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**Hypericin-functionalized graphene oxide for enhanced mitochondria-targeting and synergistic anticancer effect**

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**Abstract**

Effective targeting of mitochondria has emerged as a beneficial strategy in cancer therapy. However, the development of mitochondria-targeting ligands is difficult because of the low permeability of the mitochondrial double membrane. We found that hypericin (HY), a natural product isolated from *Hypericum perforatum* L., is an effective mitochondria-targeting ligand. HY-functionalized graphene oxide (GO) loaded with doxorubicin (GO-PEG-SS-HY/DOX) increased the synergistic anticancer efficacy of phototherapy and chemotherapy in the absence of apparent adverse side effects. *In vitro* and *in vivo* assays suggested

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