

**ASH<sup>®</sup>-SAP**  
**American Society**  
**of Hematology**  
**Self-Assessment Program**

**SIXTH EDITION**

# Disclosures

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## Disclosures of financial relationships

### Chapter 1, Molecular basis of hematology

*Laura Schuettepelz* declares no competing financial interest.  
*Omar Abdel-Wahab* declares no competing financial interest.

### Chapter 2, Consultative hematology I: hospital-based and selected outpatient topics

*Cindy Neunert*: safety advisory board: Genzyme. *Anita Rajasekhar*: consultancy: Alexion, Octapharma, Bayer, Baxter; funding: American Society of Hematology.

### Chapter 3, Consultative hematology II: women's health issues

*Margaret V. Ragni*: research support from Alnylam, ATHN, Baxalta, Biogen, CSL Behring, Dimension, Genentech Roche, Novo Nordisk, Novartis, Opko, Pfizer, Shire, SPARK, and Vascular Medicine Institute; consultant for Baxter, Bio-Marin, Biogen, Medscape, Opko, Tacere Therapeutics; member of the National Hemophilia Foundation Medical & Scientific Advisory Committee and a member of the Foundation for Women and Girls with Blood Disorders Advisory Board. *Peter A. Kouides*: consultant for Baxter, CSL Behring, Grifols; member of the National Blood Clot Alliance Medical & Scientific Advisory Board. *Sarah H. O'Brien*: research support from Bayer and the Hemophilia Thrombosis and

Hemostasis Research Society of North America (HTRS); member of an advisory board for GlaxoSmithKline.

### Chapter 4, Hematopoietic growth factors

*Aaron T. Gerds* declares no competing financial interest.  
*Alan E. Lichtin* declares no competing financial interest.

### Chapter 5, Iron metabolism, iron overload, and the porphyrias

*Heather A. Leitch* has received honoraria, research funding, and/or served on advisory boards for Alexion, Apo-Pharma, Celgene, and Novartis. She is a member of the Exjade speakers' bureau. *Jecko Thachil* declares no competing financial interest.

### Chapter 6, Acquired underproduction anemias

*Siobán B. Keel* declares no competing financial interest.  
*Narla Mohandas* declares no competing financial interest.

### Chapter 7, Hemolytic anemias

*Farzana A. Sayani* declares no competing financial interest.  
*Sophie Lanzkron*: research funding: Novartis, Glycomimetics, Emmaus.

### Chapter 8, Thrombosis and thrombophilia

*David Garcia*: consultancy: Bristol-Myers Squibb, Portola, Pfizer, Boehringer Ingelheim, and Daiichi Sankyo. *Saskia Middeldorp*: consulting fees from Bayer, Boehringer Ingelheim, Bristol-Myers Squibb, Pfizer, and Daiichi Sankyo and research support from GlaxoSmithKline, Aspen, the alliance of Bristol-Myers Squibb and Pfizer, and Sanquin Blood Supply. *Anjali Alatar Sharathkumar*: consulting fees from Baxter, CSL Behring, and Biogen Idec.

### Chapter 9, Bleeding disorders

*Christine L. Kempton*: consultancy: Baxter Healthcare, Biogen Idec, Kedrion Biopharma; research support: Novo Nordisk. *Jorge A. Di Paola*: Consultancy: CSL Behring; DSMB Pfizer.

### Chapter 10, Disorders of platelet number and function

*Adam Cuker*: consultancy: Amgen, Bracco, Genzyme; research support: Diagnostica Stago, T2 Biosystems. *Andreas*

*Greinacher*: consultancy: Bayer Healthcare, Boehringer Ingelheim, ASPEN, Instrumentation Laboratory; honoraria: Bristol Myers Squibb.

### **Chapter 11, Laboratory hematology**

*John L. Frater* declares no competing financial interest. *Anne M. Winkler* declares no competing financial interest.

### **Chapter 12, Transfusion medicine**

*William Savage* received research funding from Fresenius-Kabi. *Suzanne Bakdash* declares no competing financial interest.

### **Chapter 13, Cellular basis of hematopoiesis and stem cell transplantation**

*Paresh Vyas* declares no competing financial interest. *Aly Karsan* declares no competing financial interest.

### **Chapter 14, Clinical hematopoietic cell transplantation**

*Matthew Wieduwilt*: research funding: Sigma Tau. *Sergio A. Giral*: consultancy: Celgene; research funding: Celgene; Sanofi-Aventis; Honoraria: Celgene, Millennium, Sanofi-Aventis; speakers' bureau: Sanofi-Aventis.

### **Chapter 15, Myeloid disorders and inherited marrow failure syndromes**

*Alison A. Bertuch*: research funding: Cancer Prevention Research Institute of Texas, National Institutes of Health, American Society of Hematology. *Inderjeet Dokal*: research funding: MRC, Children with Cancer, Leukaemia & Lymphoma Research.

### **Chapter 16, Chronic myeloid leukemia and myeloproliferative neoplasms**

*Ruben A. Mesa*: consulting: Novartis; research support: Incyte, Gilead, Genentech, CTI, Promedior, and NS Pharma. *Brady L. Stein*: advisory board/consulting for Incyte Corporation.

### **Chapter 17, Acquired marrow failure syndromes: aplastic anemia, paroxysmal nocturnal hemoglobinuria, and myelodysplastic syndromes**

*Phillip Scheinberg*: speaker: Novartis. *Amy E. DeZern*: no competing financial interest. *David P. Steensma*: advisory

board: Incyte, Novartis, Celgene, MEI Pharma, Takeda, and Genoptix.

### **Chapter 18, Acute myeloid leukemia**

*B. Douglas Smith* declares no competing financial interest. *Eytan M. Stein* declares no competing financial interest.

### **Chapter 19, Acute lymphoblastic leukemia and lymphoblastic lymphoma**

*Mark R. Litzow*: research funding from Amgen. *Mats Heyman*: no competing financial interest.

### **Chapter 20, Hodgkin lymphoma**

*Ann S. LaCasce*: research funding: Seattle Genetics. *Andreas Engert*: consultancy, presentation, and research funding: Takeda and Millennium.

### **Chapter 21, Non-Hodgkin lymphoma**

*Brad Kahl*: research support: Genentech and AbbVie; consultancy: Celgene, Roche, Seattle Genetics, Millennium, Infinity, and Cell Therapeutics. *Greg Nowakowski*: research support: Celgene and Bayer; consultancy: Celgene, Bayer, and Seattle Genetics. *David Yang*: no competing financial interest.

### **Chapter 22, Chronic lymphocytic leukemia/small lymphocytic lymphoma**

*Clive S. Zent*: research funding from Novartis, Biothera, GlaxoSmithKline, Genzyme, and Genentech. *Timothy G. Call*: no conflicts of interest to declare.

### **Chapter 23, Plasma cell disorders**

*Shaji K. Kumar*: consultancy: Celgene, Millennium, Onyx, Janssen, Bristol-Myers Squibb, Sanofi, and Skyline Diagnostics; research funding: Celgene, Millennium, Onyx, Janssen, Bristol-Myers Squibb, Sanofi, and Novartis. *Jesús San Miguel*: consultancy: Janssen, Novartis, Celgene, Millennium, Onyx, Bristol-Myers Squibb, and Sanofi.

## **Discussion of off-label drug use**

In compliance with ACCME policy, the American Society of Hematology requires all authors to disclose any discussion of off-label drug use in their chapters.

### **Chapter 1, Molecular basis of hematology**

No discussion of off-label drug use.

## **Chapter 2, Consultative hematology I: hospital-based and selected outpatient topics**

*Cindy Neunert:* corticosteroids and rituximab for use in thrombotic thrombocytopenic purpura; antithrombin III and activated protein C for disseminated intravascular coagulation; cyclophosphamide, corticosteroids, intravenous immunoglobulin, and rituximab for catastrophic antiphospholipid antibody syndrome; corticosteroids, intravenous immunoglobulin, rituximab, and thrombopoietin receptor agonists for pediatric immune thrombocytopenia (ITP); rituximab for adult ITP; and granulocyte-stimulating factor outside of severe congenital neutropenia. *Anita Rajasekhar:* desmopressin for use in platelet function disorders; desmopressin, recombinant factor VIIa, prothrombin complex concentrate, activated prothrombin complex concentrate, fibrin glue, and,  $\epsilon$ -aminocaproic acid, and tranexamic acid for use in surgical bleeding; conjugated estrogens for use in uremic bleeding; intravenous immunoglobulin and erythropoietin for use in parvovirus-associated pure red cell aplasia; angiotensin-converting enzyme inhibitors and angiotensin receptor blockers for use in post-renal transplant erythrocytosis; and rituximab for use in CD20<sup>+</sup> posttransplant lymphoproliferative disorder.

## **Chapter 3, Consultative hematology II: women's health issues**

*Margaret V. Ragni:* not applicable. *Peter A. Kouides:* low-molecular-weight heparin, fondaparinux, aspirin, and warfarin in pregnancy. *Sarah H. O'Brien:* not applicable.

## **Chapter 4, Hematopoietic growth factors**

*Aaron T. Gerds:* filgrastim in HIV. *Alan E. Lichtin:* epoetin alfa and darbepoetin alfa in myelodysplastic syndromes.

## **Chapter 5, Iron metabolism, iron overload, and the porphyrias**

Off-label use of iron chelation therapy.

## **Chapter 6, Acquired underproduction anemias**

No discussion of off-label drug use.

## **Chapter 7, Hemolytic anemias**

Rituximab, cyclophosphamide, azathioprine, mycophenolate mofetil, cyclosporine, and danazol in the treatment of autoimmune hemolytic anemia.

## **Chapter 8, Thrombosis and thrombophilia**

No discussion of off-label drug use.

## **Chapter 9, Bleeding disorders**

Recombinant factor VIIa for management of bleeding in hemophilia at doses and regimens that are not approved and for other off-label indications, as well as prothrombin complex concentrates for treatment of factor II and X deficiency.

## **Chapter 10, Disorders of platelet number and function**

Desmopressin for inherited platelet function defects and uremic platelets, recombinant factor VIIa for inherited platelet function defects, rituximab for immune thrombocytopenia and thrombotic thrombocytopenic purpura, and fondaparinux and bivalirudin for heparin-induced thrombocytopenia.

## **Chapter 11, Laboratory hematology**

No discussion of off-label drug use.

## **Chapter 12, Transfusion medicine**

No discussion of off-label drug use.

## **Chapter 13, Cellular basis of hematopoiesis and stem cell transplantation**

No discussion of off-label drug use.

## **Chapter 14, Clinical hematopoietic cell transplantation**

*Matthew Wieduwilt and Sergio A. Giral:* drug therapy for hematologic malignancies and hematopoietic cell transplantation.

## **Chapter 15, Myeloid disorders and inherited marrow failure syndromes**

No discussion of off-label drug use.

## **Chapter 16, Chronic myeloid leukemia and myeloproliferative neoplasms**

No discussion of off-label drug use.

**Chapter 17, Acquired marrow failure syndromes: aplastic anemia, paroxysmal nocturnal hemoglobinuria, and myelodysplastic syndromes**

*Phillip Scheinberg*: cyclosporine, rabbit antithymocyte globulin, alemtuzumab, and cyclophosphamide. *Amy E. DeZern*: not applicable. *David P. Steensma*: eltrombopag, romiplostim, lenalidomide for non-del5q, darbepoetin, and epoetin.

**Chapter 18, Acute myeloid leukemia**

No discussion of off-label drug use.

**Chapter 19, Acute lymphoblastic leukemia and lymphoblastic lymphoma**

*Mark R. Litzow and Mats Heyman*: blinatumomab, dasatinib, and ponatinib.

**Chapter 20, Hodgkin lymphoma**

*Ann S. LaCasce*: rituximab for the treatment of lymphocyte-predominant Hodgkin lymphoma. *Andreas Engert*: not applicable.

**Chapter 21, Non-Hodgkin lymphoma**

No discussion of off-label drug use.

**Chapter 22, Chronic lymphocytic leukemia/small lymphocytic lymphoma**

Idelalisib, ibrutinib, ofatumumab, pentostatin, and cladribine.

**Chapter 23, Plasma cell disorders**

No discussion of off-label drug use.