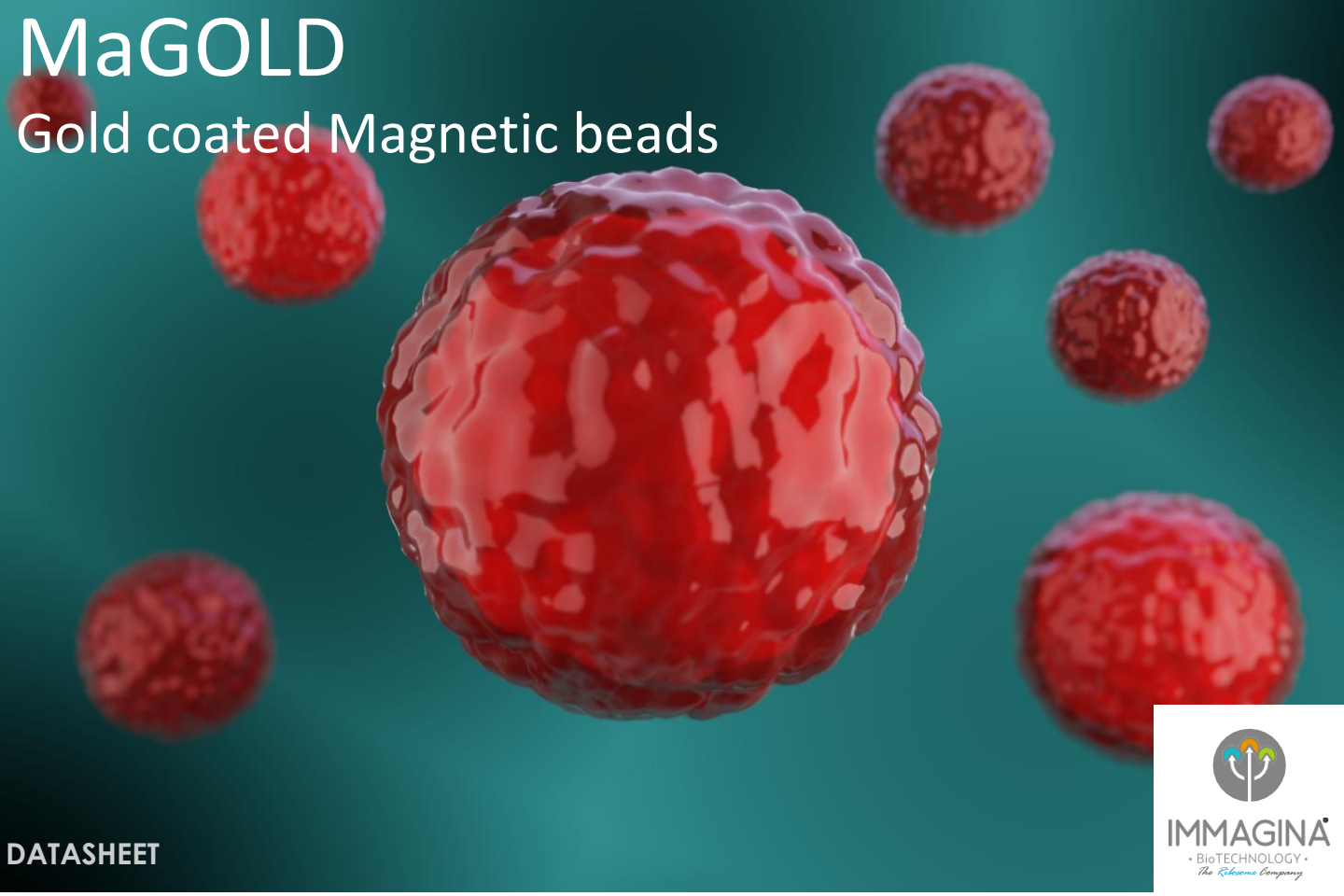
MaGOLD

Gold coated Magnetic beads



DATASHEET

IMMAGINA BioTECHNOLOGY The Ribosome Company

Introduction

IMMAGINA BIOTECHNOLOGY provides MaGOLD, gold coated magnetic beads.

The MaGOLD particles are composed of magnetic beads coated with a gold shell, which can be subsequently functionalized to bind molecules of biological Interest. Magnetic beads core are superparamagnetic in nature. This allows a fast (seconds) magnetic separation of the beads by application of an external magnetic field. The gold coating offers the advantage of being chemically stable and biocompatible. It also provides the ability to conjugate targeted ligands, drugs or antibody using the thiol-gold chemistry.

Highlights

Fast separation

- Magnetic separation in seconds

Stable gold coating

- High chemical stability, inertness and biocompatibility

Easy functionalization

- Possibility to tune the density of functional groups on the surface

Multiplexing

- Possibility to have different functional groups on the same particle

Introduction

The gold coated magnetic beads benefit from the combination of features inherent to both their components: magnetic particles and gold shell. The particles impart the magnetic properties to the beads. These properties allow for the rapid and easy separation of beads by the application of an external magnetic field. The gold coating increase the stability of the magnetic beads forming a protective shell towards external agents. In addition, the easy functionalization of the surface trough the thiol-gold bonding enables the easy functionalization of the beads with different thiol containing molecules included antibody, proteins and thiol-modified nucleic acids. The possibility to functionalize the surface with different probes on the same beads enables multiplexing analysis. Finally, the gold shell impart optical properties to the beads with the possibility to exploit their plasmonic properties for optical sensing., including Surface enhanced Fluorescence and surface energy transfer fluorescence quenching.

MaGOLD beads technology

The MaGOLD particles are composed of magnetic beads coated with a gold shell, which can subsequently functionalized to bind molecules of biological interest (Figure 1). MaGOLD are available in two different dimensions: 2.5 microns (MaGOLD 2.5) and 0.5 microns (MaGOLD 0.5).
MaGOLD beads are monodispersed in size with PDI ≤0.1 and superparamagnetic with a tipycal separation times of about 20 seconds (for MaGOLD 2.5) and 1 minute (MaGOLD 0.5).

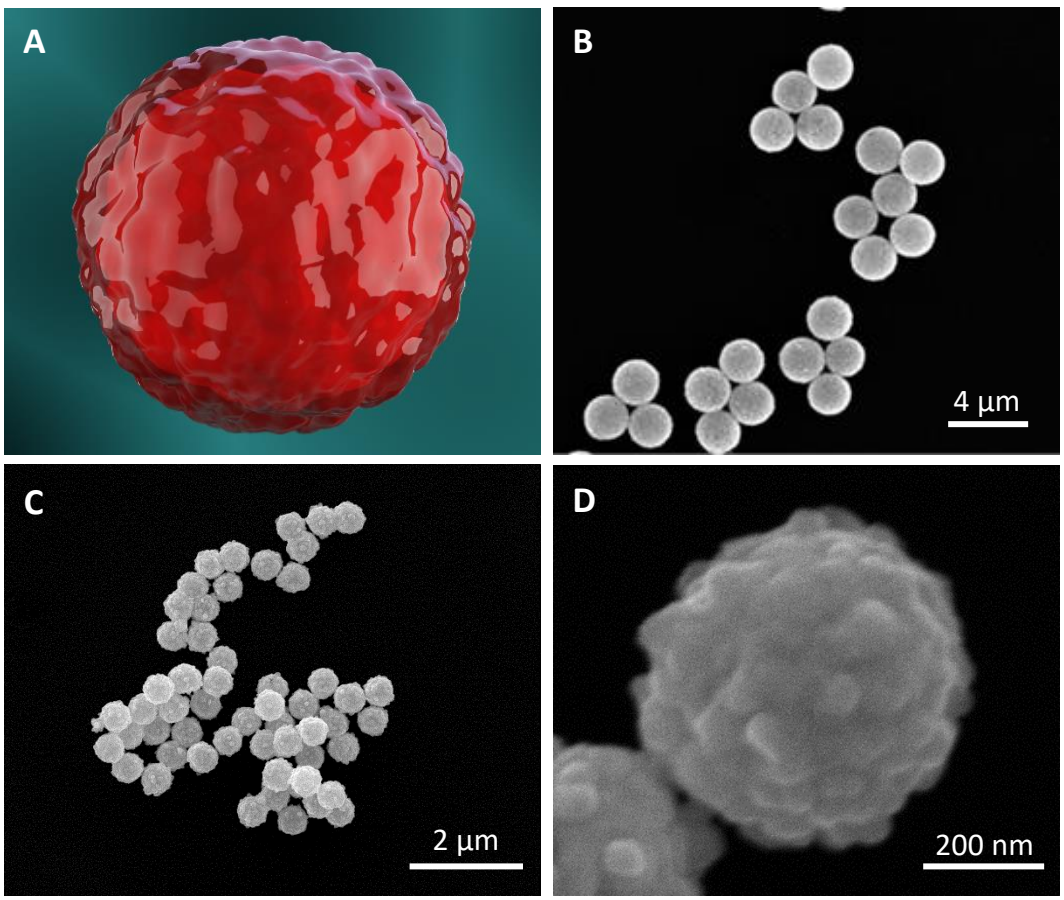


Fig. 1: A) Graphical representation of a MaGOLD bead. **B,** *SEM images of MaGOLD 2.5 and* **C**) *MaGOLD 0.5 beads.* ***D)****: SEM image of a MaGOLD 0.5 bead.*

MaGOLD posses a strong absorption band in the visible-NIR region

Gold coated magnetic beads are obtained using a proprietary procedure. The particles show excellent chemical stability, magnetic properties and an intense surface plasmon resonance in the visible-NIR region (Figure 2).

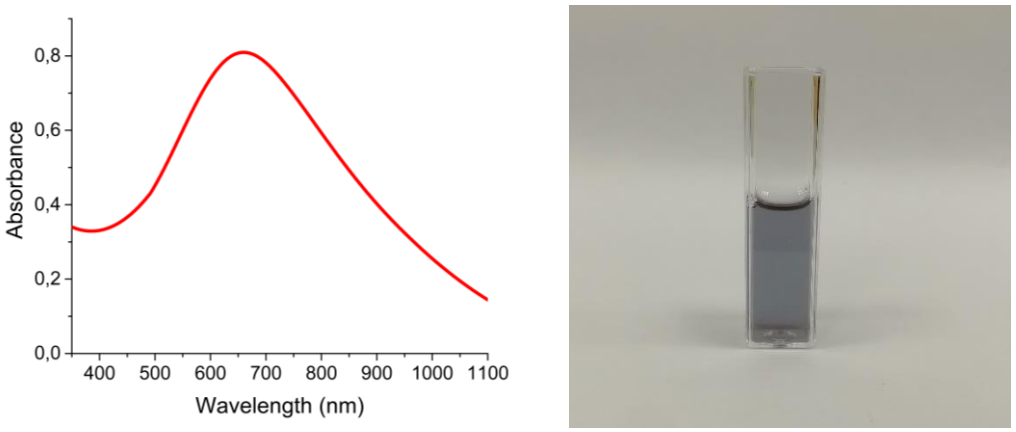


Fig. 2: left. UV-vis absorption spectroscopy of the MaGOLD 0.5 beads. Right: image of MaGOLD 0.5 beads solution

MaGOLD can be easily functionalized trough gold-thiol bond

The average particle size is about 2-3 µm for the MaGOLD 2.5 and 500 nm for the MaGOLD 0.5 with a narrow size distribution. Nanoparticles can be conjugated with thiol-terminated polyethylene glycol containing different terminal functional groups, including amine, carboxyl, azido and biotin (Figure 3). Other sizes are available as a custom request.

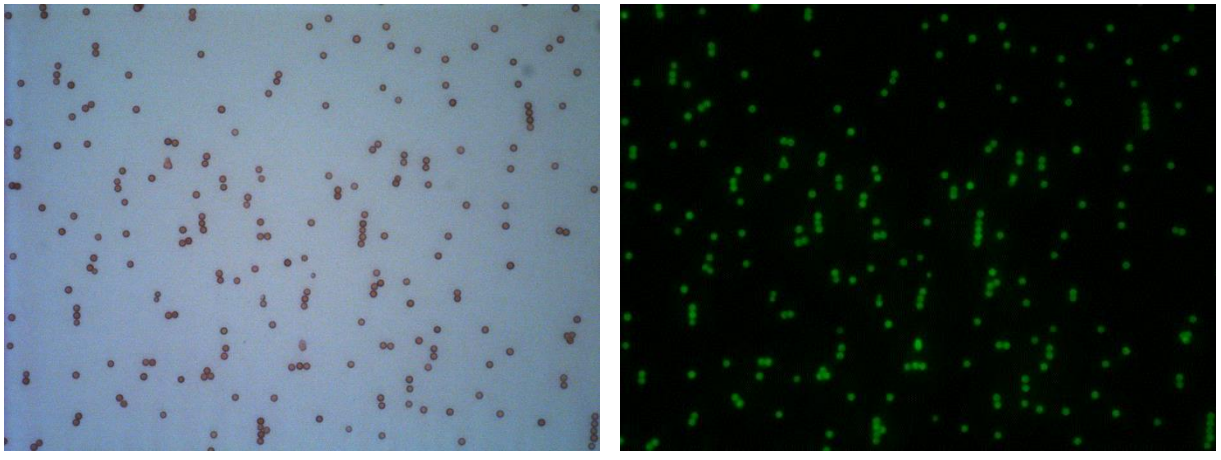


Figure 3. Left: Optical microscope image of MaGOLD 2.5 beads. Right: Fluorescence image of MaGOLD 2.5 beads functionalized with FITC-PEG-SH.

Product specialist
Luca Minati, PhD
lminati@immaginabiotech.com

For Research Use Only. Not for use in diagnostic procedures.

*product available only upon request

Product	Catalog no	Amount
MaGOLD	MaG#001	1mg

Get in touch

Info
info@immaginabiotech.com

Sale support (quoting, ordering and order status update)
orders@immaginabiotech.com

Technical service (technical enquiries and quality complaints)
techsupport@immaginabiotech.com

Via Sommarive, 18, 38123,
TRENTO, ITALY

www.immaginabiotech.com

+39 0461312018

Join us on