Names for CROM (ISBT 021) Blood Group Alleles

Intro

General description:	The Cromer blood group system consists of 16 antigens carried on a GPI-linked glycoprotein (DAF, CD55) that consists of 381 amino acids. It has a leader sequence of 34 amino acids and a GPI motif of 28 amino acids, both of which are cleaved from the membrane bound protein.
Gene name:	*CD55; CROM*
Number of exons:	11
Initiation codon:	Exon 2
Stop codon:	Exon 11
Entrez Gene ID:	1604
LRG:	LRG_127
LRG sequence:	NG_007465.1 (genomic) NM_000574.5 (transcript)
Reference allele:	*CROM*01* (shaded)
Reference allele *CROM*01* encodes:	CROM1, CROM2, CROM5, CROM6, CROM7 (IFC), CROM9, CROM10, CROM11, CROM12, CROM 13, CROM14, CROM15, CROM16, CROM17, CROM18, CROM19, CROM20
Antithetical antigens:	$Tc^a/Tc^b/Tc^c$; WES^a/ WES^b
Additional information	Amino acid numbering may differ from early publications in which Asp35 was counted as amino acid #1 of the mature (membrane-bound) protein.

Phenotype	Allele name	Nucleotide change	Exon Intron	Predicted amino acid change	(Reference No.) PMID	Accession number	rs number
CROM:1 or Cra+)	***CROM*01 or CR*A***						
CROM:–1 or Cr(a–)	***CROM*–01***	c.679G>C	6	p.Ala227Pro	PMID: 7524769	n.a.	rs60822373
CROM:3 or Tc(b+)	***CROM*01.03***	c.155G>T	2	p.Arg52Leu	PMID: 7524769	n.a.	rs28371588
CROM:4 or Tc(c+)	***CROM*01.04***	c.155G>C	2	p.Arg52Pro	PMID: 10686005		rs28371588
CROM:–5 or Dr(a–)	***CROM*01.–05***	c.596C>T	5	p.Ser199Leu	PMID: 7519480		rs1135402914
CROM:–6 or Es(a–)	***CROM*01.–06***	c.239T>A	2	p.Ile80Asn	PMID: 10686005		rs776347919
CROM:8 or WES(a+)	***CROM*01.08***	c.245T>G	2	p.Leu82Arg	PMID: 10686005		rs147474393
CROM:–10 or UMC–	***CROM*01.–10***	c.749C>T	6	p.Thr250Met	PMID: 10686005		rs566298946
CROM:–11 or GUTI–	***CROM*01.–11***	c.719G>A	6	p.Arg240His	PMID: 12675719		rs199705465
CROM:–12 or SERF–	***CROM*01.–12***	c.647C>T	5	p.Pro216Leu	PMID: 15285728		rs144692928
CROM:–13 or ZENA–	***CROM*01.–13***	c.726T>G	6	p.His242Gln	PMID: 17725726		rs769586650
CROM:–14 or CROV–	***CROM*01.–14***	c.466G>A	3	p.Glu156Lys	PMID: 17725726		n.a.
CROM:–15 or CRAM–	***CROM*01.–15***	c.740A>G	6	p.Gln247Arg	PMID: 17725726		n.a.
CROM:–16 or CROZ–	***CROM*01.–16***	c.389G>A	3	p.Arg130His	(1), Abstract		rs756646491
CROM:−17 or CRUE−	***CROM*01.–17***	c.650T > G	5	p.Leu217Trp	(2), Abstract		rs567156112
CROM:−18 or CRAG−	***CROM*01.–18***	c.173A > G	2	p.Asp58Gly	(3), Abstract, PMID: 35175190	MG601097.1	n.a.
CROM:−19 or CROK−	***CROM*01.–19***	c. 245T>C	2	p.Leu82Pro	(4), Abstract	KX774494.1	n.a.
CROM:−20 or CORS−	***CROM*01.–20***	c.713G>A	6	p.Gly238Glu	(6), Abstract		n.a.
Null phenotypes							
CROM:–7 or Inab	***CROM*01N.01***	c.261G>A	2	p.Trp87Ter	PMID: 7519480		rs121909603
CROM:–7 or Inab	***CROM*01N.02***	c.263C>A	2	p.Ser88Ter	PMID: 7519480		rs1131690771

Phenotype	Allele name	Nucleotide change	Exon Intron	Predicted amino acid change	(Reference No.) PMID	Accession number	rs number
CROM:–7 or Inab	***CROM*01N.03***	c.508C>T	4	p.Arg170Ter	PMID: 15954804		rs762195469
CROM:–7 or Inab	***CROM*01N.04***	c.366_367insA	3	p.Thr123Asnfs*6	(1), Abstract		n.a.
CROM:–7 or Inab	***CROM*01N.05***	c.147G>A c.148G>T	2	p.Leu49 (silent) p.Glu50Ter	(5), Abstract		rs773074921
CROM:–7 or Inab	***CROM*01N.06***	c.639G>A	5	p.Trp213Ter	(2), Abstract		rs1391706310

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Abstract (2) Karamatic Crew V, Poole J, Mathlouthi R, Wall L, Daniels G. A novel Cromer blood group system antigen, CRUE, arising from two heterozygous DAF mutations in one individual with the corresponding anti-CRUE. Vox Sang 2012; 103(Suppl. 1):56.

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Abstract (3) Lomas-Francis CF, Fuchisawa A, Hamilton J, Hue-Roye K, Pelton SB, Vege S, Westhoff CM. CRAG: a new high-prevalence antigen in the Cromer blood group system. Vox Sang 2012; 103 (Suppl. 1):211–212.

Abstract (4) Yahalom V, Finkel L, Poole J, Crew V, Chezar J, Akaria L, Shinar E, Asher O. CROK – a novel mutation of the Cromer blood group system. Vox Sang 2012; 103(Suppl 1):212.

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Track of changes

			from	to
1	**Version**		**v4.1 29-DEC-2020**	**v4.2 31-MAR-2022**
2	Author	created	Jill Storry, 29th of December 2020	Jill Storry, 31st of January 2022
3	Reviewer	reviewed	n.a.	Lilian Castilho, February 2022
4	References	changed numbering		Abstract (8) to (1)
5	References	changed numbering		Abstract (9) to (2)
6	References	changed numbering		Abstract (10) to (3)
7	References	changed numbering		Abstract (11) to (4)
8	References	changed numbering		Abstract (12) to (5)
9	References	changed numbering		Abstract (13) to (6)
10	References	added reference		Added PMID 35175190, also to allele CROM*01.–18
11	**End Version**		**v4.1 29-DEC-2020**	**v4.2 31-MAR-2022**

Track of changes

			from	to
1	**Version**		**v3.0 160622**	**v4.1 29-DEC-2020**
2		created:	Christine Lomas Francis, 22nd June 2016	Jill Storry, 29th December 2020
3		reviewed:	n.a.	n.a.
4	General			rs numbers recorded where available
5	Intro	LRG ID line added:		LRG_127
6	Allele Table	Antigen/allele added:		*CROM*01.–17*
7				*CROM*01.–18*
8				*CROM*01.–19*
9				*CROM*01.–20*
10				*CROM*01N.05*
11				*CROM*01N.06*
12				
13	References		References updated	References found for all alleles and collated
14	**End Version**		**v3.0 160622**	**v4.1 29-DEC-2020**