

Ruthenium-based photoactivated chemotherapy for hypoxic tumors treatment: progresses and challenges

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Photo-Activated Chemotherapy (PACT), like PhotoDynamic Therapy (PDT), aims at activating anticancer medicines with visible light to circumvent to the tumour site the toxicity of traditional chemotherapy. PACT makes optimal use of ruthenium-based photocages, which can „hide“ the biological function of a natural inhibitor in the dark, but recover it upon visible light irradiation [1]. Unlike PDT, Ru-based PACT agents are activated by a photosubstitution reaction. As this activation mechanism is inherently independent from the presence of dioxygen in the irradiated tissues, we engaged into developing them in particular for the killing of hypoxic tumors, where PDT typically fails. In this presentation, several fundamental chemical and biological properties of Ru-based PACT compounds will be presented [2][3]. We will also show our most recent *in vivo* results on this family of compounds, and discuss the challenges to face before clinical applications can become a reality.

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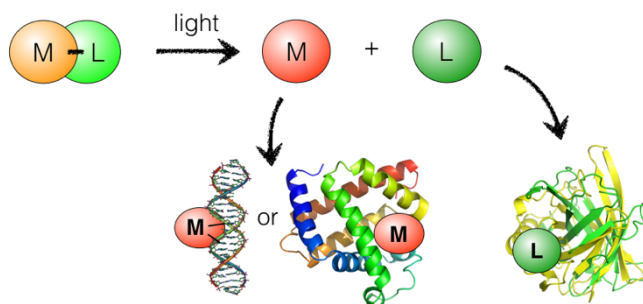


Fig. 1. Prodrug activation by bond cleavage in photoactivated chemotherapy.

References

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