



From the journal:

## Molecular BioSystems

### Effect of IR laser on myoblasts: a proteomic study

[Monica Monici](#),<sup>a</sup> [Francesca Cialdai](#),<sup>a</sup> [Francesco Ranaldi](#),<sup>b</sup> [Paolo Paoli](#),<sup>b</sup> [Francesca Boscaro](#),<sup>c</sup> [Gloriano Moneti](#)<sup>c</sup> and [Anna Caselli](#)<sup>†b</sup>

#### [Author affiliations](#)

### Abstract

Laser therapy is used in physical medicine and rehabilitation to accelerate muscle recovery and in sports medicine to prevent damages produced by metabolic disturbances and inflammatory reactions after heavy exercise. The aim of this research was to get insight into possible benefits deriving from the application of an advanced IR laser system to counteract deficits of muscle energy metabolism and stimulate the recovery of hypotrophic tissue. We studied the effect of IR laser treatment on proliferation, differentiation, cytoskeleton organization and global protein expression in C2C12 myoblasts. We found that laser treatment induced a decrease in the cell proliferation rate without affecting cell viability, while leading to cytoskeletal rearrangement and expression of the early differentiation marker MyoD. The differential proteome analysis revealed the up-regulation and/or modulation of many proteins known to be involved in cell cycle regulation, cytoskeleton organization and differentiation.