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Title: Optical and Optogenetic Control of Cell Proliferation and Survival

Abstract in English:

New strategies for optical and optogenetic control of proliferative and pro-survival signaling were developed. These new light-based methods have unique features, such as red light as an activator, or the avoidance of gene delivery, which enable to overcome current limitations, such as light delivery to target tissues and feasibility as therapeutic approach. A special focus was placed on implementing these new light-based approaches in pancreatic β -cells, as β -cells are the key players in diabetes and especially their loss in number negatively affects disease progression.