Letter to the Editors:

Inaugural meeting of the Consortium for Blood Group Genes (CBGG): a summary report

Over half a century ago the serologic analysis of blood group antigens established its roots in the clinical transfusion laboratory. The evaluation and laboratory investigation of alloimmunization, which occurred as a result of pregnancy or after RBC and platelet transfusion, was quickly developing into the field of immunohematology. Moreover, blood group phenotyping became a powerful tool to provide antigen-matched RBCs, to evaluate the differences in blood group antigen expression between individuals, and to infer the inheritance of the genes that express these antigens. Of course, a natural progression of the latter included the analysis of the genes and alleles that are responsible for the expression of the antigens. The ease with which molecular biological techniques became user friendly and adaptable to the clinical laboratories made this progression possible.

In 1993, Bennett and associates published a landmark paper on the clinical application of molecular blood group genotyping, although their initial application was not true "genotyping" as it merely confirmed the presence of the *RHD* gene. The unique application used DNA derived from cells in amniotic fluid to "infer" the blood group of fetuses at risk for HDN due to anti-D,[1] thus alleviating the risk associated with cordocentesis to establish the D antigen of a fetus. Today, 50 percent of pregnancies at risk for the common antibodies implicated in HDN, when the father is heterozygous for the corresponding allele, are deemed to be antigen-negative and not at risk for the disease. Clinical management varies, but essentially the mother can return to her primary care physician and noninvasive procedures can be used to monitor for fetal anemia. A decade after the publication of Bennett et al., other molecular applications are being published with unprecedented speed. The DNA analysis of blood group genes has expanded to include the following uses:

1) Genotype multi-transfused recipients, patients with severe thrombocytopenia, and those whose RBCs or platelets are sensitized with antibodies
2) Resolve ABO and Rh D discrepancies
3) Identify some of the Rh D variants that are at risk for anti-D alloimmunization
4) Determine *RHD* zygosity
5) Confirm the true genotype when an antigen is weakly expressed, e.g., Del
6) Identify whether the Fy^b– transfusion recipient can safely receive Fy^b+ RBCs
7) Mass screen for antigen-negative and rare RBCs
8) Genotype donors for antibody identification panels

During the 1950s and 1960s people with a common interest in blood group serology formed focus groups to disseminate and exchange information, mentor young scientists, and advance our understanding of the field of immunohematology. So too has the study of the genes that express blood group antigens become an entity itself.

The inaugural meeting of the Consortium for Blood Group Genes (CBGG) was held during the AABB annual meeting on October 23, 2004, in Baltimore, Maryland. The meeting was attended by 24 delegates from North and South America, with contributions from other colleagues who could not attend. The group was formed out of these:

- A common interest in the genes that express RBC, platelet, and neutrophil antigens
- A desire to promote the use of molecular technology in the clinical lab
- The need for DNA reference samples
- The establishment of a proficiency program and standards of practice.

A summary of the meeting is provided in this report. All interested readers are encouraged to get involved and embrace the opportunity to discuss and promote scientific inquiry in blood group genes. It is anticipated that

clinical and scientific advancements in the study of the genes that express blood group antigens will continue as a result of global interaction. The next meeting will be held prior to the October 2005 AABB Annual Meeting in Seattle.

Consortium for Blood Group Genes

1) *Language*
   Group meetings and interactions will be conducted in English.

2) *Membership*
   Membership is open to those with an interest in single nucleotide polymorphisms and other genetic variations that are of interest to transfusion medicine, i.e., RBC, platelet, and neutrophil antigens. Interaction with other existing networking formats is encouraged, e.g., AABB Special Interest Groups.

3) *Name*
   The name of the organization is the Consortium for Blood Group Genes (CBGG).

4) *Web Site*
   A Web site will be established in the near future.

5) *Working Parties*
   Working parties of volunteers were established to investigate, collate, and disseminate recommendations to the entire group on the areas listed below.

   a. Proficiency Program
   One role of the CBGG is to contribute to and participate in proficiency testing much like immunohematology reference laboratories (IRLs), with two samples exchanged per year. One goal of proficiency testing is to have a forum for DNA testing verification and results analysis. The working party will recommend a practical, low-cost proficiency program.

   b. Forms and Disclaimers
   Blood group genetic clinical reports were discussed and those members who provide clinical reports were asked to share copies of their reports to give a feel for the types of disclaimers they use. The group could help unify reports and set the standards for DNA blood group testing forms and reports and recommended disclaimers. The clinical forms and reports section will be addressed by a working party.

   c. Reference DNA samples
   There is a need to establish a source of samples for control and for validation purposes. It is anticipated that standard DNA reference samples will be made available as well as a listing of important DNA single nucleotide polymorphisms, amplification primers, and standard protocols.

   d. Standards
   The CBGG has the potential to develop standards for its members and act as a voice to regulatory bodies as the testing becomes more commonplace. An FDA representative has been contacted since the inaugural meeting. The group is encouraged to see an open partnership developing that will communicate needs and issues and ensure appropriate compliance.

e. Funding

Sources of funding were discussed. Possibilities included a nominal membership fee (e.g., $100), a fee for shipping DNA from the repository, and a fee for participating in the proficiency program. Other potential sources of funding were identified.

f. Structure and Bylaws

The structure, bylaws, and mechanism for nominating officers to represent the consortium are in the initial stages.

1. Bennett PR, LeVan Kim C, Colin Y, Warwick RM, et al. Prenatal determination of fetal RhD type by DNA amplification. N Engl J Med 1993;329:607-10.

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