



ISTITUTO ITALIANO
DI TECNOLOGIA

TITLE

Magnetic-Fluorescent Nanobeads

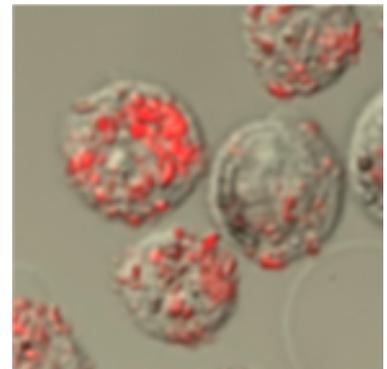
INVENTORS

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DESCRIPTION

This invention implements a new method of simultaneous detection and separation of biological entities like specific cells, based on magnetic nanobeads of strictly controlled size.

The IIT Nano Chemistry research group, has developed nanobeads made of aggregates of iron oxide nanoparticles enwrapped within an amphiphilic polymer to which oligothiophene fluorescents are grafted; their size is selectable in the range 30 to 400 nm. The nanobeads can be designed to exploit both a fluorescent and a magnetic effect, and can be used to target cancer cells. Thanks to the magnetic effect, they can be used to interact with the target and, because of the fluorescent properties, they can be used as reactor in the investigation process.



APPLICATIONS

These nanobeads can be functionalized with a variety of molecules for detecting specific bio-targets and are easily dispersible in the interaction medium with cells or markers; therefore they can be used in a number of biomedical applications, such as bioimaging, bio- and chemo-sensing, cell tracking and sorting, bioseparation, drug delivery and therapy systems in nanomedicine...

KEYWORDS

functionalized nanobeads, biomedical, bioimaging, biosensing, chemosensing, cell tracking, cell sorting, bioseparation, drug delivery, nanomedicine

BIBLIOGRAPHIC DATA TO2009A000169

Nanocapsule colloidali magnetiche fluorescenti: procedimento per la loro preparazione e loro impiego in saggi di selezione cellulare

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