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Recent biomedical applications of gold nanoparticles: A review

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ABSTRACT

Recent advances in nanotechnology are as a result of the development of engineered nanoparticles. Efficiently, metallic nanoparticles have been widely exploited for biomedical application and among them, gold nanoparticles (AuNPs) are highly remarkable. Consequent upon their significant nature, spherical and gold nanorods (Au NRs) nanoparticles attract extreme attention. Their intrinsic features such as optical, electronic, physicochemical and, surface plasmon resonance (SPR); which can be altered by changing the characterizations of particles such as shape, size, aspect ratio, or environment; ease of synthesis and functionalization properties have resulted to various applications in different fields of biomedicine such as sensing, targeted drug delivery, imaging, photothermal and photodynamic therapy as well as the modulation of two or three applications. This article reviewed the popular AuNPs synthesis methods and mentioned their established applications in various demands, especially in biological sensing.

Graphical abstract

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