

Towards a blood group allele terminology for the 21st century



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- **Disclosure.** *RHD* genotyping: royalties and intellectual property rights
- Immucor: Scientific Advisory Board (BioArray)



Proposal of 19 July 2007

wflegel

Von: wflegel [willy.flegel@uni-um.de]
Gesendet: Donnerstag, 19. Juli 2007 19:29
An: 'geoff.daniels@rbs.nhs.uk'; 'wolfgang.heimberg@meduni-graz.at'; 'Martin_L.Olsson@transfumed.lu.se'; 'MReid@NYBloodCenter.org'; 'Jill.Storry@transfumed.lu.se'; 'westhoff@mail.med.upenn.edu'; 'zelinski@ms.umanitoba.ca'

Betreff: comment to teleconference summary 17.07.2007

Dear Geoff, Hi All,

nt and aa numbering: I think this proposal by Marion is very evident and, of course, she is perfectly right. Defining such issues to standardize the approach is a main purpose of our group.

My comments to Geoff's teleconference summary of 17.07.2007 and some additional

proposals:



Proposed terminology 2007

- Has been sent to all attendees of the 17 July 2007 teleconference
 - Geoff D, Jill S
 - Martin O, Marion R, Connie W, Teresa Z
- Has been labeled as “proposal”



Proposed terminology 2007

- Has been sent to all attendees of the 17 July 2007 teleconference
- Has been labeled as “proposal”
- Has not been distributed to the other members of the ISBT terminology WP
 - until 22 Dec 2011
 - after I filed a complaint on 2 Dec 2011



Proposed terminology 2007

- Has been sent to all attendees of the 17 July 2007 teleconference
- Has been labeled as “proposal”
- Has not been distributed to the other members of the ISBT terminology WP
 - until 22 Dec 2011
- Has not been discussed
 - until today



Vox Sang 2011 proposal

- The democratic process requires
 - that proper hearing is given to all involved parties and their views
 - before a proposal is brought to a vote for approval
- The petite group did not give proper hearing
- did not allow the presentation of other views
 - eg. terminology proposal 2007



Email 12 March 2012 to all

- I am concerned about the Vox Sang 2011 terminology proposal,
 - because it puts us in a bind and
 - imposes restrictions
 - which may unnecessarily inhibit the further development over time.
- The gist of my 2007 terminology proposal is
 - avoidance of these unnecessary restrictions.



Key elements proposed terminology 2007

- One name per allele
- Vox Sang 2011 proposal:
 - 2 or more names per allele

004 Weak D and Del alleles v2.0 110914

Phenotype	Allele name	Nucleotide Change(s)	Exon	AminoAcid change(s)	Allele Name Detail
Type 1	<u>RHD*01W.1</u> <u>RHD*weak D type 1</u>	809T>G	8	Val270Gly	RHD*809G
Type 1.1	<u>RHD*01W.1</u> <u>RHD*weak D type 1.1</u>	52C>G 809G>A	1, 8	Leu18Val Val270Gly	RHD*52G, 809A
Type 2	<u>RHD*01W.2</u> <u>RHD*weak D type 2</u>	1154 G>C	9	Gly385Ala	RHD*1154C



Key elements proposed terminology 2007

- One name per allele
- Lead “0” can be omitted
- Examples
 - $RHD^{*001.000.000.000} = RHD^{*1}$
 - $RHD^{*003.001.001.001} = RHD^{*3.1.1.1}$



Key elements proposed terminology 2007

- One name per allele
- Numerical terminology: $RHD^{*1.1.1.1}$
 - No letters

004 Weak D and Del alleles v2.0 110914

Alleles encoding weak D phenotypes	
Phenotype	Allele name
Type 1	<u>RHD*01W.1</u>



Key elements proposed terminology 2007

- One name per allele
 - Unique allele identifier
- Numerical terminology: $RHD^{*1.1.1.1}$
 - All parts with numbers only are mandatory



Optional suffix for serologic and other information

- Serologic information
 - not critical for definition of an allele
- Serologic evidence may change & will improve over time
- Can be extensive
- Suffix information can be provided on a website
 - where it can be updated & even changed



Example for *RHD* consensus

- *RHD* consensus = Eurasian D cluster
- *RHD**001.000.000.000
- *RHD**1 (shorthand)



Examples for D clusters

- *RHD**1 *RHD* consensus
- *RHD**2 DIVa cluster
- *RHD**3 DAU cluster
- *RHD**4 weak D type 4 cluster



Examples for Eurasian D

- *RHD**1.0 *RHD* consensus
- *RHD**1.1 group of Eurasian partial D
- *RHD**1.2 D category group
- *RHD**1.3 group of Eurasian weak D types
- *RHD**1.4 group of Eurasian D neg & DEL



Examples for Eurasian D

- *RHD**1.0 *RHD* consensus
- *RHD**1.1 group of Eurasian partial D
 - *RHD**1.1.1 DNB (is frequent)



Examples for Eurasian D

- *RHD**1.0 *RHD* consensus
- *RHD**1.1 group of Eurasian partial D
- *RHD**1.2 D category group
 - *RHD**1.2.2 D category II
 - *RHD**1.2.6 D category VI
 - *RHD**1.2.7 D category VII



Examples for Eurasian D

- *RHD**1.0 *RHD* consensus
- *RHD**1.1 group of Eurasian partial D
- *RHD**1.2 D category group
 - *RHD**1.2.2 D category II
 - *RHD**1.2.6 D category VI
 - *RHD**1.2.6.1 D category VI type 1
 - *RHD**1.2.6.2 D category VI type 2
 - *RHD**1.2.6.3 D category VI type 3
 - *RHD**1.2.6.4 D category VI type 4
 - *RHD**1.2.7 D category VII



Examples for Eurasian D

- *RHD**1.0 *RHD* consensus
- *RHD**1.1 group of Eurasian partial D
- *RHD**1.2 D category group
- *RHD**1.3 group of Eurasian weak D types
 - *RHD**1.3.1 weak D type 1
 - *RHD**1.3.1.1 weak D type 1.1



Examples for Eurasian D

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- *RHD**1.1 group of Eurasian partial D
- *RHD**1.2 D category group
- *RHD**1.3 group of Eurasian weak D types
- *RHD**1.4 group of Eurasian D neg & DEL
 - *RHD**1.4.1 *RHD*(K409K) (most frequent)
 - *RHD**1.4.2 *RHD*(IVS3+1G>A) (2nd most frequ.)



Example for suffix

- *RHD**1.0 *RHD* consensus
- *RHD**1.1 group of Eurasian partial D
 - *RHD**1.1.1 DNB
 - *RHD**1.1.1.dnb

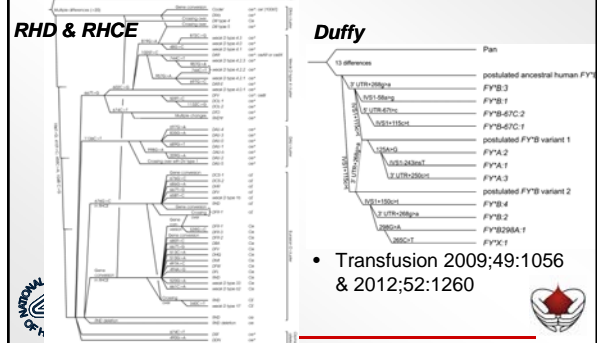


Allele terminology

- Should best be based on alleles
- Will benefit from knowledge on the relationship between alleles (phylogeny)
- Serology is an adjunct



Allele terminology should best be based on alleles



Allele terminology

- Should best be based on alleles
- Will benefit from knowledge on the relationship between alleles (phylogeny)
- Serology is an adjunct
 - Important
 - Yet, serology cannot determine the allele terminology



Allele terminology

- Should best be based on alleles
- Will benefit from knowledge on the relationship between alleles (phylogeny)
- Serology is an adjunct
- Serology will often be unknown, when novel alleles are detected and need a name



Example for an implementation

Proposed allele group name*			
Designation	Trivial	Alleles†	ISBT working draft
FY*01	FY*A	FY*01:1 to FY*01:3	FY*01 or FY*A
FY*02	FY*B	FY*02:1 to FY*02:4	FY*02 or FY*B
FY*03	FY*B-67C	FY*03:1 to FY*03:2	FY*02N.01
FY*04	FY*B298A	FY*04:1	NA
FY*05	FY*X	FY*05:1	FY*02 M.01

- Problems of Vox Sang 2011 proposal
- Two names for the same allele
- Serologic identifiers in the name



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- Problems of Vox Sang 2011 proposal
- Two names for the same allele
- Serologic identifiers in the name



Comparison

Proposed terminology 2007

- Molecular biology information "leads"
- Alleles are sorted in a "nested" approach
- Sorting is useful for molecular testing & reporting
- Suffixes can be used for serologic description if desired

Proposed terminology Vox Sang. 2011

- Serology "leads"
- Alleles are "defined" by a rather arbitrary serology
- Sorting disregards molecular reporting issues
- Serology is squeezed into the terminology and cannot be changed



Summary and outlook

- Working party shall refrain from approving the Vox Sang. 2011 proposal.
- It would be best to start from scratch.
- The group of individuals assigned to address RH allele nomenclature should be inclusive and open to all interested working party members.

