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TITLE

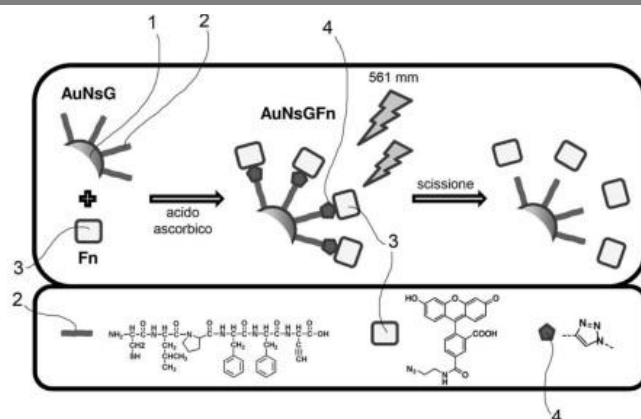
Drug release vector

INVENTORS

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DESCRIPTION

A structure based on 30 nm gold nanospheres conjugated to (bio)molecules by a triazole ring formed through click-chemistry is developed. 30 nm gold nanospheres (AuNs) offer a number of attractive properties such as maximum efficiency in terms of cellular uptake, and an extinction band peaked at 530 nm. The AuNs are coated with an alkyne-modified peptide (CLPFF-Propargylglycine; G), in order to obtain stable bifunctionalized gold colloids with both carboxylic acid and alkyne groups on the metallic surface (AuNsG), so that the system can be easily conjugated with multiple molecular species. The alkyne groups can be readily coupled to azide-probes, such as azide-fluorescein (Fn), by click-chemistry reactions, obtaining the 1,2,3-triazole ring linkage between the metallic nanostructures and the probe. Owing to the field enhancement effect occurring in proximity of the metallic nanostructure for the localized surface plasmon resonance (LSPR) stimulation, this system can effectively release the probe through a 3-photons effect by irradiation with 561-nm laser light. In this way it is possible to control both spatially and temporally the release of a probe internalized in living cells by the use of visible light close to the red part of the spectrum.



APPLICATIONS

Nanomedicine, biophysics, material sciences

KEYWORDS

Drug release, nanoparticles, surface plasmon resonance, visible radiation

BIBLIOGRAPHIC DATA

1) Vettore per il rilascio di un agente attivo, fotoscindibile per irraggiamento nel visibile

Application Number	TO2011A000561
Priority Date	June 27, 2011
Applicants	Fondazione Istituto Italiano di Tecnologia, Scuola Normale Superiore, Consiglio Nazionale delle Ricerche

2) Vector for the release of an active agent which is photocleavable by irradiation in the visible

Application Number	PCT/IB2012/053220
Priority Date	June 27, 2011
Applicants	Fondazione Istituto Italiano di Tecnologia, Scuola Normale Superiore, Consiglio Nazionale delle Ricerche

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