

BRAIN PATHOLOGY



Journal Menu

- OnlineEarly Articles
- List of Issues

Tools

- Email this article
- Add to favorite articles
- Export this citation
- Alert me when this article is cited: Email | RSS (What is this?)

- Related articles

Publication history

Published article online:
08 Apr 2008

Received 30 November 2007;
accepted 11 January 2008.

[Home](#) > [List of Issues](#) > [OnlineEarly Articles](#) > [Article Abstract](#)

Brain Pathology

OnlineEarly Articles

To cite this article: Matthias Preusser, Robert Charles Janzer, Jörg Felsberg, Guido Reifenberger, Marie-France Hamou, Annie-Claire Diserens, Roger Stupp, Thierry Gorlia, Christine Marosi, Harald Heinzl, Johannes A Hainfellner, Monika Hegi (2008) Anti-O6-Methylguanine-Methyltransferase (MGMT) Immunohistochemistry in Glioblastoma Multiforme: Observer Variability and Lack of Association with Patient Survival Impede Its Use as Clinical Biomarker*
doi:10.1111/j.1750-3639.2008.00153.x



[◀◀ Prev Article](#) | [Next Article ▶▶](#)

Abstract

RESEARCH ARTICLE

Anti-O6-Methylguanine-Methyltransferase (MGMT) Immunohistochemistry in Glioblastoma Multiforme: Observer Variability and Lack of Association with Patient Survival Impede Its Use as Clinical Biomarker*

Matthias Preusser¹; Robert Charles Janzer⁴; Jörg Felsberg⁷; Guido Reifenberger⁷; Marie-France Hamou⁶; Annie-Claire Diserens⁶; Roger Stupp⁵; Thierry Gorlia⁸; Christine Marosi¹; Harald Heinzl²; Johannes A Hainfellner³; Monika Hegi⁶

¹ Department of Internal Medicine 1.

² Core Unit for Medical Statistics and Informatics.

³ Institute of Neurology, Medical University of Vienna, Vienna, Austria.


⁴ Department of Neurology and Division of Neuropathology.

⁵ Multidisciplinary Oncology Center, Center Hospitalier Universitaire Vaudois and University of Lausanne, Lausanne.

⁶ Laboratory of Tumor Biology and Genetics, Center, University Romand de Neurochirurgie Center Hospitalier Universitaire Vaudois and University of Lausanne and the National Center of Competence in Research Molecular Oncology, Swiss Institute for Experimental Cancer Research, Epalinges, Switzerland.

⁷ Department of Neuropathology, Heinrich-Heine-University, Düsseldorf, Germany.

⁸ Data Center, European Organization for Research and Treatment of Cancer, Brussels, Belgium.

 Johannes A Hainfellner, MD, Institute of Neurology, Medical University of Vienna, Waehringer Guertel 18-20, A-1090 Vienna, Austria (E-mail: Johannes.hainfellner@meduniwien.ac.at)

* A translational research project of the European Organization for Research and Treatment of Cancer Brain Tumor Group.

Abstract

Silencing of O6-methylguanine-DNA methyltransferase (MGMT) protein expression because of *MGMT* gene promoter hypermethylation is considered to be associated with postoperative chemoradiotherapy benefits in glioblastoma multiforme (GBM) patients. The objective of this study was to clarify the usability of MGMT immunohistochemistry (IHC) as a clinical biomarker.

We immunostained a tissue microarray containing biopsy samples of 164 GBM patients from the European Organization for Research and Treatment of Cancer and the National Cancer Institute of Canada (EORTC/NCIC) trial 26981/22981 using two commercial anti-MGMT antibodies (clones MT3.1 and MT23.2). Immunostaining results were semiquantitatively evaluated by four observers from three neuropathological laboratories using a predefined algorithm. We analyzed (i) inter- and intraobserver agreement on MGMT expression (kappa statistics); (ii) correlation of MGMT expression with *MGMT* promoter methylation status (kappa statistics); and (iii) correlation of MGMT expression with patient outcome (log-rank test). Interobserver agreement on MGMT expression varied from slight to almost perfect, whereas intraobserver agreement ranged from substantial to almost perfect. MGMT expression showed poor to moderate correlation with *MGMT* promoter methylation status. We found no significant association of MGMT expression with patient outcome. In our hands, observer variability as well as lack of association with the *MGMT* promoter methylation status and patient survival impeded the use of anti-MGMT immunohistochemistry as a clinical biomarker for routine diagnostic purposes.

[References](#)



[Full Text HTML](#)



[Full Text PDF \(632 KB\)](#)



Users who read this article also read:

The Evolution of Our Understanding on Glioma

Ana Martin-Villalba, MD; Ali Fuat Okuducu, MD; Andreas von Deimling, MD

Brain Pathology, OnlineEarly Articles

Published article online: 27-Mar-2008

doi: 10.1111/j.1750-3639.2008.00136.x

[Abstract](#) | [References](#) | [Full Text HTML](#) | [Full Text PDF \(322 KB\)](#)

This Article

- **Abstract**
- [References](#)
- [Full Text HTML](#)
- [Full Text PDF \(632 KB\)](#)
- [Rights & Permissions](#)

Search

In

Synergy

PubMed (MEDLINE)

CrossRef

By keywords

biomarker

glioblastoma

immunohistochemistry

MGMT

prognosis

By author

Matthias Preusser

Robert Charles Janzer

Jörg Felsberg

Guido Reifenberger

Marie-France Hamou

Annie-Claire Diserens

Roger Stupp


Thierry Gorlia

Christine Marosi

Harald Heinzl

Johannes A Hainfellner

Monika Hegi

GO 

[Privacy Statement](#) | [Terms & Conditions](#) | [Contact](#) | [Help](#)



Blackwell Synergy® is a Blackwell Publishing, Inc. registered trademark

Technology Partner — [Atypion Systems, Inc.](#)

Partner of CrossRef, COUNTER, AGORA, HINARI and OARE