

Dipartimento di Biotecnologie e Bioscienze – UNIMIB

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Geneless cardiac cells photostimulation: Novel approaches and perspectives

Francesco Lodola, PhD

Assistant Professor of Physiology at University of Milano-Bicocca,
Department of Biotechnology and Biosciences

Abstract: The use of light to control the activity of different cell-types has recently come at the forefront of the scientific community thanks to a series of key-enabling features (i.e. spatial/temporal selectivity, and lower invasiveness). Optogenetics is probably the prime example of this approach and since its initial development in neuroscience has been extended to other fields. However, the need of viral gene transfer, required to induce light-sensitivity in the target organism, strongly impairs the clinical translation of optogenetics-based systems. To overcome this issue, geneless optostimulation is a growing and multidisciplinary field of research at the border among physics, material science and biology. In this talk I will present promising light-sensitive actuators for cardiac applications, where the possibility to achieve a precise control of cellular activity will offer new insights and future clinical perspectives.

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