Names for GLOB (ISBT 028) Blood Group Alleles

General description:	The GLOB system was acknowledged in 2002 when the P or globoside antigen was moved from the 209 collection. The P antigen is the most common neutral glycosphingolipid in the red cell membrane, belongs to the globoseries and has the following structure: GalNAcβ3Galα4Galβ4Glcβ1 ceramide, also known as globoside (Gb4Cer). The *B3GALT3* gene was first reported in 1998 by Amado *et al*. to be a member of the β1,3-galactosyltransferase gene family and its product given the name β3Gal-T3. It was later shown by Okajima *et al*. to possess UDP-*N*-acetyl galactosamine:globotriaosylceramide 3-β-*N*-acetylgalactosaminyl-transferase or globoside synthase activity and the gene name changed to *B3GALNT1* and its product renamed β3GalNAc-T1. This enzyme is responsible for the final step in the synthesis of the P antigen, the transfer of GalNAc to the terminal Gal of the P^k antigen. The final proof of this was the identification by Hellberg *et al*. of critical mutations in the *B3GALNT1* gene as the genetic basis of P_1^k and P_2^k, the rare globoside-deficient null phenotypes of the GLOB system.
Gene name:	*GLOB* (*B3GALNT1*)
Number of exons:	5
Initiation codon:	Exon 5
Stop codon:	Exon 5
Entrez Gene ID:	26879
LRG sequence:	NG_007854.1 (genomic) NM_033169.2 (transcript)
Reference allele:	*GLOB*01 (B3GALNT1*01)* Acceptable: *P* if inferred by haemagglutination

Reference allele *GLOB*01* encodes P				
Phenotype	**Allele name**	**Nucleotide change**	**Exon**	**Predicted amino acid change**
GLOB:1 (P+)	*GLOB*01*			
GLOB:1 (P+)	*GLOB*02*	c.376G>A	5	p.Asp126Asn
Null phenotypes[†]				
GLOB:–1 (P–)	*GLOB*01N.01*	c.202C>T	5	p.Arg68Ter
GLOB:–1 (P–)	*GLOB*01N.02*	c.292_293insA	5	p.Arg98Lysfs*6
GLOB:–1 (P–)	*GLOB*01N.03*	c.433C>T	5	p.Arg145Ter
GLOB:–1 (P–)	*GLOB*01N.04*	c.537_538insA	5	p.Asp180Argfs*3
GLOB:–1 (P–)	*GLOB*01N.05*	c.648A>C	5	p.Arg216Ser
GLOB:–1 (P–)	*GLOB*01N.06*	c.797A>C	5	p.Glu266Ala
GLOB:–1 (P–)	*GLOB*01N.07*	c.811G>A	5	p.Gly271Arg
GLOB:–1 (P–)	*GLOB*01N.08*	c.959G>A	5	p.Trp320Ter
GLOB:–1 (P–)	*GLOB*01N.09*	c.203delG	5	p.Arg68Glnfs*17
GLOB:–1 (P–)	*GLOB*01N.11*	c.456T>G	5	p.Tyr152Ter
GLOB:–1 (P–)	*GLOB*01N.12*	c.449A>G	5	p.Asp150Gly
GLOB:–1 (P–)	*GLOB*01N.13*	c.420T>G	5	p.Tyr140Ter
GLOB:–1 (P–)	*GLOB*02N.01*	c.376G>A; c.598delT	5	p.Asp126Asn; p.Ser200Glnfs*10

[†]The null phenotype caused by these alleles can either be P1+ or P1–, i.e. P_1^k or P_2^k