

Special Issue

Photobiomodulation: Cellular, Molecular, and Clinical Efficacy

Message from the Guest Editor

Photobiomodulation (PBM), formerly known as low-level light therapy (LLLT), is an emerging therapeutic approach that utilizes non-invasive and non-ionizing photostimulation to modulate cellular functions and promote tissue healing and regeneration. The efficacy of PBM depends on the coupling mechanisms used to stimulate cellular processes, including metabolism, and is thought to be mediated by photon absorption at specific wavelengths. At the cellular level, PBM is known to activate cytochrome c oxidase in the mitochondrial respiratory chain, resulting in increased energy metabolism and improved cellular function, likely modulating transcription factors related to inflammation, tissue repair, and anti-apoptotic pathways.

This *Photonics* Special Issue therefore aims to address important challenges in the field that have not yet been overcome. Original research articles that address the cellular and clinical efficacy of photobiomodulation are highly encouraged. The goal of this issue is to advance and highlight the potential of photobiomodulation to complement regenerative and personalized medicine.

Guest Editor

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Message from the Editor-in-Chief

You are invited to contribute a research article or a comprehensive review for consideration and publication in *Photonics* (ISSN 2304-6732). *Photonics* is an online open access journal covering both the fundamental and applications of optics and photonics. *Photonics* strives to provide an avenue to allow authors to disseminate their scientific findings—both theoretical/ simulations and experimental works—in highly accessible peer-reviewed journal publications. The manuscript in *Photonics* will be handled with quick turnaround production processing time. We welcome authors to submit their manuscripts for publications in *Photonics*. Our goal in *Photonics* is to enable fast dissemination of high impact works to the scientific community.

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