

HEMATOLOGY 2018

American Society of Hematology
Education Program

60th ASH[®] Annual Meeting and Exposition
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Cover: Composite colored scanning electron micrograph of a bacterial blood infection caused by a rod-shaped bacterium. Short chains of a bacillus bacterium are shown among red blood cells and platelets from the circulatory system. Magnification: $\times 1600$ when the shortest axis is printed at 25 mm. Source: Dennis Kunkel Microscopy/Science Photo Library.

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Editors' Message

We welcome you to the 60th annual meeting of the American Society of Hematology and are honored to provide you with Hematology 2018. The Education Co-Chairs, Dr. Mark A. Crowther and Dr. Mikkael A. Sekeres, have prepared a comprehensive state of the art program describing advances spanning the spectrum from basic discovery and disease pathogenesis, to the clinical application at the bedside. This book is the culmination of the efforts of many individuals and their selfless commitment to ASH including the authors, reviewers, and ASH staff (Joanna Robertson, Kiya Myers, and Ken April).

Michael Hallak, MD will deliver the Hamm Wasserman Lecture on “The Architecture of Translational Research Designed to Control Chronic Lymphocytic Leukemia,” and his manuscript is also included.

It is a most exciting time in hematology with a very rapid pace of progress. We have attempted to put basic advances in their clinical contexts; and conversely, to define the new science underlying clinical advances as well. We hope that you will find Hematology 2018 to be a valued resource, which is also available online at <http://asheducationbook.hematologylibrary.org>.



Martin S. Tallman, MD



Keith R. McCrae, MD



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Reviewers

The editors would like to thank the session chairs and the reviewers who worked hard to ensure the reliability of the material presented in *Hematology 2018*:

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Continuing Medical Education Information

Hematology: the ASH Education Program, is an annual publication that provides practicing hematologists with invaluable information on the most important areas of clinical progress.

Hematology 2018 is a peer-reviewed collection of 76 articles, approximately 600 full-color pages, written by the 2018 ASH Education Program speakers and the Ham-Wasserman Lecturer. The papers showcase groundbreaking advances and new concepts in nearly 30 different fields. Every year, the periodical provides an updated and comprehensive review of each of the topics covered in the annual meeting education sessions.

Educational objectives

1. Employ the knowledge gained regarding the diagnosis and treatment of malignant and non-malignant hematologic disorders to improve patient care.
2. Discuss the state-of-the-art therapeutics in hematology.
3. Analyze the potential contribution of novel, not-yet-approved modalities of therapy to current evidence-based management of malignant and non-malignant hematologic disorders.

Date of release

December 2018

Date of expiration

On December 31, 2019, the ability to earn Continuing Medical Education credit and American Board of Internal Medicine Maintenance of Certification points for this product expires. This is the last date for users to claim credit for this product. For questions about credit, please contact the ASH Education Department at cme@hematology.org or call toll-free 866-828-1231 within United States only; +1-202-776-0544 internationally.



Accreditation and Credit Designation

The American Society of Hematology is accredited by the Accreditation Council for Continuing Medical Education to provide continuing medical education for physicians.

The American Society of Hematology designates this enduring material for a maximum of 40 *AMA PRA Category 1 Credits™*. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

Physicians who participate in this CME activity but are not licensed in the United States are also eligible for *AMA Category 1 PRA Credit™*.

To earn these credits, readers must take two online tests (malignant and non-malignant) based on chapters from the book.



ABIM Maintenance of Certification

Successful completion of this CME activity enables the participant to earn up to 40 MOC points in the American Board of Internal Medicine's (ABIM) Maintenance of Certification (MOC) program. Participants will earn MOC points equivalent to the amount of CME credits claimed for the activity. It is the CME activity provider's responsibility to submit participant completion information to ACCME for the purpose of granting ABIM MOC credit.

Claiming CME Credit and ABIM points

The estimated time to complete this educational activity is 40 hours. To claim CME credit, users must complete an evaluation of the product and a test of medical knowledge, both of which are accessed through the ASH Academy (www.ashacademy.org). There is a one-time processing fee for claiming CME/MOC credit. Users with scores of 80% or better on these self-assessment modules are eligible to claim credit for the activity.

To facilitate claiming of credit, the test for this product is divided into two subtests, one of which focuses on malignant hematology content with the other focusing on non-malignant content. Successful completion of each test earns the user 20 *AMA Category 1 PRA Credits™*. *Users claim CME and/or ABIM MOC credit for each test individually.* You can take one or both tests, depending on your CME and MOC needs.

Each test consists of 25 questions. The 25 questions can be answered in one sitting, or a user can answer some questions, save their progress, and complete the test at a later time.

The Malignant Hematology Test covers information presented in the following sections:

- Acute Myeloid Leukemia: Moving Beyond 7+3
- Aggressive Lymphomas
- A Panoply of Immunotherapies for Adult B-Lineage Acute Lymphocytic Leukemia
- Approach to the Treatment of the Older, Unfit Patient With Myeloma: From Diagnosis to Relapse
- Approach to the Treatment of the Young, Fit Patient With Myeloma: From Diagnosis to Relapse
- As If Myeloproliferative Neoplasms Weren't Already Challenging Enough

- AYA: Big Children or Small Adults? Leukemia Treatment in Adolescence
- Chronic Myeloid Leukemia: With Great Success Comes Great Responsibility
- Follicular Lymphoma: Have We Made Progress?
- Hodgkin Lymphoma: Beyond ABVD for Everyone
- Reining in Graft-Versus-Host Disease (GVHD) After Allogeneic Hematopoietic Cell Transplantation
- The Future of Chronic Lymphocytic Leukemia (CLL) Therapy
- The Molecular Maelstrom of Myelodysplastic Syndromes (MDS)
- Update in Transfusion Therapy for Hematologic Malignancies: Transfusion Support—TACO and TRALI
- Using Genomics to Risk Stratify and Treat Kids

The Non-Malignant Hematology Test covers information presented in the following sections:

- What's Hot in Immune Thrombocytopenic Purpura (ITP)?
- Severe Aplastic Anemia: Diagnosis and Management in an Era of Effective Therapies
- High-Performance Hematology: Elite Athletes and Weekend Warriors
- Hemolytic Anemia: A Cornucopia of Causes
- Delivering High-Quality Oral Anticoagulant Therapy: State of the Art in 2018
- Thalassemia Syndromes: Diagnosis and Management in a Changing World
- The Interface Between Man and Machine: Managing Hemostasis and Thrombosis in the Plastic and Metal Circulation
- Sickle Cell Disease: New Frontiers
- Junior Faculty Career-Development Session
- Thrombotic Thrombocytopenic Purpura (TTP) 2019: State of the Art
- Hemostatic and Thromboembolic Challenges in the Young
- Anxiety-Provoking Consults: Macrophage Activation Syndrome, Castleman Disease, and Hypereosinophilia
- Long-Term Management of VTE: The First Six Months and Beyond