Dombrock Blood Group System

Number of antigens 8

Polymorphic	Do[a], Do[b]
High prevalence	Gy[a], Hy, Jo[a], DOYA, DOMR, DOLG

Terminology

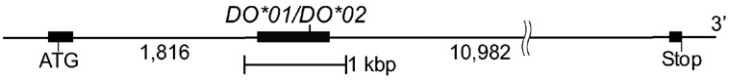
ISBT symbol (number)	DO (014)
CD number	CD297
History	Named after the producer of the first anti-Do[a]; identified in 1965.

Expression

Other blood cells	Lymphocytes
Tissues	Primarily in adult bone marrow and fetal liver; also in spleen, lymph nodes, intestine, ovary, testes, and fetal heart

Gene[1–3]

Chromosome	12p12.3
Name	*DO* (*ART4*)
Organization	3 exons distributed over 14 kbp of gDNA
Product	Do glycoprotein



Database accession numbers

GenBank	NM_021071; AF290204 (mRNA)
Entrez Gene ID	420

The Blood Group Antigen (3/e). DOI: http://dx.doi.org/10.1016/B978-0-12-415849-8.00016-8

Molecular bases of Dombrock phenotypes

Reference allele *DO*01* or *DO*A* (Accession number AF290204) encodes Do[a] (DO1), DO3, DO4, DO5, DO6, DO7, DO8. Nucleotide differences from reference allele, and amino acids affected, are given.

Allele encodes	Allele name	Exon	Nucleotide	Restriction enzyme	Amino acid	Ethnicity (prevalence)
Do(b+) or DO:2	*DO*02* or *DO*B*	2	793A>G	*BseR*I+	Asn265Asp	Caucasians, Blacks, Asians, Thais (Common)
Hy– or DO:–4	*DO*02.–04.01* or *DO*HY1*	2 2 3	323G>T 793A>G 898C>G	*Bsa*JI – *BseR*I+ *BsmA*I+	Gly108Val Asn265Asp Leu300Val	Blacks (Several)
Hy– or DO:–4	*DO*02.–04.02* or *DO*HY2*	2 2	323G>T 793A>G	*Bsa*JI – *BseR*I+	Gly108Val Asn265Asp	Blacks (Several)
Jo(a–) or DO:–5	*DO*01.–05* or *DO*JO1*	2 2	350C>T	*Xcm*I –	Thr117Ile	Blacks (Several)
Jo(a–) or DO:– 5	*DO*02.–05* or *DO*JO2*	2 2	350C>T 793A>G	*Xcm*I – *BseR*I+	Thr117Ile Asn265Asp	Malis (Few)
DOYA– or DO:–6	*DO*01.–06*	2	547T>G	*Btg*ZI+	Tyr183Asp[4]	Turkish Kurds (Rare)
DOMR– or DO:–7	*DO*02.–07*^	2 2 2 3	431C>A 432C>A 793A>G 898C>G	*Ags*I+ *Bst*NI – *BseR*I+ *BsmA*I+	Ala144Glu Asn265Asp Leu300Val[5]	Brazilian Blacks (Rare)
DOLG– or DO:–8	*DO*01.–08*	2	674T>A		Leu225Gln[6]	Sri Lankan (Rare)

^The background for this allele is actually *DO*B-WL* (378T, 624C, 793G), but as 378 and 624 are silent changes, they are not listed.

Molecular bases of silencing *DO*

Homozygosity or compound heterozygosity leads to Do_{null} [Gy(a–)] phenotype.

Nucleotide differences from *DO*01* reference allele (Accession number AF290204), and amino acids affected, are given.

Allele name	Exon	Nucleotide	Amino acid	Ethnicity (prevalence)
*DO*01N.01*^	2	442C>T^	Gln148Stop	(Rare)
*DO*01N.02*	2	343–350del	114 fs; premature Stop	(Rare)
*DO*02N.01*	2	IVS1 –2 a>g; 793A>G	Exon 2 skip Asn265Asp	(Rare)
*DO*02N.02*	2	IVS1+2 t>c; 793A>G	Exon 2 skip Asn265Asp	(Rare)
*DO*02N.03*	2	185T>C 793A>G	Phe62Ser[7] Asn265Asp	(Rare)

^ = The background for this allele is *DO*A-HA* (378T, 624T, 793A), but as nucleotides 378 and 624 are silent changes, they are not listed.

DO*A alleles, including those that do not express novel Do antigens

Allele name	nt (aa)	nt (aa)	nt^	nt^	nt (aa)	nt (aa)	nt (aa)
	323 (108)	**350 (117)**	**378**	**624**	**793 (265)**	**898 (300)**	**Other**
*DO*A*	G (Gly)	C (Thr)	C	T	A (Asn)	C (Leu)	
*DO*JO1*	G (Gly)	T (Ile)	T	T	A (Asn)	C (Leu)	
*DO*DOYA*	G (Gly)	C (Thr)	C	T	A (Asn)	C (Leu)	547T>G Tyr183Asp
*DO*DOLG*	G (Gly)	C (Thr)	C	T	A (Asn)	C (Leu)	674T>A Leu225Gln
*DO*A-HA*	G (Gly)	C (Thr)	T	T	A (Asn)	C (Leu)	
*DO*A-SH*	G (Gly)	C (Thr)	C	C	A (Asn)	C (Leu)	
*DO*A-WL*	G (Gly)	C (Thr)	C	T	A (Asn)	G (Val)	

nt = nucleotide; aa = amino acid.
^ = As nts 378 and 624 are silent changes, the amino acids are not listed.

DO*B alleles, including those that do not express novel Do antigens

Allele name	nt (aa)	nt (aa)	nt^	nt^	nt (aa)	nt (aa)	nt (aa)
	323 (108)	350 (117)	378	624	793 (265)	898 (300)	Other
*DO*B*	G (Gly)	C (Thr)	T	C	G (Asp)	C (Leu)	
*DO*HY1*	T (Val)	C (Thr)	C	C	G (Asp)	G (Val)	
*DO*HY2*	T (Val)	C (Thr)	C	C	G (Asp)	C (Leu)	
*DO*JO2*	G (Gly)	T (Ile)	T	C	G (Asp)		
*DO*DOMR*	G (Gly)	C (Thr)	T	C	G (Asp)	G (Val)	431C>A & 432C>A Ala144Glu
*DO*B-SH*	G (Gly)	C (Thr)	C	C	G (Asp)	C (Leu)	
*DO*B-SH-Q149K*	G (Gly)	C (Thr)	C	C	G (Asp)	C (Leu)	445C>A Gln149Lys
*DO*B-WL*	G (Gly)	C (Thr)	T	C	G (Asp)	G (Val)	
*DO*B-I175N*	G (Gly)	C (Thr)	T	C	G (Asp)	C (Leu)	524T>A; Ile175Asn

nt = nucleotide; aa = amino acid.
^ = As nts 378 and 624 are silent changes, the amino acids are not listed.

Amino acid sequence[1]

Signal peptide: Amino acids 1 to 44 or, more likely, 22 to 44 if initiation occurs at the second AUG[8].

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MGPLINRCKK  ILLPTTVPPA  TMRIWLLGGL  LPFLLLLSGL  QRPTEGSEVA   50
IKIDFDFAPG  SFDDQYQGCS  KQVVEKLTQG  DYFTKDIEAQ  KNYFRMWQKA  100
HLAWLNQGKV  LPQNMTTTHA  VAILFYTLNS  NVHSDFTRAM  ASVARTPQQY  150
ERSFHFKYLH  YYLTSAIQLL  RKDSIMENGT  LCYEVHYRTK  DVHFNAYTGA  200
TIRFGQFLST  SLLKEEAQEF  GNQTLFTIFT  CLGAPVQYFS  LKKEVLIPPY  250
ELFKVINMSY  HPRGNWLQLR  STGNLSTYNC  QLLKASSKKC  IPDPIAIASL  300
SFLTSVIIFS  KSRV                                           314
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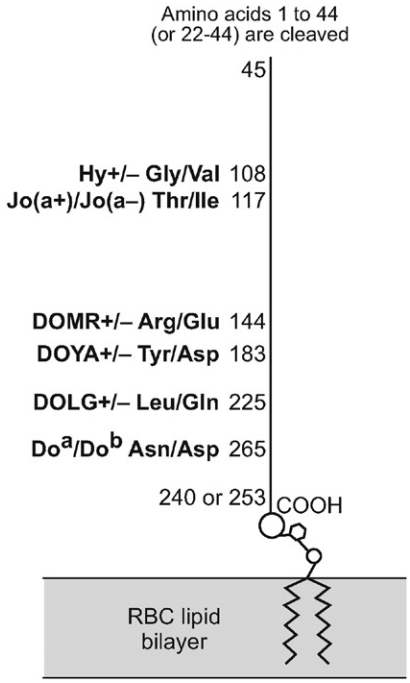
GPI-anchor motif: Amino acids 298 to 314 or, more likely 285 to 314[8].

Carrier molecule

GPI-linked glycoprotein.



M_r (SDS-PAGE)	47,000–58,000
CHO: N-glycan	5 potential sites
Cysteine residues	4 or 5 in membrane-bound protein

Function

Its function in RBCs is not known. Dombrock is ADP-ribosyltransferase (ART) 4[1–3,9].

Disease association

Dombrock glycoprotein is absent from PNH III RBCs.

Phenotypes (% occurrence)

RBC phenotype	Do^a	Do^b	Gy^a	Hy	Jo^a	DOYA	DOMR	DOLG	Whites	Blacks	Japanese	Thai
Do(a+b–)	+	0	+	+	+	+	+	+	18	11	1.5	0.5
Do(a+b+)	+	+	+	+	+	+	+	+	49	44	22	13
Do(a–b+)	0	+	+	+	+	+	+	+	33	45	76.5	86.5
Hy–	0	+^{W}	+^{W}	0	0/+^{W}	+^{W}	0/+^{W}	+^{W}	None	Rare	None	None
Do(a+b+) Jo(a–)^^	+^{W}	+^{W}	+	+^{W}	0	NT	NT	NT	None	Rare	None	None
Do(a+b–) Jo(a–)	+^{W}	0	+	+^{W}	0	+^{W}	+^{W}	+	None	Rare	None	None
Do(a–b+^{W}) Jo(a–)	0	+^{W}	+	+^{W}	0	NT	NT	NT	None	Rare	None	None
Gy(a–)	0	0	0	0	0	0	0	0	Rare	Rare	None	None
DOYA–	0	0	+^{W}	+^{W}	+^{W}	0	+^{W}	+	Rare	None	None	None
DOMR–	0	+^{W}	+^{W}	+^{W}	+^{W}	+^{W}	0	NT	None	Rare	None	None
DOLG–	+	0	+^	+	+	NT	NT	0	None	None	None	None[#]
Null:	Gregory negative [Gy(a–)]											

NT = Not tested.
^ = Expression of Gy^a marginally reduced.
^^Associated with the compound heterozygote *DO*HY/DO*JO*.
[#]The only reported proband was from Sri Lanka.

References

[1] Gubin, A.N., et al., 2000. Identification of the Dombrock blood group glycoprotein as a polymorphic member of the ADP-ribosyltransferase gene family. Blood 96, 2621–2627.

[2] Koch-Nolte, F., 1999. Erratum (to Koch-Nolte et al., Genomics, 39;370-376, 1997). Genomics 55, 130.

[3] Koch-Nolte, F., et al., 1997. Two novel human members of an emerging mammalian gene family related to mono-ADP-ribosylating bacterial toxins. Genomics 39, 370–376.

[4] Mayer, B., et al., 2010. New antigen in the Dombrock blood group system, DOYA, ablates expression of Do^a and weakens expression of Hy, Jo^a and Gy^a antigens. Transfusion 50, 1295–1302.

[5] Costa, F., et al., 2010. Absence of DOMR, a new antigen in the Dombrock blood group system that weakens expression of Do^b, Gy^a, Hy, Jo^a, and DOYA antigens. Transfusion 50, 2026–2031.

[6] Karamatic Crew, V., et al., 2011. DOLG, a novel high incidence antigen in the Dombrock blood group system [abstract]. Vox Sang 101 (Suppl 1), 263.

[7] Westhoff, C., et al., 2007. A *DOB* allele encoding an amino acid substitution (Phe62Ser) resulting in a Dombrock null phenotype. Transfusion 47, 1356–1362.

[8] Reid, M.E., 2003. The Dombrock blood group system: a review. Transfusion 43, 107–114.

[9] Grahnert, A., et al., 2002. Mono-ADP-ribosyltransferases in human monocytes: regulation by lipopolysaccharide. Biochem J 362, 717–723.

Do^a Antigen

Terminology

ISBT symbol (number)	DO1 (014001 or 14.1)
Obsolete name	Dombrock
History	Named after the proband who made anti-Do^a; reported in 1965.

Occurrence

Caucasians	67%
Blacks	55%
Japanese	24%
Thais	14%

Antithetical antigen

Do^b (**DO2**)

Expression

Cord RBCs	Expressed
Altered	Absent from PNH III RBCs; absent from Hy– and DOYA– RBCs, and weak on Jo(a–) RBCs

Molecular basis associated with Do^a antigen[1]

Amino acid	Asn265
Nucleotide	A at bp 793 and C at bp 378 (silent 126Tyr); T at bp 624 (silent 208Leu); all in exon 2

Effect of enzymes and chemicals on Do^a antigen on intact RBCs

Ficin/Papain	Resistant (enhanced)
Trypsin	Sensitive
α-Chymotrypsin	Weakened
Pronase	Sensitive (weakened)
DTT 200 mM/50 mM	Sensitive/resistant (thus sensitive to WARM™ and ZZAP)
Acid	Variable

In vitro characteristics of alloanti-Do^a

Immunoglobulin class	IgG
Optimal technique	IAT; PEG; enzyme IAT

Clinical significance of alloanti-Do^a

Transfusion reaction	Delayed and acute/hemolytic
HDFN	Positive DAT but no clinical HDFN

Comments

Anti-Do^a is notorious for disappearing *in vivo*.
Do^a is a poor immunogen and anti-Do^a is rarely found as a single specificity. Due to the scarcity of monospecific anti-Do^a, DNA analysis may be used to predict the antigen status.

Reference

[1] Gubin, A.N., et al., 2000. Identification of the Dombrock blood group glycoprotein as a polymorphic member of the ADP-ribosyltransferase gene family. Blood 96, 2621–2627.

Do^b Antigen

Terminology

ISBT symbol (number)	DO2 (014002 or 14.2)
History	Named when it was recognized to be antithetical to Do^a; reported in 1973.

Occurrence

Caucasians	82%
Blacks	89%

Antithetical antigen

Do^{a} (**DO1**)

Expression

Cord RBCs	Expressed
Altered	Absent from PNH III RBCs. Weak on Hy– and DOMR–, and absent or weak on Jo(a–) RBCs.

Molecular basis associated with Do^{b} antigen[1]

Amino acid	Asp265
Nucleotide	G at bp 793 and T at bp 378 (silent 126Tyr); C at bp 624 (silent 208Leu); all in exon 2

Effect of enzymes and chemicals on Do^{b} antigen on intact RBCs

Ficin/Papain	Resistant (enhanced)
Trypsin	Sensitive
α-Chymotrypsin	Weakened
Pronase	Sensitive (weakened)
DTT 200 mM/50 mM	Sensitive/resistant (thus sensitive to WARM™ and ZZAP)
Acid	Variable

In vitro characteristics of alloanti-Do^{b}

Immunoglobulin class	IgG
Optimal technique	IAT; PEG; enzyme IAT

Clinical significance of alloanti-Do^{b}

Transfusion reaction	Acute and delayed
HDFN	Positive DAT but no clinical HDFN

Comments

Do^{b} is a poor immunogen and anti-Do^{b} is rarely found as a single specificity. Due to the scarcity of monospecific anti-Do^{b}, DNA analysis may be used to predict the antigen status.

Reference

[1] Gubin, A.N., et al., 2000. Identification of the Dombrock blood group glycoprotein as a polymorphic member of the ADP-ribosyltransferase gene family. Blood 96, 2621–2627.

Gy^a Antigen

Terminology

ISBT symbol (number)	DO3 (014003 or 14.3)
Obsolete names	Gregory; GY1; 206001; 900005
History	Named in 1967 after the last name of the first producer of the antibody. Placed in the Dombrock system in 1992 when it was recognized that Gy(a–) was the null phenotype of Do[1].

Occurrence

Most populations	100%
Eastern European (Romany)	Greater than 99%
Japanese	Greater than 99%
Blacks	One proband[2]

Expression

Cord RBCs	Weak
Altered	Absent from PNH III RBCs; weak on Hy–, DOYA–, and DOMR– RBCs; marginally reduced on DOLG– RBCs

Molecular basis associated with Gy^a antigen

Molecular bases underlying the Gy(a–) phenotype (see table on System pages) result in an absence of Do glycoprotein in the membrane.

Effect of enzymes and chemicals on Gy^a antigen on intact RBCs

Ficin/Papain	Resistant (enhanced)
Trypsin	Sensitive
α-Chymotrypsin	Weakened
Pronase	Sensitive (weakened)
DTT 200 mM/50 mM	Sensitive/resistant (thus sensitive to WARM™ and ZZAP)
Acid	Variable

In vitro characteristics of alloanti-Gy^a

Immunoglobulin class	IgG
Optimal technique	IAT

Clinical significance of alloanti-Gy^a

Transfusion reaction	No to moderate/delayed
HDFN	Positive DAT, but no clinical HDFN

Autoanti-Gy^a

Yes, may appear to be an alloantibody due to transient suppression of Gy^a antigen.

Comments

Gy(a–) RBCs are also Do(a–b–) Hy– Jo(a–) DOYA– DOMR– DOLG–.
Siblings of patients with anti-Gy^a should be tested for compatibility, and the patient urged to donate blood for cryogenic storage when his/her clinical state permits.
Experts agree that Hy– blood may be used for transfusion when Gy(a–) blood is not available.

References

[1] Banks, J.A., et al., 1995. Evidence that the Gy^a, Hy and Jo^a antigens belong to the Dombrock blood group system. Vox Sang 68, 177–182.
[2] Smart, E.A., et al., 2000. The first case of the Dombrock-null phenotype reported in South Africa [abstract]. Vox Sang 78 (suppl 1), P015.

Hy Antigen

Terminology

ISBT symbol (number)	DO4 (014004 or 14.4)
Obsolete names	Holley; GY2; 206002; 900011
History	Reported in 1967, and named after the proband who made anti-Hy. Joined the Dombrock system in 1995.

Occurrence

Most populations	100%
Blacks	Greater than 99%

Expression

Cord RBCs	Weak
Altered	Absent from PNH III RBCs; weak on Jo(a–), DOYA–, DOMR–, and DOLG– RBCs

Molecular basis associated with Hy antigen[1]

Amino acid	Gly108
Nucleotide	G at bp 323 in exon 2

Hy–	Val108 and Asp265; T at bp 323 and G at bp 793 in exon 2 (HY2 allele). HY1 allele also has 898C>G in exon 3 (Leu300Val)

Effect of enzymes and chemicals on Hy antigen on intact RBCs

Ficin/Papain	Resistant (enhanced)
Trypsin	Sensitive
α-Chymotrypsin	Weakened
Pronase	Sensitive (weakened)
DTT 200 mM/50 mM	Sensitive/resistant (thus sensitive to WARM™ and ZZAP)
Acid	Variable

In vitro characteristics of alloanti-Hy

Immunoglobulin class	IgG
Optimal technique	IAT

Clinical significance of alloanti-Hy

Transfusion reaction	No to moderate/delayed
HDFN	Positive DAT, but no clinical HDFN

Comments

Hy– RBCs are Do(a–b+^{W}) Gy(a+^{W}) Jo(a–) DOYA+^{W} DOMR+^{W}/– DOLG+^{W}. Siblings of patients with anti-Hy should be tested for compatibility, and the patient urged to donate blood for cryogenic storage when his/her clinical state permits.

Reference

[1] Reid, M.E., 2003. The Dombrock blood group system: a review. Transfusion 43, 107–114.

Jo^{a} Antigen

Terminology

ISBT symbol (number)	DO5 (014005 or 14.5)
Obsolete names	Joseph; 901004; 900010
History	Reported in 1972, and named after the proband who was reported to have made anti-Jo^{a}. Joined the Dombrock system in 1992. The original and 2nd probands were later shown to be Hy–! The 3rd proband had a JO allele and made anti-Jo^{a}. This explains some of the confusion in differentiating Hy and Jo^{a} antigens and antibodies.

Occurrence

Most populations	100%
Blacks	Greater than 99%

Expression

Cord RBCs	Weak
Altered	Absent or weak on Hy– and PNH III RBCs; weak on DOYA– and DOMR– RBCs.

Molecular basis associated with Jo^a antigen[1]

Amino acid	Thr117
Nucleotide	C at bp 350 in exon 2
Jo(a–)	Ile117 and Asn265; T at bp 350 and A at bp 793 in exon 2. Can also occur on Hy–, and on Do(b+) backgrounds (see tables above)

Effect of enzymes and chemicals on Jo^a antigen on intact RBCs

Ficin/Papain	Resistant (enhanced)
Trypsin	Sensitive
α-Chymotrypsin	Weakened
Pronase	Sensitive (weakened)
DTT 200 mM/50 mM	Variable (thus variable to WARM™ and ZZAP)
Acid	Variable

In vitro characteristics of alloanti-Jo^a

Immunoglobulin class	IgG
Optimal technique	IAT

Clinical significance of alloanti-Jo^a

Transfusion reaction	No to moderate/delayed
HDFN	No

Comments

Jo(a–) RBCs are Do(a+^{W}b+^{W}/–) Gy(a+^{W}) Hy+^{W} DOYA+^{W} DOMR+ DOLG+.

In Malis, the Jo(a–) phenotype has been found on a *DO*B* background (Moulds JM, personal communication).

Siblings of patients with anti-Jo^a should be tested for compatibility, and the patient urged to donate blood for cryogenic storage when his/her clinical state permits.

Reference

[1] Reid, M.E., 2003. The Dombrock blood group system: a review. Transfusion 43, 107–114.

DOYA Antigen

Terminology

ISBT symbol (number)	DO6 (014006 or 14.6)
History	Named in 2010, "DO" for the system and "YA" from the name of the DOYA– proband.

Occurrence

The only DOYA– proband reported was a Turkish Kurd; she had a DOYA– sister.

Expression

Cord RBCs	Weak
Altered	Absent on PNH III RBCs and weak on Hy–, Jo(a–), and DOMR– RBCs.

Molecular basis associated with DOYA antigen[1]

Amino acid	Tyr183
Nucleotide	T at bp 547 in exon 2
DOYA–	Asp183 and G at bp 547 on a *DO*A* background

Effect of enzymes and chemicals on DOYA antigen on intact RBCs

Ficin/Papain	Resistant (enhanced)
Trypsin	Sensitive
α-Chymotrypsin	Weakened
DTT 200 mM/50 mM	Variable (thus variable to WARM™ and ZZAP)

In vitro characteristics of DOYA

Immunoglobulin class	IgG
Optimal technique	IAT

Clinical significance of alloanti-DOYA

Transfusion reaction	The only producer of anti-DOYA was transfused on two occasions with incompatible blood that was tolerated with pretransfusion medication of antihistamine and steroids.
HDFN	No

Comments

DOYA– RBCs type Do(a–b–) Gy(a+^{W}) Hy+^{W} Jo(a+^{W}) DOMR+^{W}.

Reference

[1] Mayer, B., et al., 2010. New antigen in the Dombrock blood group system, DOYA, ablates expression of Do^{a} and weakens expression of Hy, Jo^{a} and Gy^{a} antigens. Transfusion 50, 1295–1302.

DOMR Antigen

Terminology

ISBT symbol (number)	DO7 (014007 or 14.7)
History	Named in 2010, "DO" from the system and "MR" from the name of the DOMR– proband.

Occurrence

The only DOMR– proband reported was African Brazilian.

Expression

Cord RBCs	Weak
Altered	Absent on PNH III RBCs and weak on Hy–, Jo(a–) and DOYA– RBCs

Molecular basis associated with DOMR antigen[1]

Amino acid	Ala144
Nucleotide	C at bp 431 and C at bp 432 in exon 2
DOMR–	Glu144 and A at bp 431 and A at bp 432 on a *DO*B-WL* background

Effect of enzymes and chemicals on DOMR antigen on intact RBCs

Ficin/Papain	Resistant (enhanced)
Trypsin	Sensitive
α-Chymotrypsin	Weakened
DTT 200 mM/50 mM	Variable (thus variable to WARM™ and ZZAP)

In vitro characteristics of alloanti-DOMR

Immunoglobulin class	IgG
Optimal technique	IAT

Clinical significance of alloanti-DOMR

Transfusion reaction	No data; only one example of anti-DOMR reported
HDFN	No

Comments

DOMR– RBCs type Do(a–b+^{W}) Gy(a+^{W}) Hy+^{W} Jo(a+^{W}) DOYA+^{W}.

Reference

[1] Costa, F., et al., 2010. Absence of DOMR, a new antigen in the Dombrock blood group system that weakens expression weakens expression of Do^{b}, Gy^{a}, Hy, Jo^{a}, and DOYA antigens. Transfusion 50, 2026–2031.

DOLG Antigen

Terminology

ISBT symbol (number)	DO8 (014008 or 14.8)
History	Named in 2011, "DO" from the system and "LG" for the Leu/Gln amino acid change found in the DOLG– proband[1].

Occurrence

The only DOLG– proband reported was from Sri Lanka.

Expression

Cord RBCs	Presumed weak
Altered	Presumed absent on PNH III RBCs and weak on Hy– RBCs

Molecular basis associated with DOLG antigen[1]

Amino acid	Leu225
Nucleotide	T at bp 674 in exon 2
DOLG–	Gln225 and A at bp 674 on a *DO*A* background

Effect of enzymes and chemicals on DOLG antigen on intact RBCs

No information reported.

In vitro characteristics of alloanti-DOLG

Immunoglobulin class	IgG
Optimal technique	IAT

Clinical significance of alloanti-DOLG

Transfusion reaction	No data because only one example of anti-DOLG reported
HDFN	No

Comments

DOLG– RBCs type Do(a+b–) Gy(a+^{W}) Hy+ Jo(a+).

Reference

[1] Karamatic Crew, V., et al., 2011. DOLG, a novel high incidence antigen in the Dombrock blood group system [abstract]. Vox Sang 101 (Suppl 1), 263.