Intracellular Self-Assembly/Disassembly of Nanoparticles Confers “Off/On” Signal for Molecular Imaging Analysis

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Molecular imaging (MI) plays an important role in both clinical diagnosis and laboratorial analysis. Developing “smart” strategy with higher sensitivity for more precise imaging is of great significance but remains challenging. When employed for MI, the system of self-assembly/disassembly of nanostructures carries five characteristic superiorities in its specific response to physiological environment: lower toxicity, longer circulating time and higher imaging efficiency, higher signal-to-noise ratio, and ease of functionalization. This talk focuses on our recent approaches of using intracellular self-assembly/disassembly of nanoparticles for MI analysis with different modalities (magnetic resonance imaging, optical imaging, plasmonic and photoacoustic imaging). We envision that by incorporating multiple imaging modes to the monomer/nanostructures for self-assembly/disassembly, researchers are able to use this “smart” system for more precise MI analysis in the near future.

References

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