

Spiroopyrans for light-controlled delivery of Aspirin

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The study and development of new stimuli responsive nano-devices is an appealing research field^{1,2}. In the nano-medicine realm, the possibility to create new smart platforms, for the selective delivery of active agents, using simple and bio-compatible external stimuli such as visible light is a promising field of investigation. For this purpose, we have designed and synthesised a smart platform based on a photo-switchable spiropyran (SP) taking advantage of its well-known capabilities to coordinate metal ions and form stable merocyanine (ME)-metal complexes^{3,4,5}. We have selected Zinc(II) for its intrinsic properties and for its essentiality in the human being and Aspirin as the biologically active compound. We have planned the study of a ternary Visible light regulated system (figure 1) for the delivery of two active agents at the same time. The system has been investigated through spectroscopic techniques to define its features and its ON/OFF switching properties. Our results show the formation of the ternary system ME:Zn:ASA in solution and its Visible light photo-controlled properties paving the way for its use in the assembly of new devices for medicinal chemistry purposes.

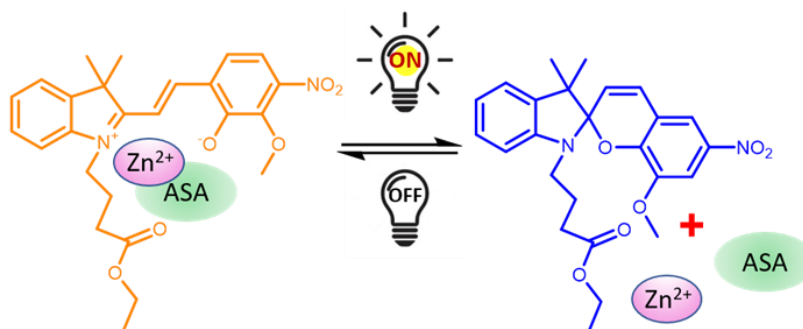


Figure 1: Schematic representation of the proposed drug-delivery system.

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