

## [TRANS] FINALS

### ACTIVITY 12: ANTIBODY SCREENING AND IDENTIFICATION

#### ANTIBODY SCREENING

- Antibody screening detects for the presence of **unexpected, clinically significant antibodies**.
- clinically significant unexpected antibody**
  - antibodies that are reactive at 37°C or in the **antihuman globulin test**
    - Warm-reactive, such as IgG
    - Note: clinically significant IgM are ABO abs detected prior, by merely looking at the results in ABO typing.
  - known to have caused a **transfusion reaction** or unacceptably short survival of transfused RBCs.
- These antibodies are called **"unexpected"** because only **0.3% to 2.0%** of the general population have a positive antibody screen. Often result of red cell stimulation (transfusion, pregnancy).
  - Most are immune type abs since they are produced after RC sensitization

#### ANTIBODY SCREENING INDICATIONS

- Patient's needing transfusion (Pretransfusion testing)**
  - To ensure optimal survival of transfused red cells in recipients.
  - Ab screening is part of pre-transfusion compatibility testing
- Pregnant women**
  - Especially those at high risk of developing HDFN
- Cases of transfusion reaction**
  - As part of transfusion reaction investigatory process
- Blood and plasma donors**

#### SCREENING CELLS

- Type O screening cells are used since they do not have A ag and B ag that can cause false-positive result in Ab screening.
- The screening cells are available in 3 forms:
  - Pooled cells**- a single vial of no more than 2 donors pooled together in one vial.
  - Duet cells**- 2 vials each with different donors
  - Trio cells**- 3 vials representing 3 different donors



#### PRINCIPLE

- Antibody screen is done using the patient's serum/plasma (unknown) and antibody screen cells (known) to detect unexpected antibodies that are capable of destroying transfused red cells *in vivo*.

#### ANTIBODY



#### ANTIGEN



#### PROCEDURE

- Specimen:** Px Serum or plasma
- Reagent:** O red cells with known antigen typing, determined and characterized by the manufacturer of the reagent. Reagents are known as **"screening cells"**
- Why Group O cells** → So that Anti-A and Anti-B will not interfere in the detection of antibodies to other blood group systems.
- Commercially available screening cells each come with an **anigram**, which has different antigens present on the screening cells that are predetermined to identify the type of antibody present in the recipient's serum.



#### OTHER METHODS

- Gel method
- Solid phase adherence method

#### GEL METHOD

- Add 50 uL of antibody screen cells to the microtube
- Add 25 uL of serum or plasma
- Incubate the card for 15 mins at 37°C
- Centrifuge and interpret.
- Note: AHG reagent can be preapplied

# Blood Bank Lab Manual

**American Association of Blood Banks**

A red circular graphic with a gradient, appearing as a stylized drop or a partial circle, located to the right of the American Association of Blood Banks text.

## **Blood Bank Lab Manual:**

Laboratory manual in blood banking Carmelita C. Cardona, 2011      **Basic & Applied Concepts of Blood Banking and Transfusion Practices - E-Book** Paula R. Howard, 2020-07-16 Make complex blood banking concepts easier to understand with Basic Applied Concepts of Blood Banking and Transfusion Practices 5th Edition Combining the latest information in a highly digestible format this approachable text helps you easily master all areas of blood banking by utilizing common theory clinical scenarios case studies and critical thinking exercises With robust user resources and expanded content on disease testing and DNA it s the effective learning resource you need to successfully work in the modern lab Coverage of advanced topics such as transplantation and cellular therapy the HLA system molecular techniques and applications automation electronic cross matching and therapeutic apheresis make the text more relevant for 4 year MLS CLS programs Illustrated blood group boxes provide the ISBT symbol number and clinical significance of antibodies at a glance Robust chapter pedagogy helps break down this difficult subject with learning objectives outlines key terms with definitions chapter summaries critical thinking exercises study questions and case studies NEW Completely updated content prepares you to work in today s clinical lab environment NEW Additional information on disease testing covers diseases such as Zika and others of increased importance NEW Expanded content on DNA covers the latest developments in related testing NEW Enhanced user resources on the Evolve companion website now include expanded case studies and new animations in addition to the existing review questions and lab manual      **Immunohematology** Sheryl Whitlock, 1996-01 This thorough hands on resource provides detailed instructions for all of the basic procedures used in the blood bank including manual cell washing typing screening and cross matching 150 illus      *Basic & Applied Concepts of Blood Banking and Transfusion Practices - E-Book* Paula R. Howard, Wyenona Hicks, 2024-11-12 Master the role of the medical laboratory scientist working in the blood bank and transfusion services Basic Applied Concepts of Blood Banking and Transfusion Practices 6th Edition combines scientific principles with practice tips to engage learners with realistic laboratory experiences These concepts are delivered through relevant case studies and critical thinking exercises The text provides an overview of topics including quality and safety the major blood groups blood collecting and testing transfusion reactions and blood component preparation Written by Paula Howard and Wyenona Nonie Hicks both experienced Medical Laboratory Scientists and certified as Specialists in Blood Banking SBB this text is ideal for students in any Medical Laboratory Science MLS Medical Laboratory Technician MLT or Blood Bank Technology BBT training program as well as for practicing laboratory and healthcare professionals who wish to train for work in blood banks and transfusion services NEW Full color illustrations that break down concepts for enhanced learner comprehension especially for those who favor visual learning NEW Did You Know Case Study ALERT What s the Impact and Practice Tips provide important facts and guidelines to prepare you for situations encountered in practice NEW Additional case studies relate to donor qualification and testing ABO discrepancies molecular

immunohematology techniques antibody identification stem cell transplants and coagulation disorders offering extra practice in critical thinking development NEW Cell therapy and flow cytometry information expanded HLA and platelet antigen and antibody material detailed molecular genetic information in the Rh blood group system chapter and an expanded molecular genetics section prepare you for the questions you ll be challenged with on the certification exam NEW End of chapter Critical Thinking and Study Questions are keyed to the objectives Coverage of current clinical practices includes transplantation and cellular therapy the HLA system molecular techniques and applications automation blood donor qualification collection and testing component manufacturing and transfusion practices therapeutic phlebotomy and therapeutic apheresis and antibody identification and special techniques Learning features in each chapter break down difficult concepts with outlines learning objectives key terms with definitions special callouts chapter summaries basic and challenging case studies critical thinking exercises and study questions Numerous new updated and expanded tables summarize key information and make it easier to compare content These will certainly continue to provide excellent references for graduates practicing in blood banks and transfusion services Updated illustrated blood group antigen toolbars show at a glance the ISBT symbol number clinical significance reactions to chemical treatments and more for antibodies Comprehensive glossary provides definitions to key terms throughout the text Expanded online resources for students and instructors include additional study test questions and case studies

*Textbook of Blood Banking and Transfusion Medicine*  
Sally V. Rudmann, 2005-02-18 This comprehensive book on transfusion practices and immunohematology offers concise thorough guidelines on the best ways to screen donors store blood components ensure safety anticipate the potentially adverse affects of blood transfusion and more It begins with the basics of genetics and immunology and then progresses to the technical aspects of blood banking and transfusion Chapters are divided into sections on Basic Science Review Blood Group Serology Donation Preparation and Storage Pretransfusion Testing Transfusion Therapy Clinical Considerations and Safety Quality Assurance and Data Management Developed specifically for medical technologists blood bank specialists and residents the new edition conforms to the most current standards of the American Association of Blood Banks AABB Expert Opinion essays written by well known frequently published experts discuss interesting topics of research or new advances in the field Important terms are defined in the margins of the pages on which they appear enabling readers to easily check the meaning of an unfamiliar term where it appears in context Margin notes highlight important concepts and points remind readers of previously discussed topics offer an alternative perspective or refer readers to other sources for further information Material conforms to the most recent AABB standards for the most accurate up to date information on immunohematology Advanced concepts beyond what is required for entry level practice are set apart from the rest of the text so readers can easily differentiate between basic and advanced information A new chapter on Hematopoietic Stem Cells and Cellular Therapy chapter 19 provides cutting edge coverage of cellular therapy and its relevance to blood banking New

content has been added on molecular genetics component therapy and International Society of Blood Transfusion ISBT nomenclature as well as the latest information on HIV hepatitis quality assurance and information systems Coverage of new technologies such as nucleic acid technology and gel technology keeps readers current with advances in the field *Clinical Laboratory Blood Banking and Transfusion Medicine Practices* Gretchen Johns, William Zundel, Elizabeth Gockel-Blessing, Lisa Denesiuk, 2014-09-10 This is the eBook of the printed book and may not include any media website access codes or print supplements that may come packaged with the bound book *Clinical Laboratory Blood Banking and Transfusion Medicine Principles and Practices* provides readers with the didactic foundation background and tools to successfully function in a typical transfusion medicine laboratory The text's teaching and learning package includes an Instructor's Manual lecture slides and test bank Teaching and Learning Experience Presents detailed technical information and real life case studies that help learners envision themselves as members of the health care team Mixes theoretical and practical information that allows learners to analyze and synthesize the concepts Complemented by a variety of ancillary materials designed to help instructors be more effective and students more successful *Armed Services Whole Blood Processing Laboratories Manual* United States. Department of Defense, United States. Military Blood Program Agency, 1962 Technical Manual of the American Association of Blood Banks American Association of Blood Banks, 1981 **Technical Manual** American Association of Blood Banks, 1990 This reference discusses both technical theoretical aspects of routine blood banking is used throughout the world as a resource document for the performance of laboratory tests to ensure blood transfusion safety

**Modern Blood Banking & Transfusion Practices** Denise M Harmening, 2018-11-30 Join the generations of students who have embarked on successful careers with a firm foundation in the theory and practice of blood banking and transfusion practices Denise Harmening's classic text teaches you not only how to perform must know tests and tasks but to understand the scientific principles behind them *Technical Manual* American Association of Blood Banks, 2002 Manual includes many changes since the previous edition including a description of the 10 Quality System Essentials QSEs that make up Section A in the newest series of standards published by the American Association of Blood Banks Includes a new chapter on platelet and granulocyte antigens and antibodies **The Technical Manual of the American Association of Blood Banks** American Association of Blood Banks, 1977 **Subject Guide to Children's Books in Print 1997** Bowker Editorial Staff, R R Bowker Publishing, 1996-09 The Office Laboratory Paul M. Fischer (M.D.), 1983 *Clinical Guide to Laboratory Tests* Norbert W. Tietz, 1995 The 3rd edition presents information on common tests as well as rare and highly specialized tests and procedures Biological variables that may affect test results are discussed and a focus is placed on reference ranges diagnostic information clinical interpretation of laboratory data interferences and specimen types Includes a section on molecular pathology and tests have been added in the areas of endocrinology immunochemistry serologic hepatitis testing and more **Technical Manual of the American Association of Blood Banks** American Association of Blood

Banks,1985      **Laboratory Manual for Technicians** ,2007      **Subject Guide to Books in Print** ,1997      **Hospital**  
**Manuals** Paula Cryderman,Canadian Hospital Association,1983      Medical and Health Care Books and Serials in Print  
,1997

## Decoding **Blood Bank Lab Manual**: Revealing the Captivating Potential of Verbal Expression

In a period characterized by interconnectedness and an insatiable thirst for knowledge, the captivating potential of verbal expression has emerged as a formidable force. Its capability to evoke sentiments, stimulate introspection, and incite profound transformations is genuinely awe-inspiring. Within the pages of "**Blood Bank Lab Manual**," a mesmerizing literary creation penned with a celebrated wordsmith, readers attempt an enlightening odyssey, unraveling the intricate significance of language and its enduring effect on our lives. In this appraisal, we shall explore the book's central themes, evaluate its distinctive writing style, and gauge its pervasive influence on the hearts and minds of its readership.

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