Cambridge University Press & Assessment 978-1-009-10501-9 — Pediatric Pathology of Hematopoietic and Histiocytic Disorders Edited by Xiayuan Liang , Bradford Siegele , Jennifer Picarsic Frontmatter More Information

Pediatric Pathology of Hematopoietic and Histiocytic Disorders

Cambridge University Press & Assessment 978-1-009-10501-9 — Pediatric Pathology of Hematopoietic and Histiocytic Disorders Edited by Xiayuan Liang , Bradford Siegele , Jennifer Picarsic Frontmatter More Information

Pediatric Pathology of Hematopoietic and Histiocytic Disorders

Edited by

Xiayuan Liang Children's Hospital Colorado

Bradford Siegele Children's Hospital Colorado

Jennifer Picarsic Cincinnati Children's Hospital Medical Center



Cambridge University Press & Assessment 978-1-009-10501-9 — Pediatric Pathology of Hematopoietic and Histiocytic Disorders Edited by Xiayuan Liang, Bradford Siegele, Jennifer Picarsic Frontmatter More Information



Shaftesbury Road, Cambridge CB2 8EA, United Kingdom

One Liberty Plaza, 20th Floor, New York, NY 10006, USA

477 Williamstown Road, Port Melbourne, VIC 3207, Australia

314–321, 3rd Floor, Plot 3, Splendor Forum, Jasola District Centre, New Delhi – 110025, India

103 Penang Road, #05-06/07, Visioncrest Commercial, Singapore 238467

Cambridge University Press is part of Cambridge University Press & Assessment, a department of the University of Cambridge.

We share the University's mission to contribute to society through the pursuit of education, learning and research at the highest international levels of excellence.

www.cambridge.org Information on this title: www.cambridge.org/9781009098656

DOI: 10.1017/9781009105002

© Cambridge University Press & Assessment 2024

This publication is in copyright. Subject to statutory exception and to the provisions of relevant collective licensing agreements, no reproduction of any part may take place without the written permission of Cambridge University Press & Assessment.

First published 2024

Printed in the United Kingdom by TJ Books Limited, Padstow Cornwall

A catalogue record for this publication is available from the British Library.

A Cataloging-in-Publication data record for this book is available from the Library of Congress

ISBN 978-1-009-09865-6 Hardback ISBN 978-1-009-10500-2 Cambridge Core

ISBN 978-1-009-10501-9 Print-Online Bundle

Cambridge University Press & Assessment has no responsibility for the persistence or accuracy of URLs for external or third-party internet websites referred to in this publication and does not guarantee that any content on such websites is, or will remain, accurate or appropriate.

Every effort has been made in preparing this book to provide accurate and up-todate information that is in accord with accepted standards and practice at the time of publication. Although case histories are drawn from actual cases, every effort has been made to disguise the identities of the individuals involved. Nevertheless, the authors, editors, and publishers can make no warranties that the information contained herein is totally free from error, not least because clinical standards are constantly changing through research and regulation. The authors, editors, and publishers therefore disclaim all liability for direct or consequential damages resulting from the use of material contained in this book. Readers are strongly advised to pay careful attention to information provided by the manufacturer of any drugs or equipment that they plan to use. Cambridge University Press & Assessment 978-1-009-10501-9 — Pediatric Pathology of Hematopoietic and Histiocytic Disorders Edited by Xiayuan Liang , Bradford Siegele , Jennifer Picarsic Frontmatter <u>More Information</u>

"I would like to thank Lisa Litzenberger for her great effort in drawing beautiful schematic images for some chapters of this book. Also, this book cannot be accomplished without the hard work and the commitment of my co-editors and the many contributing authors and co-authors, for whom I am extremely grateful." **Xiayuan Liang**

"For Nicole, Isabel, Vivien, and Margo" **Bradford Siegele**

"In remembrance and dedication to Dr. Ronald Jaffe, life-long mentor and dear friend."

Jennifer Picarsic

Cambridge University Press & Assessment 978-1-009-10501-9 — Pediatric Pathology of Hematopoietic and Histiocytic Disorders Edited by Xiayuan Liang, Bradford Siegele, Jennifer Picarsic Frontmatter More Information

Contents

List of Contributors ix

Section I General Hematology and Hematopathology

- Development of Hematopoiesis in the Fetus, at Birth, and after Birth 1 Xiayuan Liang
- 2 Normal Anatomy and Function of Lymph Nodes 5 Xiayuan Liang

Section II Non-Neoplastic Hematologic Disorders of Blood and Bone Marrow

- 3 **Anemia 9** Virginia Knez and Xiayuan Liang
- 4 **Bone Marrow Failure Syndromes** 25 Bradford Siegele
- 5 Inherited Leukocyte Disorders 52 Bradford Siegele
- 6 **Other Conditions** 59 Virginia Knez and Xiayuan Liang

Section III Non-Neoplastic Disorders of Extramedullary Lymphoid Tissues

- 7 Non-Infectious Lymphadenopathy 67 Xiayuan Liang
- 8 Infectious Lymphadenopathy 84 Julie Rosser and Xiayuan Liang

Section IV Neoplastic Disorders of Bone Marrow

- 9 Ancillary Tests 97
 Bradford Siegele, Liming Bao, Amy L. Treece, and Xiayuan Liang
- 10 **Juvenile Myelomonocytic Leukemia (JMML)** 121 Bradford Siegele
- 11 Myeloid/Lymphoid Neoplasms with
 Eosinophilia and Gene Rearrangement 126
 Bradford Siegele
- 12 **Myeloproliferative Neoplasms (MPNs)** 130 Bradford Siegele
- 13 Childhood Myelodysplastic Syndromes (MDSs)
 148
 Bradford Siegele
- 14 Acute Myeloid Leukemia with RelatedPrecursor Neoplasms 155Xiayuan Liang, Billie Carstens, and Virginia Knez
- 15 Myeloid Neoplasms with GermlinePredisposition 189Bradford Siegele
- Blastic Plasmacytoid Dendritic Cell Neoplasms (BPDCNs) 196
 Bradford Siegele
- 17 **Acute Leukemia of Ambiguous Lineage** 199 Xiayuan Liang and Silvia Tse Bunting
- 18 Precursor Lymphoid Neoplasms 208Virginia Knez, Alexandra E. Kovach, GordanaRaca, Billie Carstens, and Xiayuan Liang
- Solid Tumor Metastasis to the Bone Marrow 227 Xiayuan Liang

vii

Cambridge University Press & Assessment 978-1-009-10501-9 — Pediatric Pathology of Hematopoietic and Histiocytic Disorders Edited by Xiayuan Liang , Bradford Siegele , Jennifer Picarsic Frontmatter More Information

Contents

Section V Mature Lymphoid Neoplasms

- 20 **Mature B-Cell Non-Hodgkin Neoplasms** 235 Xiayuan Liang
- 21 Mature T-Cell and NK-Cell Non-Hodgkin Lymphomas 263 Xiayuan Liang
- 22 Hodgkin Lymphoma 285 Xiayuan Liang
- 23 Immunodeficiency-Associated
 Lymphoproliferative Disorders 296
 Xiayuan Liang

Section VI Histiocytic Disorders and Neoplasms

24 **Histiocytic Pathogenesis and Derivation** 307 Jennifer Picarsic

- 25 Identification of Macrophages and DendriticCells 310Jennifer Picarsic
- 26 Non-Neoplastic Accumulation of Histiocytes 312
 Jennifer Picarsic
- 27 Hemophagocytic Lymphohistiocytosis (HLH) 320Jennifer Picarsic and Rebecca Marsh
- Histiocytic Inflammatory Neoplasms/ Lesions 330
 Jennifer Picarsic, Benjamin H. Durham, and Ashish Kumar

Index 352

viii

Cambridge University Press & Assessment 978-1-009-10501-9 — Pediatric Pathology of Hematopoietic and Histiocytic Disorders Edited by Xiayuan Liang, Bradford Siegele, Jennifer Picarsic Frontmatter More Information

Contributors

Liming Bao Colorado Genetics Laboratory University of Colorado Denver

Silvia Tse Bunting Cleveland Clinic Weston

Billie Carstens Colorado Genetics Laboratory University of Colorado Denver

Benjamin H. Durham Memorial Sloan Kettering Cancer Center

Virginia Knez UCHealth University of Colorado Hospital

Alexandra E. Kovach Children's Hospital Los Angeles Medical Center

Ashish Kumar Cincinnati Children's Hospital Medical Center Xiayuan Liang Children's Hospital Colorado

Rebecca Marsh Cincinnati Children's Hospital Medical Center

Jennifer Picarsic Cincinnati Children's Hospital Medical Center

Gordana Raca Children's Hospital Los Angeles

Julie Rosser UCHealth University of Colorado Hospital

Bradford Siegele Children's Hospital Colorado

Amy L. Treece Children's Hospital Colorado

ix