

Smart Nanomaterials for Advanced Biomedical Applications

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The remote control of cellular functions through smart nanomaterials represents a bio-manipulation approach with unprecedented potential applications in many fields of medicine, ranging from cancer therapy to tissue engineering (Figure 1). By actively responding to external stimuli, smart nanomaterials act as real nanotransducers able to mediate and/or convert different forms of energy into both physical and chemical cues, fostering specific cell behaviors [1, 2]. A new paradigm is proposed for nanomedicine, in order to exploit the intrinsic properties of nanomaterials as active devices rather than as passive structural units or carriers for medications.

References

- [1] Genchi G.G., Marino A., Tapeinos C., Ciofani G. Smart materials meet multifunctional biomedical devices: Current and prospective implications for nanomedicine. *Frontiers in Bioengineering and Biotechnology*, 5: 80 (2017)
- [2] Genchi G.G., Marino A., Grillone A., Pezzini I., Ciofani G. Remote control of cellular functions: the role of smart nanomaterials in the medicine of the future. *Advanced Healthcare Materials*, 6(9): 1700002 (2017)

Figures

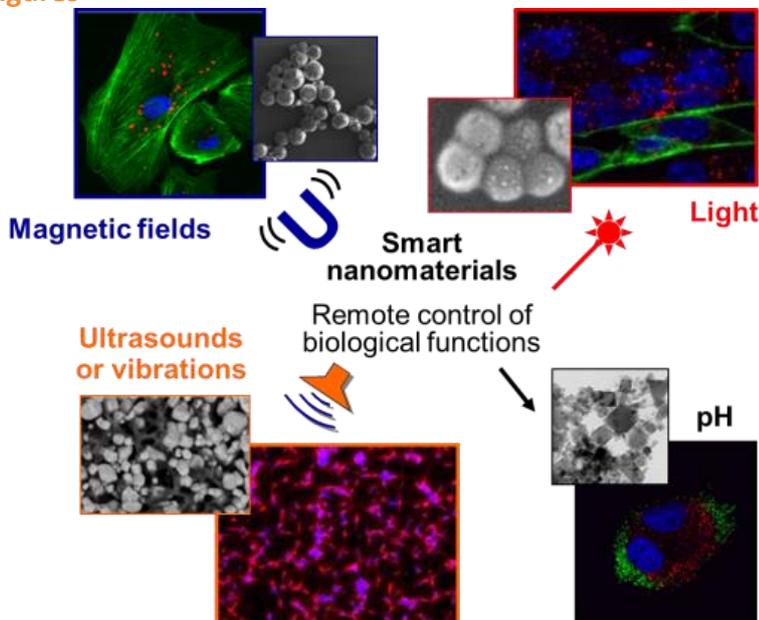


Figure 1. Smart nanomaterials for cell stimulation.