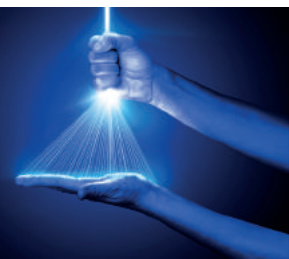


## Blue LED light irradiation induces wound healing improvements through modulation of the inflammatory infiltrate



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### AIM:

The focus of this study is to assess the modulation of the inflammatory infiltrate in acute superficial wounds, after blue LED light irradiation.

Direct observations of the healing process showed a faster recovery of the treated areas of the skin, thus we supposed the existence of a mechanism that was directly affecting its restoration and in doing so going beyond the photocoagulation effect.

We hypothesized a modulation of the inflammatory phase (Fig.1). To test this idea, the immune system cells were analyzed during the different wound healing phases.

### METHOD:

Superficial abrasions were produced on the back of adult male mice. In each animal two superficial wounds were realized; one of them was treated with blue LED light irradiation while the other one was left to naturally recover. At different time points the tissue was dissected and analyzed (Fig. 2) by immunohistochemistry and immunofluorescence. Several immune cell types were considered and their presence and activity were monitored.

### RESULTS / DISCUSSION:

Each time point showed a different concentration and a different activation degree of the immune cells in treated and not treated wounds (Fig. 3). The differences were mostly significant six hours after the superficial abrasion was performed. In the treated wounds the immune cells concentration restored to the control values in a shorter time.

### CONCLUSION:

The treated wounds showed a different pattern of immune cells activation, which was consistent with a faster recovery of the injured tissue.

This work has been possible thanks to Emoled srl

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Figure 1: Mechanism of Blue LED light effects in wounds

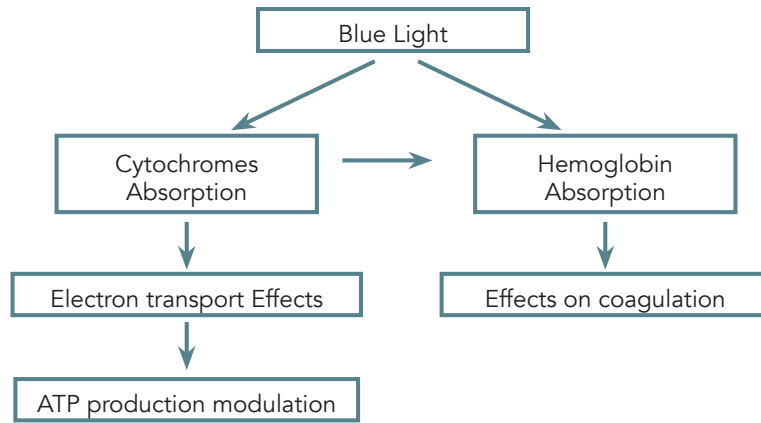


Figure 2: In vivo Experimental evidence of the improved and faster healing process by blue LED irradiation

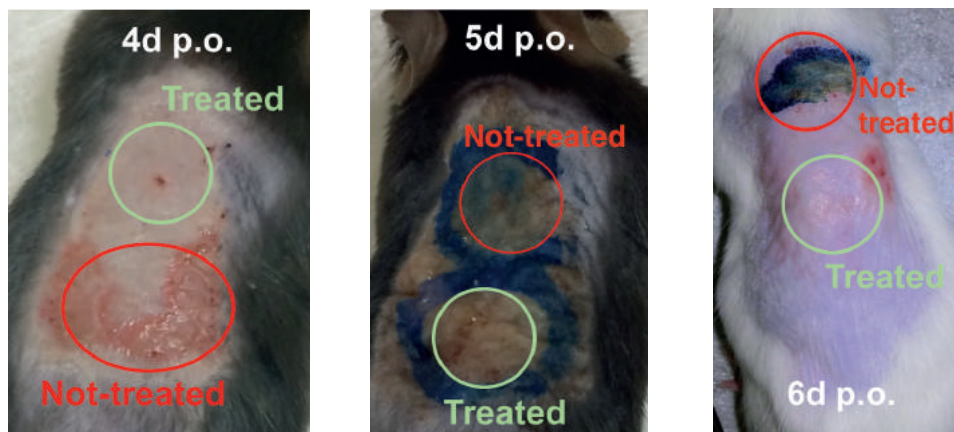


Figure 3: Experimental evidence of modulation in the inflammatory responses of blue LED treated superficial wounds.

