

Gliomas

Waldemar Debinski, MD, PhD
Editor



Gliomas

Gliomas

Edited by

WALDEMAR DEBINSKI, MD, PHD

Brain Tumor Center of Excellence, Wake Forest Baptist
Medical Center Comprehensive Cancer Center,
Winston Salem, NC, USA



Gliomas

ISBN: 978-0-6450017-4-7

DOI: <https://doi.org/10.36255/exonpublications.gliomas.2021>

Edited by

Waldemar Debinski, MD, PhD, Brain Tumor Center of Excellence, Wake Forest Baptist Medical Center Comprehensive Cancer Center, Winston Salem, NC, USA

Published by

Exon Publications, Brisbane, Australia

Copyright© 2021 Exon Publications

Copyright of individual chapters belongs to the respective authors. The authors grant unrestricted publishing and distribution rights to the publisher. The electronic versions of the chapters are published under Creative Commons Attribution-NonCommercial 4.0 International (CC BY-NC 4.0). <https://creativecommons.org/licenses/by-nc/4.0/>. Users are allowed to share and adapt the chapters for any non-commercial purposes as long as the authors and the publisher are explicitly identified and properly acknowledged as the original source. The book in its entirety is subject to copyright by the publisher. The reproduction, modification, replication and display of the book in its entirety, in any form, by anyone, for commercial purposes are strictly prohibited without the written consent of the publisher.

Notice to the user

The views and opinions expressed in this book are believed to be accurate at the time of publication. The publisher, editors or authors cannot be held responsible or liable for any errors, omissions or consequences arising from the use of the information contained in this book. The publisher makes no warranty, implicit or explicit, with respect to the contents of this book, or its use.

First Published in April 2021

Printed in Australia

CONTENTS

Foreword	vii
Preface	ix
List of Contributors	xi
1 Pre-Clinical Models and Potential Novel Therapies for Glioblastomas	1
Michelle Zalles, Rheal A. Towner	
2 Mouse Models of Experimental Glioblastoma	15
Fang Jin, Helen J. Jin-Lee, Aaron J. Johnson	
3 Cancer Stem Cells in Pediatric Brain Tumors	47
Miranda M. Tallman, Abigail A. Zalenski, Monica Venere	
4 Emerging Roles of Wild-type and Mutant IDH1 in Growth, Metabolism and Therapeutics of Glioma	61
Matthew Garrett, Yuki Fujii, Natsuki Osaka, Doshun Ito, Yoshihisa Hirota, Atsuo T. Sasaki	
5 Integration of Molecular Analysis, Cutting-edge Mouse Genetic Models and Proton Therapy to Improve Outcomes for Glioma Patients	79
Soma Sengupta, Luke E. Pater, Daniel Pomeranz Krummel, Bruce J. Aronow, Yoshihisa Hirota, Timothy N. Phoenix, Atsuo T. Sasaki	
6 Cholesterol Derivatives as Promising Anticancer Agents in Glioblastoma Metabolic Therapy	97
Khouloud Sassi, Thomas Nury, Mohammad Samadi, Fatma Ben-Aissa Fennira, Anne Vejux, Gérard Lizard	

7	Targeting Energy Metabolism to Overcome Therapeutic Resistance of Glioblastoma and Tumor-associated Edema	121
	Biplab Dasgupta, Yoshihisa Hirota, Yuki Fujii, Natsuki Osaka, Doshun Ito, David R. Plas, Atsuo T. Sasaki	
8	Therapeutic Potential of Curcumin for the Treatment of Malignant Gliomas	139
	Blake C. Walker, Srijan Adhikari, Sandeep Mittal	
9	Survival Prediction in Gliomas: Current State and Novel Approaches	151
	Rachel Zhao, Andra Valentina Krauze	
10	Molecular Markers of Gliomas to Predict Treatment and Prognosis: Current State and Future Directions	171
	Catarina Rapôso, João Luiz Vitorino-Araujo, Natália Barreto	
11	Brain Mapping: Real-Time Neuropsychological Testing Experience during Low-Grade Tumor Resection	187
	Barbara Tomasino, Tamara Ius, Miran Skrap	
12	Pathogenesis and Management of Brain Tumor-Related Epilepsy	199
	Srijan Adhikari, Blake C. Walker, Sandeep Mittal	
13	Glioneuronal Tumors: Insights into a Rare Tumor Entity	211
	Andra Valentina Krauze	
	Index	229