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External stimuli-controlled nanosystems towards next generation nanomedicines


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A large fraction of the advances in the nanomedicine and nanochemistry fields aim at developing the safe and efficient delivery of pharmaceutical formulations to targeted cells and/or tissues, thereby improving their bioavailability. However, most of the current nanomedicines have very low specificity *in vivo*, thus rendering targeted delivery among the most crucial challenges in the fields of nanotechnology and medicine. One of the most straightforward solutions in this context involves the use of external stimuli such as

light, magnetic fields or ultrasound to trigger drug release from nanocarriers with spatiotemporal resolution, thereby creating molecular (drug) gradients. In this talk, we present and discuss different nanosystems, which can be controlled by external stimuli such as light, magnetic fields or ultrasounds, to achieve delivery of different macromolecules and/or to control cell behaviour *in vitro* and/or *in vivo*.

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