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ISBT Working Party on Terminology for Red Cell Surface Antigens: Los Angeles Report

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In 1990, a document detailing the basic recommendations of the ISBT Working Party on Terminology for Red Cell Surface Antigens and the then current state of classification of blood group antigens was published [1]; reprints are still available from Prof. M. Lewis. The present report brings that information up to date according to decisions made by the Working Party membership at a meeting held in Los Angeles on November 10, 1990, during the XXIst ISBT Congress. The following additions, alterations and deletions should be made to the basic document mentioned above, pending periodical publication of its revision.

Existing Blood Group Systems [1]

002, the MNS system. Genetic (transmission with *MS*; $\hat{z}$ 3.69 at $\hat{\theta} = 0.00$) and biochemical (association with an aberrant glycophorin A molecule) criteria qualify a new low incidence Miltenberger antigen, called DANE and specific for a new Mi class (Mi. IX), for inclusion in the MNS system: MNS32 or 002032 [2].

004, the Rh system. Serological (association with unusual Rh gene complexes) and genetic ($\hat{z}$ 6.94 at $\hat{\theta} = 0.00$) data that justify the issuance of the number RH48 (004048) for the low incidence antigen JAL have now been published [3, 4].

005, the Lutheran system. Revocation of contrary evidence [5] has cleared the way for the assignment of the antigens of the Auberger polymorphism to the Lutheran system: LU18 (005018) for Au^a, LU19 (005019) for Au^b. The assignment is based on biochemical evidence that the antigens are carried on the Lutheran glycoproteins [6], on gene location at 19q13.2 [7], and on genetic linkage studies of families informative for LU1, LU2 and the Auberger polymorphism: $\hat{z}$ 10.83 at $\hat{\theta} = 0.00$ [8].

New Blood Group Systems

020, the Gerbich system. Reclassification of the Gerbich antigens from a Collection to a System results from completion of the differentiation of *GYPC/D* from the gene/genes governing each of systems 001 to 019. This was achieved by classical family studies showing recombination between *GYPC* and *DI, DO* and *YT* using a TaqI RFLP of *GYPC* [9]. Further, two low incidence antigens from the 700 Series (An^a and Dh^a) have been moved to the Gerbich system: An^a is located on glycophorin D [10], Dh^a on glycophorin C [11].

021, the Cromer system. Distinction of the *DAF* locus from loci occupied by the genes controlling systems 001 to 020 [1, 12] permits reclassification of the Cromer antigens from a Collection to a System.

The creation of new Systems dictates additions to table 1 [1] as follows:

Name	Symbol	No.	No. within system									
			001	002	003	004	005	006	007	008	009	010
Gerbich	GE	020	...	Ge2	Ge3	Ge4	Wb	Ls^a	An^a	Dh^a		
Cromer	CROMER	021	Cr^a	Tc^a	Tc^b	Tc^c	Dr^a	Es^a	IFC	WES^a	WES^b	UMC

Chromosomal Locations of Blood Group System Genes [1]

The firm chromosomal localizations of the genes responsible for Gerbich and Cromer antigen production, and confirmation [13] of the location of the Colton gene *(CO)* previously noted [1; Addenda], provide additions to table 4 [1] as follows:

Chromosome	Arm	Locus, region
1	q	*DAF (CROMER)*, 1q32 [J Exp Med 1987;166:246]
2	q	*GYPC (GE)*, 2q14-q21 [Hum Genet 1986;74:420]
7	p	*CO*, 7p [Genomics 1990;6:623]

Blood Group Collections [1]

The change in status for Gerbich, Cromer and the Auberger polymorphism, as indicated above, makes Collection numbers 201, 202 and 204 obsolete.

Additions to table 5 [1] are as follows:

206, the Gregory collection. There is now biochemical evidence to support the serological relationship used to place Gy^a and Hy in a Collection [14].

209, the Globoside collection. The name Globoside has been adopted for the previously unnamed Collection comprised of P, P^k and LKE: the symbol, GLOBO.

210, unnamed. The specificities Le^c (210001) and Le^d (210002) are placed in a collection as both represent determinants on Type 1 oligosaccharide chains.

211, the Wright collection. Because of an apparent genetic connection (an antithetical relationship based on serological dosage tests [15]), the antigens Wr^a and Wr^b have been placed in this new Collection: 211001 for Wr^a and 211002 for Wr^b, in alphabetical/numerical terms WR1 and WR2 respectively.

The 700 Series [1]

Five of the numbers in this Series have become obsolete: 700.1 (Wr^a), 700.20 (An^a) and 700.31 (Dh^a) because of transfer of the antigens to a Collection or System (see above), and 700.12 (Gf) and 700.32 (POLL) because of depletion of defining reagents.

Four new low incidence antigens have been added to the Series:

700048, FPTT [16]. The antigen is present in all samples of RH:33 red cells so far tested but not all FPTT+ red cells carry RH33. No genetic data to prove exclusion from, or inclusion in, any system have been reported.

700049, HJK [17]. The antigen has been found in one American family; the antibody caused severe haemolytic disease of the newborn. There is no genetic information relative to blood group systems.

700050, HOFM [18]. The antigen has been found in one Dutch family; the antibody caused mild haemolytic disease of the newborn. HOFM has been excluded from systems 2, 8, 12 and 19, and probably from systems 6 and 17. HOFM is associated with an altered expression of RH2 but the family is not large enough to provide substantive support for its inclusion in the Rh system, hence the 700 number.

700051, ELO [19]. The existence of the antigen has been known for a long time but genetic information had not been published previously. ELO has been excluded from systems 2, 4, 8, 12, 19 and 20, and probably from systems 5, 6 and 17.

The 901 Series [1]

With the transfer of Wr^b to a Collection, as noted above, the number 901010 and the name 'Fritz' become obsolete.

Substitute Markers [1]

A list of DNA RFLPs that can be used as substitute markers for exclusion of an antigen from blood group systems has been tabulated [1; Table 9]. The substitute for Kell should be changed to *PIP* ($\hat{z}$ 9.12 at $\hat{\theta} = 0.00$) [20] and *D7S135* may be added for Colton ($\hat{z}$ 3.91 at $\hat{\theta} = 0.00$) [13].

Applications for ISBT Numbers

Readers should consult our basic document for the criteria and procedures required for acquisition of ISBT numbers; the necessary forms will be found in Appendices 2, 3 and 4 [1]. MNS32 and 700.48, 49, 50 and 51 must be added to Appendix 2 in which 700.12 and 32 should be deleted. Other changes in numerical designations resulting from this report should be made or revised application forms should be requested from the pertinent Working Party member named below:

Prof. Dr. W. Dahr for an MNS number
Dr. P. D. Issitt for an Rh number

Dr. J. Jørgensen for a number in other Systems
Dr. D.J. Anstee for a number in Collections
Dr. A. Lubenko for a 700 number
Dr. G.L. Daniels for a 901 number
(For addresses and FAX numbers see Appendix 5 [1]).

All other correspondence relative to the activities of the Working Party should be directed to the incoming Chairman, Mr. J.J. Moulds, Gamma Biologicals Inc., 3700 Mangum Rd, Houston, TX 77092, USA (FAX 713 956 3333).

References

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