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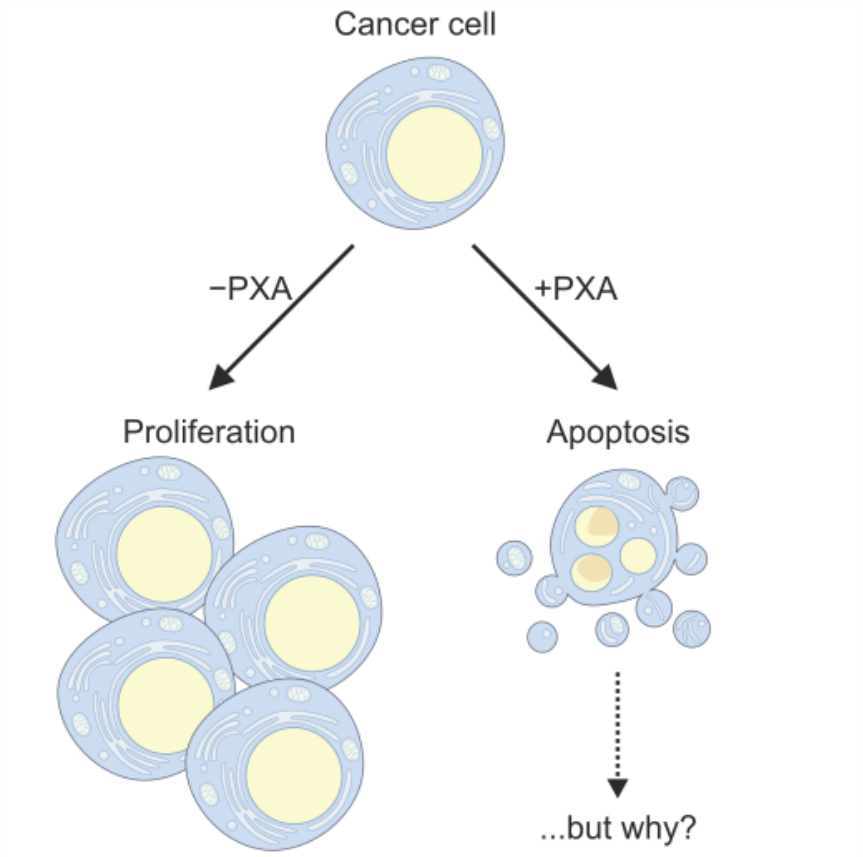
Identification of Phomoxanthone A as a mitochondrial toxin



Cancer remains a leading cause of death in the developed world. The search for novel anti-cancer drugs is thus an ongoing scientific challenge of high importance. Many anti-cancer drugs in current use are natural products or their derivatives, such as daunorubicin, mitomycin, and rapamycin. Our groups recently identified the natural product Phomoxanthone A (PXA) as a highly promising anti-cancer compound. PXA strongly induces programmed cell death (apoptosis) in a diverse range of cancer cell lines, including cell lines resistant to other anti-cancer drugs such as cisplatin. In addition, PXA has a cytotoxic IC50 in the nanomolar range in cancer cells, whereas in cells from healthy donors it was shown to be about 100 fold less cytotoxic (Rönsberg, Böhler et al. 2013; Frank, Böhler et al. 2015). The next step in unfolding the potential of PXA as an anti-cancer drug is to unravel its mode of action, which is the goal of this project.

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