



Recurrent glioblastoma in the era of molecular diagnostics: practice variation and practical implications

Opijnen, M.P. van

Citation

Opijnen, M. P. van. (2026, January 7). *Recurrent glioblastoma in the era of molecular diagnostics: practice variation and practical implications*. Retrieved from <https://hdl.handle.net/1887/4286054>

Version: Publisher's Version

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

License: <https://hdl.handle.net/1887/4286054>

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

Recurrent glioblastoma in the era of molecular diagnostics

Practice variation and practical implications

Mark van Opijnen

ISBN: 978-94-6522-420-6

About the cover: Patient's and personal perspectives are reflected by the cover illustration. The patient's journey, from the moment of glioblastoma recurrence, is characterized by an uncertain path with lots of decision moments. The horizon is blocked by gyri-sulci mountains. The author's journey, during his PhD program, was characterized by uncertainties and unexpected twists too, with the love for the mountains being a constant and inspiring factor.

Cover design: Evelien Jagtman || www.evelienjagtman.com

Lay-out and printing: Ridderprint || www.ridderprint.nl

Printing of this thesis was financially supported by: SBOH, Stichting Sterk en Positief, Stichting STOPhersentumoren.nl, Haaglanden Medisch Centrum

© M.P. van Opijnen, 2025

All rights reserved. No part of this thesis may be reproduced, printed or utilized in any form or by any means without prior permission of the copyright holder. This thesis was created without any use of large language models (like ChatGPT) or artificial intelligence.

Recurrent glioblastoma in the era of molecular diagnostics

Practice variation and practical implications

Proefschrift

ter verkrijging van
de graad van doctor aan de Universiteit Leiden,
op gezag van rector magnificus prof. dr. ir. H. Bijl,
volgens besluit van het college voor promoties
te verdedigen op woensdag 7 januari 2026

klokke 14:30 uur
door

Martinus Peter van Opijken
geboren te Gouda
in 1995

Promotores

Prof. dr. mr. M.L.D. Broekman

Prof. dr. ir. E.P.J.G. Cuppen, UMC Utrecht, Utrecht

Copromotor

Dr. F.Y.F. de Vos, UMC Utrecht, Utrecht

Leden promotiecommissie

Prof. dr. A.J. Gelderblom

Dr. M. Geurts, Erasmus MC, Rotterdam

Prof. dr. Y.M. van der Linden

Prof. dr. T. Seute, UMC Utrecht, Utrecht

Prof. dr. M.J.B. Taphoorn

I will lift up my eyes to the hills, from whence comes my help?
My help comes from the LORD, who made heaven and earth.

Psalm 121:1 and 2

TABLE OF CONTENTS

CHAPTER 1	General introduction and outline	11
Part I Practice variation		
CHAPTER 2	The impact of intraoperative mapping during re-resection in recurrent gliomas: a systematic review <i>Journal of Neuro-Oncology (2025)</i>	25
CHAPTER 3	Practice variation in re-resection for recurrent glioblastoma: a nationwide survey among Dutch neuro-oncology specialists <i>Neuro-Oncology Practice (2023)</i>	47
CHAPTER 4	Recurrent glioblastoma in national guidelines on the diagnosis and treatment of gliomas: A matter of European practice variation <i>Brain and Spine (2024)</i>	67
CHAPTER 5	Next generation sequencing of high-grade adult-type diffuse glioma in the Netherlands: interlaboratory variation in the primary diagnostic and recurrent setting <i>Journal of Neuro-Oncology (2024)</i>	83
CHAPTER 6	Study protocol of the GLOW study: maximising treatment options for recurrent glioblastoma patients by whole genome sequencing-based diagnostics – a prospective multicenter cohort study <i>BMC Medical Genomics (2022)</i>	101
Part II Molecular diagnostics		
CHAPTER 7	Glioblastoma targeted treatment option maximization by whole genome sequencing (GLOW): an interim analysis <i>Under review (2025)</i>	119
CHAPTER 8	The role of molecular biomarkers in recurrent glioblastoma trials: an assessment of the current trial landscape of genome-driven oncology <i>Medical Oncology (2024)</i>	141

Part III	Practical implications	
CHAPTER 9	Genome sequencing-based analysis of genetic predisposition to adult glioblastoma <i>Under review (2025)</i>	161
CHAPTER 10	Whole genome sequencing in (recurrent) glioblastoma: challenges related to informed consent procedures and data sharing <i>Acta Neurochirurgica (2024)</i>	187
CHAPTER 11	Summary and general discussion	205
APPENDICES		
	Nederlandse samenvatting	216
	List of publications	225
	Curriculum Vitae	227
	Dankwoord	228