



Universiteit
Leiden
The Netherlands

Mapping the pathogenesis of immune-mediated aplastic anemia: filling the gaps

Pool, E.S.

Citation

Pool, E. S. (2026, September 24). *Mapping the pathogenesis of immune-mediated aplastic anemia: filling the gaps*. Retrieved from <https://hdl.handle.net/1887/4310129>

Version: Publisher's Version

License: [Licence agreement concerning inclusion of doctoral thesis in the Institutional Repository of the University of Leiden](#)

Downloaded from: <https://hdl.handle.net/1887/4310129>

Note: To cite this publication please use the final published version (if applicable).

Mapping the pathogenesis of
immune-mediated aplastic anemia:
filling the gaps

Emma Simone Pool

Cover and chapter illustrations: Marijke Pool and Emma Pool

Layout: Parntawan Kidtam | www.ridderprint.nl

Printing: Ridderprint | www.ridderprint.nl

ISBN: 978-94-6537-685-1

The research presented in this thesis was performed at the Department of Hematology of the Leiden University Medical Center in the Netherlands.

© 2026, Emma Simone Pool. All rights reserved. No part of this thesis may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, electronically, mechanically, by photocopy, by recording, or otherwise without prior written permission from the author.

Mapping the pathogenesis of
immune-mediated aplastic anemia:
filling the gaps

Proefschrift

ter verkrijging van

de graad van doctor aan de Universiteit Leiden,
op gezag van rector magnificus prof.dr. S. de Rijcke,
volgens besluit van het college voor promoties
te verdedigen op donderdag 24 september 2026
klokke 13:00 uur

door

Emma Simone Pool

geboren te Terneuzen
in 1996

Promotores: Prof. dr. M.H.M. Heemskerk
Prof. dr. F. Koning

Co-promotor: Dr. J.M-L. Tjon

Leden promotiecommissie: Prof. dr. A.C. Lankester
Prof. dr. N.F.C.C. de Miranda
Dr. S.M.C. Langemeijer (Radboudumc)
Prof. dr. M.H.G.P. Raaijmakers (Erasmus MC)

Table of contents

Chapter 1	Introduction	9
Chapter 2	Mass cytometric analysis unveils a disease-specific immune cell network in the bone marrow in acquired aplastic anemia	29
Chapter 3	Imaging mass cytometry reveals the order of events in the pathogenesis of immune-mediated aplastic anemia	61
Chapter 4	Selective lymphodepletion underlies the efficacy of horse anti-thymocyte globulin-based immunosuppressive therapy in aplastic anemia	111
Chapter 5	Longitudinal spatial mapping of the bone marrow in an aplastic anemia patient progressing to acute myeloid leukemia	167
Chapter 6	Summary and general discussion	181
Appendices	Nederlandse samenvatting	210
	About the author	217
	List of publications	218
	Acknowledgements	221