

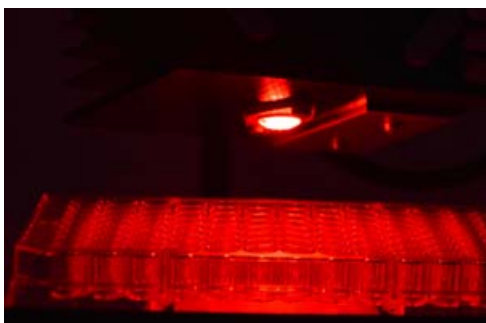
## Novel chlorin-based red-light responsive dual-effective reagents for PDT: Synthesis, DNA-binding and pre-cytotoxicity studies

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Chlorins are  $18\pi$ -electron conjugated aromatic tetrapyrrole pigments with chlorophylls being their most prominent representatives [1]. In contrast to porphyrins, in chlorin-type ligands one of the double bonds of the tetrapyrrole macrocycle is hydrogenated. This strongly enhances their possibility to absorb red light, which is a crucial design principle for biomedical applications in living systems such as photodynamic therapy (PDT) and photopharmacological processes [2].

In previous studies, already some platinum complex decorated porphyrin systems were designed as potentially dual-effective anticancer drugs and their additive cytotoxic and photodynamic properties were characterized to a certain extent [3,4].



In the present study, we employed better synthetic approaches on the preparation of novel red-light responsive and dual-effective metallochlorin derivatives. An in-depth photochemical characterization, as well as first fundamental DNA-binding and cytotoxicity tests are currently starting, ultimately aiming at better understanding of the physiological activity of such compounds in living cells controlled under light exposure.

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[1] Ester Borbas, *Handbook of Porphyrin Science* **2016**, volume 36, chapter 181 – Chlorins.

[2] Knör, G. et. al., *ChemPhotoChem* **2017**, 1, 378.

[3] Brunner, H. et. al, *Angew. Chem., Int. Ed.* **1994**, 33, 2214.

[4] Spingler, B. et al., *Angew. Chem., Int. Ed.* **2014**, 53, 6938; *Chemistry Eur. J.* **2015**, 21, 1179.