wagner FF et. al. Blood. 2002 Sep 15;100(6):2253-6.

PMID 12201845 Shao CP et. al. Vox Sang. 2002 Aug;83(2):156-61.

PMID 12393640 Noizat-Pirenne F et. al. Blood. 2002 Dec 1;100(12):4223-31. Epub 2002 Aug

PMID 12609022 Kamesaki T et. al. Vox Sang. 2003 Feb;84(2):141.

PMID 12675718 Perco P et. al. Transfusion. 2003 Mar;43(3):335-9.

PMID 12898187 Lin IL et. al. Ann Hematol. 2003 Oct;82(10):617-20.

PMID 14505497 Wagner FF et. al. BMC Genet. 2003 Sep 24;4:14.

PMID 15043574 Kormoczi GF et. al. Transfusion. 2004 Apr;44(4):575-80.

PMID 15318849 Ansart-Pirenne H et. al. Transfusion. 2004 Sep;44(9):1282-6.

PMID 15663721 Xu Q et. al. Vox Sang. 2005 Jan;88(1):35-40.

PMID 15752151 Kim JY et. al. Transfusion. 2005 Mar;45(3):345-52.

PMID 15819672 Wagner T et. al. Transfusion. 2005 Apr;45(4):520-6.

PMID 15819673 Gassner C et. al. Transfusion. 2005 Apr;45(4):527-38.

PMID 15987365 Chen Q & Flegel WA Transfusion. 2005 Jul;45(7):1183-91.

PMID 16181204 Denomme GA et. al. Transfusion. 2005 Oct;45(10):1554-60.

PMID 16181206 Doescher A et. al. Transfusion. 2005 Oct;45(10):1568-73.

PMID 16181207 Kormoczi GF et. al. Transfusion. 2005 Oct;45(10):1574-80.

PMID 16584437 Grootkerk-Tax MG et. al. Transfusion. 2006 Apr;46(4):606-15.

PMID 16584438 Esteban R et. al. Transfusion. 2006 Apr;46(4):616-23.

PMID 16934070 Yu X et. al. Transfusion. 2006 Aug;46(8):1343-51. doi: 10.1111/j.1537-2995.2006.00902.x.

PMID 17029192 Li Q et. al. Zhonghua Yi Xue Yi Chuan Xue Za Zhi. 2006 Oct;23(5):486-91.

PMID 17176325 Luettringhaus TA et. al. Transfusion. 2006 Dec;46(12):2128-37.

PMID 17176329 Flegel WA et. al. Transfusion. 2006 Dec;46(12):2156-61.

PMID 17348873 Ye LY et. al. Vox Sang. 2007 Apr;92(3):242-6.

PMID 17465950 Richard M et. al. Transfusion. 2007 May;47(5):852-7.

PMID 17465951 Le Marechal C et. al. Transfusion. 2007 May;47(5):858-63.

PMID 17655577 Polin H et. al. Transfusion. 2007 Aug;47(8):1350-5.

PMID 17655603 von Zabern I & Flegel WA Transfusion. 2007 Aug;47(8):1552-5.

PMID 17900276 Flegel WA et. al. Transfusion. 2008 Jan;48(1):25-33. Epub 2007 Sep 27.

PMID 18694461 Muller SP et. al. Transfusion. 2008 Nov;48(11):2292-301. Epub 2008 Aug 7.

PMID 19040491 Pham BN et. al. Transfusion. 2009 Mar;49(3):495-504.

PMID 19243542 Flegel WA et. al. Transfusion. 2009 Mar;49(3):465-71.

PMID 19309476 Flegel WA et. al. Transfusion. 2009 Jun;49(6):1059-69. Epub 2009 Feb 25.

PMID 19351380 Touinssi M et. al. Transfusion. 2009 Jul;49(7):1353-60. doi: 10.1111/j.1537-2995.2009.02161.x. Epub 2009 Apr 1.

PMID 19392776 Ye L et. al. Transfusion. 2009 Aug;49(8):1655-60.

PMID 19490579 Li Q et. al. Vox Sang. 2009 Aug;97(2):139-46. Epub 2009 Mar 30.

PMID 20088832 Westhoff CM et. al. Transfusion. 2010 Jun;50(6):1303-11. doi: 10.1111/j.1537-2995.2009.02573.x. Epub 2010 Jan 15.

PMID 20136792 Hua X et. al. Vox Sang. 2010 May;98(4):576.

PMID 20723165 Silvy M et. al. Transfusion. 2011 Feb;51(2):401-11.

PMID 21569040 Krog GR et. al. Transfusion. 2011 Nov;51(11):2278-85.

PMID 21745213 Lomas-Francis C et. al. Transfusion. 2012 Jan;52(1):39-42. doi:

PMID 21790636 Ye L et. al. Transfusion. 2012 Feb;52(2):241-6.

PMID 21950494 Fichou Y et. al. Transfusion. 2012 Apr;52(4):759-64.

PMID 22320258 Silvy M et. al. Transfusion. 2012 Feb 10.

PMID 22420413 Moussa H et. al. Transfus Med. 2012 Jun;22(3):192-8. doi: 10.1111/j.1365-3148.2012.01142.x. Epub 2012 Mar 16.

PMID 22612274 Chen JM et. al. Transfusion. 2012 May 21.

PMID 22964318 Chen Q et. al. Chin Med J (Engl). 2012 Sep;125(18):3251-5.

PMID 23043317 Haer-Wigman L et. al. Transfusion. 2013 Jul;53(7):1559-74. doi: 10.1111/j.1537-2995.2012.03919.x. Epub

PMID 23216299 Ye L et. al. Transfusion. 2013 Aug;53(8):1829-33. doi: 10.1111/trf.12002. Epub 2012 Dec 7.

PMID 23228153 Fichou Y et. al. Transfusion. 2013 Aug;53(8):1821-8. doi: 10.1111/trf.12009. Epub 2012 Dec 11.

PMID 23461862 von Zabern I et. al. Transfusion. 2013 Nov;53(11 Suppl 2):2960-73. doi: 10.1111

PMID 23550956 Gassner C et. al. Novel RHD alleles with weak hemagglutination and genetic Exon 9 diversity: weak D Types 45.1, 75, and 76

PMID 23634715 Orzinska A et. al. Transfusion. 2013 Nov;53(11 Suppl 2):2945-53. doi: 10.1111

PMID 23867180 Kappler-Gratias S et. al. Blood Transfus. 2014 Jan;12 Suppl 1(Suppl 1):s264-72. doi: 10.2450/2013.0270-12. Epub 2013 Jun 17.

PMID 24094237 Pham BN et. al. Immunohematology. 2013;29(2):55-62.

PMID 24579654 Arnoni CP et. al. Transfusion. 2014 Apr;54(4):962-9. doi: 10.1111/trf.12557. Epub 2014 Feb 28.

PMID 24819281 Trucco Boggione C et. al. Transfusion. 2014 Oct;54(10):2456-62. doi: 10.1111/trf.12691. Epub 2014 May 12.

PMID 24884404 Gu J et. al. BMC Med Genet. 2014 May 5;15:54

PMID 25070883 He J et. al. Transfusion. 2015 Jan;55(1):137-43. doi: 10.1111/trf.12797. Epub 2014 Jul 29.

PMID 25179760 Garcia F et. al. Transfusion. 2015 Feb;55(2):427-9.

PMID 25646655 Flesch BK et. al. Transfusion. 2015 Feb 3. doi: 10.1111/trf.13004.

PMID 25953588 Ogasawara K et. al. Vox Sang. 2015 Nov;109(4):359-65. doi: 10.1111/vox.12290. Epub 2015 May 7.

PMID 26340140 Ogasawara K et. al. Vox Sang. 2015 Sep 4. doi: 10.1111/vox.12322.

PMID 27183894 Isa K et. al. Vox Sang. 2016 Oct;111(3):315-319. doi: 10.1111/vox.12413. Epub 2016 May 17.

PMID 27189905 Filosa L et. al. Transfusion. 2016 May 18. doi: 10.1111/trf.13655.

PMID 27480171 Srivastava K et. al. Transfusion. 2016 Aug 2. doi: 10.1111

PMID 29296782 Chou ST et. al. Blood Adv. 2017 Aug 3;1(18):1414-1422. doi: 10.1182/bloodadvances.2017007898. eCollection 2017 Aug 8.

PMID 29479713 Fichou Y et. al. Transfusion. 2018 Jun;58(6):1540-1549. doi: 10.1111/trf.14552. Epub 2018 Feb 25.

PMID 33057632 Tammi SM, Tounsi WA, Sainio S, Kiernan M, Avent ND, Madgett TE, Haimila K. Blood Adv. 2020 Oct 27;4(20):4994-5001. doi: 10.1182/bloodadvances.2020001569. Next-generation sequencing of 35 RHD variants in 16 253 serologically D- pregnant women in the Finnish population.

PMID 35834428 Pardi C, Hellberg Å, Kapadzha M, Olsson ML, Isakson P. Transfusion. 2022 Aug;62(8):E37-E39. doi: 10.1111/trf.17009. Epub 2022 Jul 14.Novel RHD variant causing RhD negative phenotype identified in a pregnant woman.

Abstract (1) Singleton BK et. al. Transfus Clin Biol. 2001; 8 (suppl 1): 9S

Abstract (2) Smith et al Transfusion 2021_Weak D type 1.3

Track of changes

			from	to
1	**Version**		**v6.3 31-MAR-2023**	**v6.4 31-JUL-2023**
2	Author	created	Q. Chen	Q. Chen, July 2023
3	Reviewer	reviewed	F. Wagner	F. Wagner, July 2023
4	Allele	rsnr changed	*RHD*01W.25,* rs770829982	*RHD*01W.25,* rs530929152
5	Allele	Allele added		*RHD*01W.164* *RHD*01W.165*
6	Intro	changed		changed number of antigens in'General Description'
7	Allele	changed		added accession number to allele *RHD*01*
8	Allele	changed		added comment to allele *RHD*03.06*
9	Allele	changed		added rsnumber rs150606530 and silent mutation to allele *RHD*03.07*
10	Allele	changed		added comment to allele *RHD*03.08*
11	Allele	changed		added comment to allele *RHD*04.05*
12	Allele	changed		changed rsnumber of allele *RHD*01W.25* to rs530929152
13	Allele	changed		added PMID and accession number of allele *RHD* 01W.146*
14	Allele	changed		added PMID and accession number of allele *RHD* 01W.147*
16	Allele	changed		added PMID and accession number of allele *RHD* 01W.148*
17	Allele	changed		added PMID and accession number of allele *RHD* 01W.150*
18	Allele	changed		added PMID and accession number of allele *RHD* 01W.151*
19	Allele	changed		added PMID and accession number of allele *RHD* 01W.152*
20	Allele	changed		added PMID and accession number of allele *RHD* 01W.153*
21	Allele	changed		added PMID and accession number of allele *RHD* 01W.154*
22	Allele	changed		added PMID and accession number of allele *RHD* 01W.155*
23	Allele	changed		added PMID and accession number of allele *RHD*01N.42*
24	Allele	changed		added PMID and accession number of allele *RHD*01N.68*
25	Allele	changed		changed 'predicted amino acid change' of allele *RHD*01N.86* to p.Tyr269Ter
26	**End Version**		**v6.3 31-MAR-2023**	**v6.4 31-JUL-2023**

Track of changes

			from	to
1	**Version**		**v6.2 30-SEP-2022**	**v6.3 31-MAR-2023**
2	Author	created	Q. Chen	Q. Chen
3	Reviewer	reviewed	F. Wagner	F. Wagner
4	General	Rowheight changed	*RHD*01EL.16*	*RHD*01EL.16* data visibility improved
5	**End Version**		**v6.2 30-SEP-2022**	**v6.3 31-MAR-2023**

Track of changes

			from	to
1	**Version**		**v6.1 31-MAR-2022**	**v6.2 30-SEP-2022**
2	Author	created	Q. Chen	Q. Chen
3	Reviewer	reviewed	n.a.	F. Wagner
4	Allele	Allele added		*RHD*01W.162* *RHD*01W.163* *RHD*01N.86*
5	Allele	Exon changed		c.505, c.509, c.514 corrected to exon 4
6	Reference	added		PMID: 35834428 added
7	Reference	added		PMID: 33057632 added
8	Intro	changed		NM_001127691.3 (transcript variant 2) to NM_016124.6 (transcript variant 1)
9	**End Version**		**v6.1 31-MAR-2022**	**v6.2 30-SEP-2022**

Track of changes

			from	to
1	**Version**		**v6.0 30-NOV-2021**	**v6.1 31-MAR-2022**
2	Author	created	All RHD tables merged	Q. Chen
3	Reviewer	reviewed	Q. Chen	n.a.
4	References	Abstract added		Abstract (2) added
5	Allele	Abstract added		*RHD*01W.1.3* *RHD** weak D type 1.3: Abstract (2) added
6	**End Version**		**v6.0 30-NOV-2021**	**v6.1 31-MAR-2022**

	Track of changes		from	to
1	**Version**		**4.0/5.0 180207**	**v6.0 30-NOV-2021**
2	Author	created	Q. Chen	All RHD tables merged
3	Reviewer	reviewed	n.a.	Q. Chen
4				Use phenotypes from ISBT.org only
5	General	All RHD tables merged		Merged tables 'partial RHD', 'RHD weak D', 'RHD Del', 'RHD negative'
6	Format	updated		Updated to newest project-2-format
7			*RHD*03.02*	Inserted 'silent'
8			*RHD*03.09*	exon numbering corrected
9			*RHD*04.01.02*	exon numbering corrected
10			*RHD*04.03*	used short form for mutations
11			*RHD*04.03*	exon numbering corrected
12			*RHD*04.03*	used short form for nucleotide changes
13			*RHD*04.03*	added 'silent' instead of empty line
14			*RHD*04.04*	used short form for mutations
15			*RHD*04.04*	used short form for nucleotide changes
16			*RHD*04.05*	used short form for mutations
17			*RHD*04.05*	exon numbering corrected
18			*RHD*04.05*	used short form for nucleotide changes
19			*RHD*04.05*	Inserted 'silent'
20			*RHD*04.06*	used short form for mutations
21			*RHD*04.06*	exon numbering corrected
22			*RHD*04.06*	used short form for nucleotide changes
23			*RHD*04.06*	Inserted 'silent'
24			*RHD*05.02*	added 'silent' instead of empty line
25			*RHD*05.07*	removed nucleotide (p.Gly263Arg) from wrong place
26			*RHD*05.08*	added 'silent' instead of empty line
27			*RHD*05.10*	added 'silent' instead of empty line
28			*RHD*09.01*	added 'silent' instead of empty lines
29			*RHD*09.01.01*	added 'silent' instead of empty line
30			*RHD*10.00.01*	added 'silent' instead of empty line
31			*RHD*10.00.02*	added 'silent' instead of empty line
32			*RHD*10.00.02*	corrected p.Thr370Met to p.Thr379Met
33			*RHD*11*	merged 2 lines: added PMIDs: PMID: 9864185 PMID: 11495631
34			*RHD*14.01*	used short form for mutations
35			*RHD*14.01*	used short form for nucleotide changes
36			*RHD*14.02*	used short form for mutations
37			*RHD*14.02*	used short form for nucleotide changes
38			*RHD*17.03*	unsure genetic codes
39			*RHD*41*	added 'silent' instead of empty lines
40			*RHD*48*	corrected p.Asn162Ser to p.Asn331Ile
41			*RHD*58*	used short form for mutations
42			*RHD*58*	used short form for nucleotide changes
43			*RHD*58*	added 'silent' instead of empty line
44			*RHD*03.01*	Replaced rs-numbers

Track of changes		from	to
1	**Version**	**4.0/5.0 180207**	**v6.0 30-NOV-2021**
45		*RHD*03.06*	Replaced rs-numbers
46		*RHD*03.07*	Replaced rs-numbers
47		*RHD*03.09*	Replaced rs-numbers
48		*RHD*04.01.02*	Replaced rs-numbers
49		*RHD*04.03*	Inserted 'silent'
50		*RHD*04.04*	Inserted 'silent'
51		*RHD*04.05*	Inserted 'silent'
52		*RHD*05.01*	Replaced rs-numbers
53		*RHD*05.02*	Replaced rs-numbers
54		*RHD*05.02*	Inserted 'silent'
55		*RHD*05.03*	Replaced rs-numbers
56		*RHD*05.06*	Replaced rs-numbers
57		*RHD*05.07*	Replaced rs-numbers
58		*RHD*05.07*	Inserted 'silent'
59		*RHD*05.07*	Replaced rs-numbers
60		*RHD*05.08*	Replaced rs-numbers
61		*RHD*05.10*	Replaced rs-numbers
62		*RHD*05.10*	Inserted 'silent'
63		*RHD*06.01*	Replaced rs-numbers
64		*RHD*06.01*	Inserted 'silent'
65		*RHD*06.02*	Replaced rs-numbers
66		*RHD*06.02*	Inserted 'silent'
67		*RHD*06.03*	Inserted 'silent'
68		*RHD*06.03.01*	added allele name to *RHD*06.03*
69		*RHD*06.03.02*	Replaced rs-numbers
70		*RHD*06.04*	Replaced rs-numbers
71		*RHD*06.04*	Inserted 'silent'
72		*RHD*08.01*	Replaced rs-numbers
73		*RHD*09.01*	Replaced rs-numbers
74		*RHD*09.01*	Inserted 'silent'
75		*RHD*09.01.00*	Replaced rs-numbers
76		*RHD*09.01.01*	Replaced rs-numbers
77		*RHD*09.01.01*	Inserted 'silent'
78		*RHD*09.01.02*	Replaced rs-numbers
79		*RHD*09.01.02*	Inserted 'silent'
80		*RHD*09.01.03*	Inserted 'silent'
81		*RHD*09.02*	Replaced rs-numbers
82		*RHD*09.02*	Inserted 'silent'
83		*RHD*09.02.01*	Replaced rs-numbers
84		*RHD*09.02.01*	Inserted 'silent'
85		*RHD*09.03*	Replaced rs-numbers
86		*RHD*09.03.01*	Replaced rs-numbers
87		*RHD*09.03.01*	Inserted 'silent'
88		*RHD*09.04*	Replaced rs-numbers
89		*RHD*09.04*	Inserted 'silent'
90		*RHD*09.05*	Replaced rs-numbers
91		*RHD*09.05*	Inserted 'silent'
92		*RHD*09.06*	Replaced rs-numbers

Track of changes	from	to
1 Version	**4.0/5.0 180207**	**v6.0 30-NOV-2021**
93	*RHD*09.06*	corrected nucleotide change
94	*RHD*09.06*	Added 'silent'
95	*RHD*10.05*	Replaced rs-numbers
96	*RHD*010.00.01*	Inserted 'silent'
97	*RHD*010.00.02*	Inserted 'silent'
98	*RHD*010.05.01*	Replaced rs-numbers
99	*RHD*010.05.01*	Inserted 'silent'
100	*RHD*10.08*	Inserted 'silent'
101	*RHD*10.10*	Inserted 'silent'
102	*RHD*12.01*	Replaced rs-numbers
103	*RHD*12.02*	Replaced rs-numbers
104	*RHD*12.03*	Replaced rs-numbers
105	*RHD*12.04*	Replaced rs-numbers
106	*RHD*13.01*	Replaced rs-numbers
107	*RHD*13.01*	Inserted 'silent'
108	*RHD*13.02*	Replaced rs-numbers
109	*RHD*16.03*	Identififed to be same as *RHD*13.02*
110	*RHD*14.01*	Replaced rs-numbers
111	*RHD*14.01*	Inserted 'silent'
112	*RHD*14.02*	Replaced rs-numbers
113	*RHD*14.02*	Inserted 'silent'
114	*RHD*16.01*	Replaced rs-numbers
115	*RHD*16.03*	Fixed typo from 16.02 to 16.03
116	*RHD*30*	Replaced rs-numbers
117	*RHD*27*	changed exon number
118	*RHD*28*	changed exon number
119	*RHD*40*	Replaced rs-numbers
120	*RHD*41*	Replaced rs-numbers
121	*RHD*45*	Inserted 'silent'
122	*RHD*41*	Inserted 'silent'
123	*RHD*46*	Replaced rs-numbers
124	*RHD*46*	Inserted 'silent'
125	*RHD*49*	Inserted 'silent'
126	*RHD*53*	Inserted 'splicing site'
127	*RHD*58*	Inserted 'silent'
128	*RHD*01W.29*	Replaced rs-numbers
129	*RHD*01W.29*	Inserted 'silent'
130	*RHD*01W.68*	Inserted 'silent'
131	*RHD*01EL44*	Replaced rs-numbers
132	*RHD*01EL44*	removed doubled rs-entries
133	*RHD*03N.01*	removed doubled rs-entries
134	*RHD*03N.01*	Replaced rs-numbers
135	*RHD*01N.02*	removed doubled rs-entries
136	*RHD*01N.03*	removed doubled rs-entries
137	*RHD*01N.03*	Replaced rs-numbers
138	*RHD*01N.04*	removed doubled rs-entries
139	*RHD*01N.06*	removed doubled rs-entries
140	*RHD*01N.07*	removed doubled rs-entries

Track of changes		from	to
1	**Version**	**4.0/5.0 180207**	**v6.0 30-NOV-2021**
141		*RHD*08N.01*	Replaced rs-numbers
142		*RHD* 01W.157*	Added exon number
143		*RHD* 01W.158*	Added exon number
144		*RHD* 01W.159*	Added exon number
145		*RHD*21*	Added exon number
146		*RHD*03N.01*	Removed from partial RHD. Exclusively present in RHD negative.
147		PMID: 29296782	Updated reference info
148		PMID: 7742554	Updated reference info
149		PMID: 9163603	Updated reference info
150		PMID: 11889898	Updated reference info
151		PMID: 16934070	Updated reference info
152		PMID: 19351380	Updated reference info
153		PMID: 20088832	Updated reference info
154		PMID: 21745213	Updated reference info
155		PMID: 23461862	Updated reference info
156		PMID: 23867180	Updated reference info
157		PMID: 24579654	Updated reference info
158		PMID: 29479713	Updated reference info
159		PMID: 10607679	Updated reference info
160		PMID: 10845894	Updated reference info
161		PMID: 11495631	Updated reference info
162		PMID: 19351380	Updated reference info
163		PMID: 22420413	Updated reference info
164		PMID: 23634715	Updated reference info
165		PMID: 29296782	Updated reference info
166		PMID: 9024488	Updated reference info
167		PMID: 9767746	Updated reference info
168		*RHD*01W.1.3*	inserted (info Q. Chen)
169	**End Version**	**4.0/5.0 180207**	**v6.0 30-NOV-2021**