**Study of photobiomodulation in the skin inflammatory process after fractional CO2 laser in rats**

Érika Varssoler, Adriana Lino-dos-Santos-Franco.

Post Graduate Program in Biophotonics Applied to Health Sciences, University Nove de Julho (UNINOVE), São Paulo, Brazil.

Skin aging is characterized by a progressive loss of functionality and regenerative potential. There is also a reduction in hyaluronic acid and glucosaminoglycans, as well as a decrease and disorganization of collagen and elastic fibers, a reduction in vascularization, hydration and lipid content. The concern with delaying aging associated with the increase in life expectancy makes people seek more and more facial treatments. For nearly 15 years the fractional CO2 laser was considered the gold standard for facial treatment, however it is no longer being widely used due to the long skin recovery period and the risk of serious side effects. Thus, therapeutic resources that minimize the side effects of fractional CO2 laser are relevant. Aesthetics professionals have used photobiomodulation (PBM) to increase circulation and lymphatic drainage and mainly because of its anti-inflammatory effects after procedures with the potential to generate inflammation and its signs such as edema, redness and pain. Therefore, the objective of this study will be to evaluate the role of PBM in the inflammatory process generated after the fractional CO2 and the resolution process in the skin. For this purpose, male Wistar rats will be submitted to CO2 laser injury on the skin and treated or not with PBM. After 7 days, the inflammation will be evaluated through the release and gene expression of inflammatory and resolution mediators in the skin. This study will bring scientific evidence on the association of PBM with the CO2 laser.