



# OHIO ASSOCIATION OF BLOOD BANKS



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(ASCP), SBB

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## *From The OABB President*

Dear OABB members,

Fall is just around the corner with the school buses back on the road and parents getting their children ready for school. People are already talking about the first high school football game, the first college game or the first hockey game.

With this time of year also comes a great educational opportunity with OABB's Fall Workshop. The Education Committee has planned an exceptional event. Please see Sandi Gehran's article in this newsletter for details.

The other educational opportunity is the 2010 Annual Meeting. The meeting will be held in the same location as the 2009 Annual Meeting—the Concourse Hotel in Columbus on April 29<sup>th</sup>. Mark your calendars now and check future newsletters for program details.

Beginning this fall in Ohio, 16 year olds will be able to donate blood with permission from a parent. The effective date and height and weight requirements will vary depending on the blood donor center.

Many students have expressed a desire to help their community through volunteering and donating blood. Lowering the age for blood donation

is a growing trend with many other states already allowing 16 year olds to donate. With the need for blood always increasing, it is hoped that these new donors will help to both ease potential shortages and become life long blood donors.

On July 21, ASCP and NCA signed an agreement to form one national credentialing agency. The new name is ASCP Board of Certification. The agreement is effective October 23, 2009. Active certifications will transfer over and the MT(ASCP) and CLS (NCA) designations will be medical laboratory scientist, MLS(ASCP), which requires a baccalaureate. MLT designation remains MLT(ASCP). If you were registered in 2004, and are documenting your continuing education, you will automatically receive the new designation. For those registered prior to 2004 and not voluntarily participating in the Continuing Maintenance Program, you will not get the new designation. For more information, go to the website [www.ascp.org/bor](http://www.ascp.org/bor) or [www.nca-info.org](http://www.nca-info.org).

Sincerely,

Mary Schumacher, MT(ASCP)SBB  
CQA(ASQ)  
OABB President

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## OABB Continuing Education Activity

### MNS System (0.5 CH)

After reading this continuing education article, the participant shall be able to:

- ◆ State the ISBT system number for the MNS system
- ◆ Differentiate clinical significance among antibodies in the MNS system
- ◆ Identify a high-incidence antigen in the MNS system
- ◆ Identify mechanisms to obtain appropriate units of Red Blood Cells for patients with antibodies in the MNS system.

#### **System 2: MNS**

In the early 1980's, the Committee on Terminology for Red Cell Surface Antigens of the International Society of Blood Transfusion (ISBT) assigned numbers to each of the 29 blood group systems. The ABO system was assigned System 1, the MNS System 2, the P System 3, the Rh System 4, and so on. System 2, the MNS system, is a large, complex system containing 46 antigens, second only to the Rh system in the number of antigens.

The first five numbered antigens in this system, M, N, S, s, and U, are the most important in terms of serological findings and clinical relevance. The M and N antigens are antithetical (encoded by two alleles at the same locus) and are located on the carrier molecule glycophorin A. Both the M and N antigens are resistant to DTT treatment but are denatured by enzymes. The S and s antigens are antithetical, and U is a high-incidence antigen absent from S-s- red blood cells found in the African American population. The S, s, and U antigens are located on the carrier molecule glycophorin B and are resistant to DTT treatment. The S and s antigens are sensitive to some enzyme treatments, while the U antigen is resistant to enzyme treatment.

#### **Antibodies in the MNS System**

Anti-M and anti-N are commonly non-red cell stimulated, or "naturally occurring" antibodies which are often only reactive at temperatures below 37C and are therefore clinically insignificant. A study by Smith and Beck showed that 78% of human anti-M were IgG only or a mixture of IgG and IgM, and 22% were IgM in nature. However, in spite of the IgM nature of the antibody, anti-M binds little or no complement. The IgG immunoglobulins in anti-M and anti-N are reactive at room temperature due to the chemical nature of the M and N antigens.

Anti-S, anti-s, and anti-U are generally IgG antibodies that are reactive by an indirect antiglobulin test (IAT) and are clinically significant. These have been implicated in hemolytic transfusion reactions and in hemolytic disease of the fetus and newborn (HDFN).

#### **Transfusion of Patients with MNS Antibodies**

Because many blood bankers have omitted room-temperature incubations from their antibody screening, most clinically insignificant anti-M and anti-N will not be detected. When an anti-M or anti-N is reactive at 37C, crossmatch-compatible blood by an IAT or prewarmed technique is appropriate for transfusion. Antigen-negative units of Red Blood Cells are not required, which reduces costs for the patient and blood bank. When an anti-S or anti-s is identified, antigen-negative units of Red Blood Cells are required for transfusion. In the general population, 45% of units will be S- and 11% will be s-. If an anti-U is identified, rare, possibly frozen, units of Red Blood Cells are available through the local blood supplier. If they do not have any of these units in their inventory, they may contact the American Rare Donor Program to import these rare units.

#### **References:**

- Reid ME, Lomas-Francis, C. The Blood Group Antigen Facts Book. 2<sup>nd</sup> ed. Elsevier Ltd.; 2004. p. 3-5, 29-42.  
Roback JD, et al. AABB Technical Manual. 16<sup>th</sup> ed. AABB; 2008. p. 411-416.  
Daniels, G. Human Blood Groups. 2<sup>nd</sup> ed. Blackwell Science Ltd.; 2002. p. 99-118.

Submitted by Suzanne M. Davisson, BS SBB(ASCP)<sup>CM</sup>

*(Continued on Page 3)*

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Answers will appear in the next issue of the OABB Newsletter.

### Questions

1. Which ISBT system includes the MNS antigens?
  - a. System 1
  - b. System 2
  - c. System 3
  - d. System 4
2. Which of the following antibodies is commonly considered insignificant?
  - a. anti-S
  - b. anti-s
  - c. anti-M
  - d. anti-U
3. Which of the following is a high-incidence antigen in the MNS systems?
  - a. M
  - b. N
  - c. S
  - d. U
4. What percentage of units from your inventory will be negative for the S antigen?
  - a. 0.01%
  - b. 11%
  - c. 45%
  - d. 50%



### Answers to OABB Continuing Education Activity: Applying Genomics in the Blood Bank

1. Which nucleic acid is found only in DNA?
  - a. Uracil
  - b. Thymine**
  - c. Cytosine
  - d. Guanine
2. Reverse transcriptase is used in amplification techniques to create
  - a. RNA from a DNA target sequence
  - b. additional RNA from RNA target sequences
  - c. DNA from a RNA target sequence**
  - d. two DNA strands from the original double strand DNA

3. Molecular test methods used in blood group antigen testing must be able to detect
  - a. the presence of RNA target sequences
  - b. both DNA and RNA target sequences
  - c. the presence of DNA target sequences
  - d. single nucleotide polymorphisms**
4. Genomics would be helpful in the following situations EXCEPT
  - a. ABO or D typing determination**
  - b. Determine genotype of recently transfused patients
  - c. Screening to find antigen-negative donors for sickle cell patients
  - d. Screening donors for antigens for which no antisera is available.



### News from the Proficiency Coordinator

There were 47 facilities that received the July Proficiency Sample and 41 (87%) returned results. Expected results:

ABO/Rh: O, D+  
 Antibody screen: Positive  
 Antibodies identified: anti-M  
 Antigen typing: M-

The next Proficiency Sample will be mailed in October. The results of previous Proficiencies are on the OABB website: [www.OABB4U.org](http://www.OABB4U.org).

Suzanne M. Davisson, BS SBB(ASCP)<sup>CM</sup>

### Fall Workshop Schedule for October 7

Members should have received their flyers for the 2009 OABB Fall Workshop, *Getting the 411 on DATs*, being held on Wednesday, October 7, 2009 at the Fawcett Conference Center in Columbus, OH from 10 AM to 3:30 PM. Registration is now open.

The Fall Workshop is a great opportunity for bench technologists wanting continuing education hours (CH). After attending this workshop, participants will be able to define the mechanism of a positive direct antiglobulin test (DAT) including situations in which it occurs; discuss different adsorption techniques and when an elution is helpful, describe the serological processes used to resolve the cause of a positive DAT in a transfusion reaction or because of Hemolytic Disease of the Fetus and Newborn (HDFN); and define ways to fulfill the transfusion needs of patients with a positive DAT.

A fast-paced group activity, *Last Tech Standing – from Hospital to Reference Lab*, is planned in the afternoon. Participants will review case studies from both perspectives of a hospital and a reference laboratory. All speakers and representatives from the Education Committee will be available for a panel discussion of participants' submitted questions. Questions can be submitted to the panel prior to the meeting by sending them to [gerhan@usa.redcross.org](mailto:gerhan@usa.redcross.org).

The registration fee (includes all materials and lunch) for OABB members (as of September 1, 2009) is \$45 and for non-members is \$55. Students can register for a bargain rate of \$15 with a letter from the program manager. Payment can be made by PayPal by accessing the OABB website ([www.oabb4u.org](http://www.oabb4u.org)). Because space is limited to 80 participants, get your space reserved by September 21. Walk-ins on the day of the meeting may be able to attend, however, meals cannot be guaranteed.

See you in October.

#### **OABB Newsletter Submissions**

Letters, articles, and announcements of upcoming events may be submitted at any time.

Classified advertisements will be accepted from any member institution and printed at no charge.

#### **WELCOME NEW MEMBERS!**

Sheryl Blanchard, MT,ASCP,MS881,AABB Inspector  
Akron General Medical Center

Paula D. Hartman, BS,ASCP,MT  
Akron General Medical Center

## Education Opportunities October through December

**Cincinnati:** Hoxworth Blood Center's Master's in Transfusion and Transplantation Sciences lecture series continues. The lectures are open at no charge to those who are interested. If you would like to attend, please email or call Pam English at [pamela.english@uc.edu](mailto:pamela.english@uc.edu) or 513-558-1275. All lectures are held in the 4th floor classroom at Hoxworth Blood Center's Central donor center located at 3130 Highland Ave, Cincinnati, OH. Visit [www.hoxworth.org](http://www.hoxworth.org) for directions to the center.

**Cleveland:** The following continuing education is offered by American Red Cross, Northern Ohio Blood Services Region. For more information, contact Marlene D'Amico: [damicom@usa.redcross.org](mailto:damicom@usa.redcross.org)

Date	Topic
October 7	Lessons Learned from the Battlefield: Use of Whole Blood and Blood Components

**Columbus:** The following continuing education is offered by American Red Cross, Central Ohio Blood Services Region. For more information, contact Deb Breech: [dbreech@usa.redcross.org](mailto:dbreech@usa.redcross.org)

Date	Topic
October 7	Lessons Learned from the Battlefield: Use of Whole Blood and Blood Components
November 18	RBC Genotyping—Molecular Testing

**Dayton:** The following continuing education is offered by Community Blood Center/Community Tissue Services™. For more information, contact Laurie Carolus at 937-461-3580 or email [lc Carolus@cbcccts.org](mailto:lc Carolus@cbcccts.org)

Date	Topic
October 7	Lessons Learned from the Battlefield: Use of Whole Blood and Blood Components
December 16	CLIA Blood Banking Personnel Requirements