Self-assembled nanoparticles:
anticancer natural products as building blocks
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Our continuous interest in the field of chemical approaches to target cancer cells moved us to study the preparation of a novel classes of conjugate compounds using anticancer drugs as building blocks. In previous efforts we used squalene tail as self-assembling inducer\(^1\) and a disulphide containing linker to secure the release of the drugs after cell internalization.\(^2\) Subsequently we demonstrated the possibility to generate hetero and fluorescent nanoparticles by mixing a paclitaxel-squalene conjugate and fluorescein-squalene conjugate.\(^3\) In the light of facing the high demanding issue of resistance\(^4\) we studied the formation of cyclopamine-paclitaxel containing nanoparticles and we detected the internalization by confocal microscopy and super-resolution.\(^5\) More recently we reported doxorubicin-cyclopa\(m\)mine hetero-nanoparticles that are able to reduce tumour growth and to decrease the toxicity of chemotherapy in mice.\(^6\) Our efforts are actually focused on: a) new self-assembling inducers,\(^7\) b) new combination of drugs to overcome drug resistance,\(^9\) c) new hetero-nanoparticles and d) new drug-conjugates deriving by modification of active natural products.

References: