



## Epigenetic Mechanisms of Postoperative Cognitive Impairment Induced by Anesthesia and Neuroinflammation

Guest Editor:

**Dr. Rump Katharina**

Klinik für Anästhesiologie,  
Intensivmedizin und  
Schmerztherapie,  
Knappschafts Krankenhaus  
Bochum, In der Schornau 23-25,  
44892 Bochum, Germany

Deadline for manuscript  
submissions:

**31 July 2024**

### Message from the Guest Editor

The aim of this Special Issue is to gain a deeper view into the molecular mechanisms of cognitive impairment after surgery, which is a common problem that mainly affects the elderly and can be divided into postoperative delirium and postoperative cognitive dysfunction. Both phenomena are accompanied by neuroinflammation; however, the precise molecular mechanisms underlying cognitive impairment after anesthesia are not yet fully understood. Anesthetics can have a longer-term impact on protein transcription; thus, epigenetic alterations are a possible mechanism. Epigenetic mechanisms may be responsible for long-lasting effects and may implicate novel therapeutic approaches. As neuroinflammation is generally increased, studies could focus on inflammatory genes (e.g., TNF-alpha, IL-6, or IL1 beta) and genes that are responsible for neuronal development (such as brain-derived neurotrophic factor) could be examined. In addition, studies that focus on the development of novel therapeutic approaches are highly desired.





an Open Access Journal by MDPI

## Editor-in-Chief

### Prof. Dr. Felipe Fregni

1. Neuromodulation Center and  
Center for Clinical Research  
Learning, Spaulding  
Rehabilitation Hospital and  
Massachusetts General Hospital,  
Harvard Medical School, Boston,  
MA 02114, USA  
2. Department of Epidemiology,  
Harvard T.H. Chan School of  
Public Health, Boston, MA 02115,  
USA

## Message from the Editor-in-Chief

*Biomedicines* (ISSN 2227-9059) is an open access journal devoted to all aspects of research on human health and disease, the discovery and characterization of new therapeutic targets, therapeutic strategies, and research of naturally driven biomedicines, pharmaceuticals, and biopharmaceutical products. Topics include pathogenesis mechanisms of diseases, translational medical research, biomaterial in biomedical research, natural bioactive molecules, biologics, vaccines, gene therapies, cell-based therapies, targeted specific antibodies, recombinant therapeutic proteins, nanobiotechnology driven products, targeted therapy, bioimaging, biosensors, biomarkers, and biosimilars. The journal is open for publication of studies conducted at the basic science and preclinical research levels. We invite you to consider submitting your work to *Biomedicines*, be it original research, review articles, or developing Special Issues of current key topics.

## Author Benefits

**Open Access:** free for readers, with [article processing charges \(APC\)](#) paid by authors or their institutions.

**High Visibility:** indexed within [Scopus](#), [SCIE \(Web of Science\)](#), [PubMed](#), [PMC](#), [CAPUS / SciFinder](#), and [other databases](#).

**Journal Rank:** JCR - Q1 (*Pharmacology & Pharmacy*) / CiteScore - Q2 (*Medicine (miscellaneous)*)

## Contact Us

*Biomedicines* Editorial Office  
MDPI, St. Alban-Anlage 66  
4052 Basel, Switzerland

Tel: +41 61 683 77 34  
[www.mdpi.com](http://www.mdpi.com)

[mdpi.com/journal/biomedicines](http://mdpi.com/journal/biomedicines)  
[biomedicines@mdpi.com](mailto:biomedicines@mdpi.com)  
[X@Biomed\\_MDPI](#)