**Photobiomodulation on IL-6 and TNF-α synthesis of myoblasts cultivated in M1 macrophage-conditioned media**

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**Abstract**

Macrophages are key effector secreting products that can modulate the immune response during all phases of the inflammatory and tissue repair processes. Photobiomodulation therapy (PBM) with low-level laser has been showed positive effects during the muscle repair process modulating the cells involved in the inflammatory process, specially the macrophages. The aim of this study was to evaluate the effects of PBM on the synthesis of cytokines IL-6 and TNF-α in myoblasts cultivated in the presence of a M1 phenotype macrophage-conditioned medium previously submitted to the same irradiation parameters. J774 macrophages were activated with interferon-γ and lipopolysaccharide for 2h to induce the M1 phenotype. Irradiation was performed once using an AlGaAs diode laser (780 nm, 70 mW, 0.04 cm2, 15 s, 1 J). C2C12 myoblasts were cultivated in a proliferation medium (DMEM + 10% FBS) and were irradiated with the same parameters used for the macrophages. After PBM, the myoblasts received 30% of M1 macrophage-conditioned medium (MCM1) from irradiated (+PBM) and non-irradiated macrophages. The IL-6 and TNF-α protein levels were detected 24 and 48h after C2C12 irradiation using ELISA kits. Untreated and PBM-treated myoblasts exhibited lower IL-6 levels in the presence of irradiated MCM1 at 24 and 48h. PBM treated myoblasts that received MCM1+PBM showed lower TNF-α levels after 24h in comparison to untreated myoblasts in non-irradiated MCM1. After 48h, untreated and PBM treated myoblasts exhibited lower TNF-α levels in the presence of MCM1+PBM. PBM performed concomitantly on myoblasts and proinflammatory macrophages was able to modulate the synthesis of IL-6 and TNF-α protein levels.

**Biography**

Tainá Caroline dos Santos is pharmacy and biochemistry graduated by the Universidade Nove de Julho (UNINOVE). She received her Master Degree in Biophotonics Applied to the Health Sciences and Collective and Family Health specialization degree from Universidade Nove de Julho (UNINOVE). Currently she is a Ph.D. student in Biophotonics Applied to the Health Sciences. Since her graduation, she was involved with the developing of biochemistry educational tools. Her primary research interests are molecular biology and physiology. Specifically, she is interested in muscle injury and regeneration, inflammatory process and photobiomodulation benefits. She is involved in studies with different experimental models.