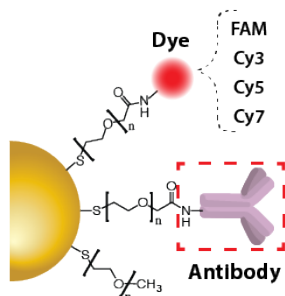


PRODUCT DATA SHEET

Gold Nanoparticles – Anti-HER2 (Herceptin) Ab



PEG Spacer = 5000 Da
mPEG Backfill = 2000 Da

Features

- Functionalized with anti (human) HER2 antibody (Herceptin).
- Targets nanoparticles to breast cancer cells overexpressing HER2.
- A range of available sizes: 15 to 200 nm diameter.
- High monodispersity (PDI < 0.2) and circularity (> 0.9).
- Can be labeled with a fluorescent dye: FAM, Cy3, Cy5, Cy7.

General Information

Polyethylene glycol (PEG) grafting introduces a terminal anti (human) HER2 antibody (Herceptin, Trastuzumab). Trastuzumab is a recombinant humanized monoclonal IgG1 kappa antibody that binds with high affinity and specificity to the extracellular domain of the HER2 receptor. Human epidermal growth factor receptor (HER2), is amplified in 25 to 30 % of breast cancers.

Gold nanoparticles can also be tagged with a fluorescence dye using polyethylene glycol (PEG) as a spacer. To prevent fluorophore quenching, longer PEG of 5 kDa is used to ensure the separation between the dye and the nanoparticle surface.

Methoxy-terminated PEG is used as the backfill to stabilize the particles against charge-induced aggregation and to prevent non-specific protein adsorption.

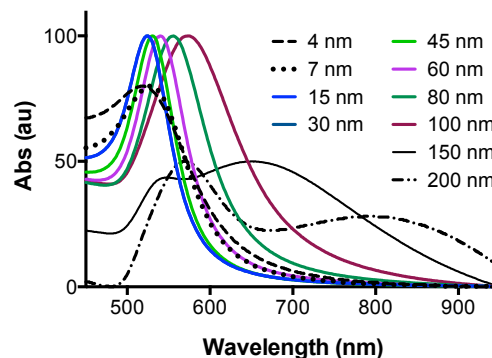
Applications

- Actively targeted fluorescent gold conjugate nanoparticles for *in vitro* and *in vivo* studies.
- Immunocytochemistry, Immunoprecipitation, lateral flow, immunoblotting, immunohistochemistry.
- Nanoparticle-cell interactions using flow cytometry analysis.
- Contrast agents for bright field, dark field, electron microscopy.

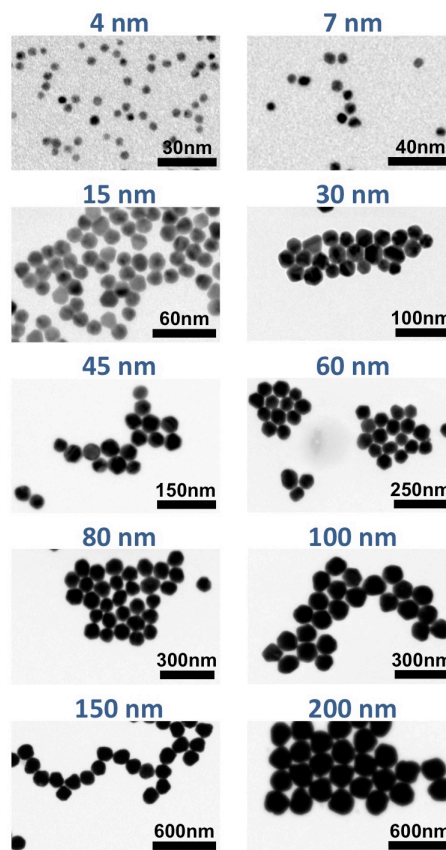
Specifications

Core Diameter: 15 nm – 200 nm
Polydispersity Index (PDI): < 0.2
Shelf life: > 4 months (4°C storage)
Supplied as liquid suspension in PBS

Absorbance Spectra



Electron Microscopy



Storage and Handling

Store the product at 4°C. **DO NOT FREEZE:** freezing will cause nanoparticles to aggregate. Vortex briefly prior to use to resuspend nanoparticles.

This product is for R&D uses only.
MSDS is available at www.lunanano.com.

Physicochemical properties

Diameter (nm)	Size Dispersity (+/- nm)	Peak SPR Wavelength (nm)	OD	Molar Extinction ($M^{-1} cm^{-1}$)	Conc. (M)	Surface Area (nm^2)	Particle Volume (nm^3)	Atoms / Particle	MW (g/mol)	Weight Conc. (mg/mL)	Particles per mL (#)
4	0.8	518	50	2.15E+06	2.33E-05	5.03E+01	3.35E+01	1.99E+03	3.91E+05	9.10	1.40E+16
7	1.2	528	50	1.10E+07	4.55E-06	1.54E+02	1.80E+02	1.06E+04	2.10E+06	9.53	2.74E+15
15	2.5	520	50	3.67E+08	1.36E-07	7.07E+02	1.77E+03	1.05E+05	2.06E+07	2.81	8.20E+13
30	4.7	525	50	3.36E+09	1.49E-08	2.83E+03	1.41E+04	8.38E+05	1.65E+08	2.46	8.96E+12
45	5.8	530	50	1.23E+10	4.07E-09	6.36E+03	4.77E+04	2.83E+06	5.57E+08	2.26	2.45E+12
60	6.5	540	50	3.07E+10	1.63E-09	1.13E+04	1.13E+05	6.70E+06	1.32E+09	2.15	9.80E+11
80	7.2	555	50	7.70E+10	6.49E-10	2.01E+04	2.68E+05	1.59E+07	3.13E+09	2.03	3.91E+11
100	8.5	574	50	1.57E+11	3.18E-10	3.14E+04	5.24E+05	3.10E+07	6.11E+09	1.95	1.92E+11
150	11	550 / 665	50	2.48E+11	2.02E-10	7.07E+04	1.77E+06	1.05E+08	2.06E+10	4.16	1.21E+11
200	18	575 / 790	50	4.35E+11	1.15E-10	1.26E+05	4.19E+06	2.48E+08	4.89E+10	5.62	6.92E+10

Ordering Information

- Order through our website at www.lunanano.com, by calling 1-800-474-4055, or by e-mail at sales@lunanano.com.
- Please contact us for custom quantities, nanoparticle sizes, or surface modifications.
- More information is available at www.lunanano.com.

Catalog Number	Product Description	Dye Label	Conc.	Scale
GNP-HERC-15-Y-D	15 nm Herceptin (human) Coated Gold Nanoparticles	None, FAM, Cy3, Cy5, Cy7	10 OD	0.4 mL, 1 mL, 3 mL
GNP-HERC-30-Y-D	30 nm Herceptin (human) Coated Gold Nanoparticles	None, FAM, Cy3, Cy5, Cy7	10 OD	0.4 mL, 1 mL, 3 mL
GNP-HERC-45-Y-D	45 nm Herceptin (human) Coated Gold Nanoparticles	None, FAM, Cy3, Cy5, Cy7	10 OD	0.4 mL, 1 mL, 3 mL
GNP-HERC-60-Y-D	60 nm Herceptin (human) Coated Gold Nanoparticles	None, FAM, Cy3, Cy5, Cy7	10 OD	0.4 mL, 1 mL, 3 mL
GNP-HERC-80-Y-D	80 nm Herceptin (human) Coated Gold Nanoparticles	None, FAM, Cy3, Cy5, Cy7	10 OD	0.4 mL, 1 mL, 3 mL
GNP-HERC-100-Y-D	100 nm Herceptin (human) Coated Gold Nanoparticles	None, FAM, Cy3, Cy5, Cy7	10 OD	0.4 mL, 1 mL, 3 mL
GNP-HERC-150-Y-D	150 nm Herceptin (human) Coated Gold Nanoparticles	None, FAM, Cy3, Cy5, Cy7	10 OD	0.4 mL, 1 mL, 3 mL
GNP-HERC-200-Y-D	200 nm Herceptin (human) Coated Gold Nanoparticles	None, FAM, Cy3, Cy5, Cy7	10 OD	0.4 mL, 1 mL, 3 mL

Y = '04' – 0.4 mL, '1' – 1 mL, '3' – 3 mL scale

D = 'N' – no dye, 'F' – FAM, 'C3' – Cy3, 'C5' – Cy5, 'C7' – Cy7 dye