

Names for KN (ISBT 022) Blood Group Alleles

General description: The Knops blood group system consists of 9 antigens carried on a glycoprotein of 1998 amino acids and called the Complement Receptor I (CR1). It has a leader sequence of 41 to 46 amino acids, depending on translation initiation site, which is cleaved from the membrane protein. The coding sequence starts at nucleotide 28. The Helgson phenotype, initially thought to be a KN serologic null, may be more likely the result of lower level CR1 density and may also involve lack of a high prevalence KN antigen [Pham Transfusion 2010 50(7):1435-43].

Gene name: CR1 (aliases CD35, KN, C3BR, C4BR)
Gene label: *KN* (for use in allele names)
Number of exons: 39 (*CR1*1*)
Initiation codon: Beginning of exon 1
Stop codon: End of exon 38 (*CR1*1*)
Entrez Gene ID: 1378
LRG sequence: NG_007481.1 (genomic)
 NM_000573.3 (transcript)
Reference allele: *KN*01* (shaded)
 Acceptable: *KN*A*, or *Kn^a* if inferred by haemagglutination

Reference allele <i>KN*01</i> encodes KN1, KN3, KN4, KN8, KN9					
Phenotype(s)	Allele name	Reference Nucleotides	rs#	Exon	Amino acid change
KN:1 or Kn(a+) KN:3 or McC(a+) KN:4 or S11+ ‡ KN:8 or S13+ KN:9 or KCAM+	<i>KN*01</i> or <i>KN*A</i>	4681G 4768A 4801A 4828T 4843A		29	p.Val1561 p.Lys1590 p.Arg1601† p.Ser1610† p.Ile1615
KN:2 or Kn(b+)	<i>KN*02</i> or <i>KN*B</i>	c.4681G>A	41274768	29	p.Val1561Met [1]
KN:5 or Yk(a-)	<i>KN*01.-05</i>	c.4223C>T	3737002	26	p.Thr1408Met [2]
KN:6 or McC(b+)	<i>KN*01.06</i>	c.4768A>G	17047660	29	p.Lys1590Glu [3]
KN:7 or Vil+ ‡	<i>KN*01.07</i>	c.4801A>G	17047661	29	p.Arg1601Gly [4,5]
KN:-8 or SI3-	<i>KN*01.-08</i>	c.4828T>A	4844609	29	p.Ser1610Thr † [6]
KN:-9 or KCAM-	<i>KN*01.-09</i>	c.4843A>G	6691117	29	p.Ile1615Val [7]

Note: Nucleotides are numbered from the initiation codon, so numbering will differ from publications prior to 2012 by -27 nucleotides.

‡ KN:4 was listed in older literature with the alias S1^a or S1 and KN:7 with the alias SI2.

† Arg1601 and Ser1610 are required for KN8 (SI3) expression

References

1. Moulds JM et al Transfusion 2004;44:164-9.
2. Veldhuisen B et al. Transfusion 2011;51:1389-96.
3. Moulds JM et al. Blood 2001;97:2879-85.
4. Lacey P et al. Transfusion 1980;20:632 (abstract).
5. Molthan L et al. Med Lab Sci 1983;40:113-21.
6. Moulds JM et al. Transfusion 2002;42:251-6.
7. Moulds JM et al. Transfusion 2005;45 Suppl:27A.