Luna Nanotech

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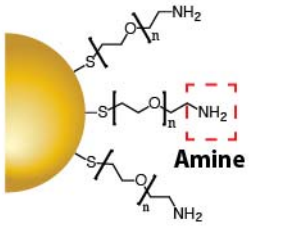
PRODUCT DATA SHEET

Gold Nanoparticles – Amine PEG



PEG Spacer = 2000, 5000, 10000 Da

Features

- A range of available sizes: 4 to 200 nm diameter.
- High monodispersity (PDI < 0.1) and circularity (> 0.9).
- Range of PEG spacer sizes available (2 kDa to 10 kDa).
- Stable in high salt conditions.
- Can be used to conjugate proteins and small molecules.

General Information

Amine-terminated polyethylene glycol (PEG) grafting introduces a terminal NH2 group that can be used for conjugation to carboxyl-containing molecules through EDC/NHS chemistry, or by directly reacting with activated carboxyl groups.

Methoxy-terminated PEG is used as the backfill to stabilize the particles against charge-induced aggregation.

Applications

- Nanoparticle conjugation to proteins and targeting ligands.
- Actively targeted gold conjugate nanoparticles for *in vitro* and *in vivo* studies.
- Gold nanoparticles for lateral flow and immune assays.
- Gold nanoparticle labeling probes for electron microscopy.

Specifications

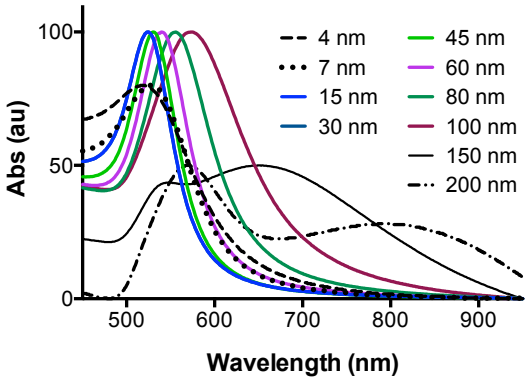
Core Diameter: 4 nm – 200 nm
Polydispersity Index (*PDI*): < 0.1
Absorbance peak: 520 – 580 nm
Methoxy-to-amine PEG ratio: 6-to-4
Shelf life: > 1 year (4°C storage)
Supplied as liquid suspension in PBS or in water with 0.05% (w/v) Tween-20

Storage and Handling

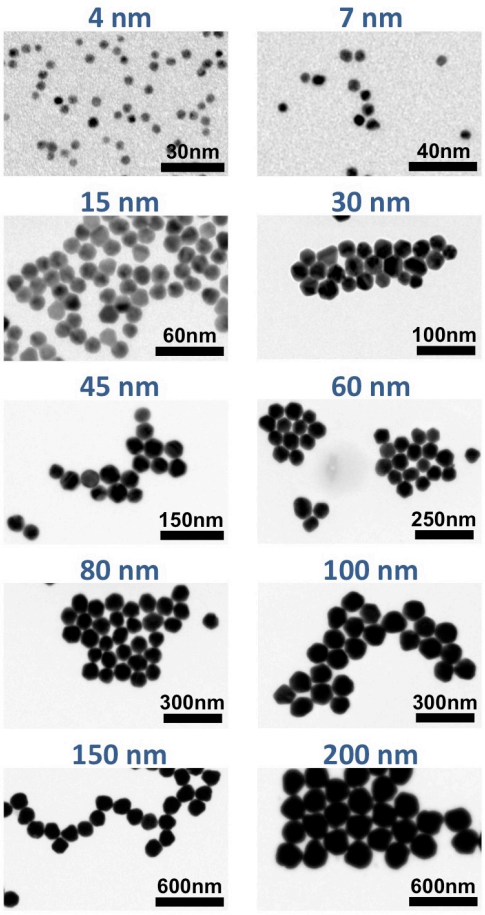
For long-term storage (>1 month), store the product at 4°C. For shorter periods (<1 week) product can be stored at room temperature. **DO NOT FREEZE**: freezing will cause nanoparticles to aggregate.

Vortex briefly prior to use to resuspend nanoparticles.

Absorbance Spectra



Electron Microscopy



This product is for R&D uses only. MSDS documentation is available upon request.

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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

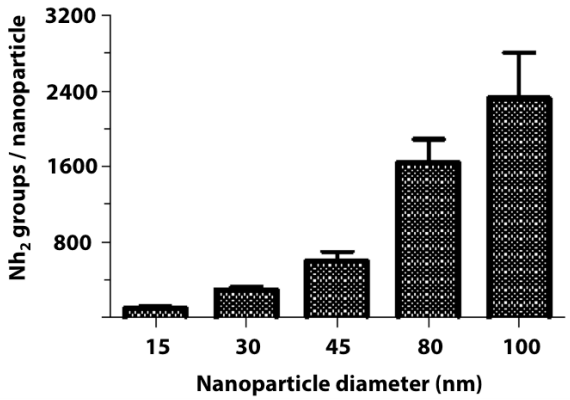

Figure 1: Estimated number of amine groups per nanoparticle for selected nanoparticle sizes with 5 kDa PEG spacer.

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		PEG Size	Conc.	Scale
GNP-NH2-4-*X*-*Y*	4 nm	Amine-Coated Gold Nanoparticles	2 kDa, 5 kDa, 10 kDa	50 OD	0.4 mL, 1 mL, 3 mL
GNP-NH2-7-*X*-*Y*	7 nm	Amine-Coated Gold Nanoparticles	2 kDa, 5 kDa, 10 kDa	50 OD	0.4 mL, 1 mL, 3 mL
GNP-NH2-15-*X*-*Y*	15 nm	Amine-Coated Gold Nanoparticles	2 kDa, 5 kDa, 10 kDa	50 OD	0.4 mL, 1 mL, 3 mL
GNP-NH2-30-*X*-*Y*	30 nm	Amine-Coated Gold Nanoparticles	2 kDa, 5 kDa, 10 kDa	50 OD	0.4 mL, 1 mL, 3 mL
GNP-NH2-45-*X*-*Y*	45 nm	Amine-Coated Gold Nanoparticles	2 kDa, 5 kDa, 10 kDa	50 OD	0.4 mL, 1 mL, 3 mL
GNP-NH2-60-*X*-*Y*	60 nm	Amine-Coated Gold Nanoparticles	2 kDa, 5 kDa, 10 kDa	50 OD	0.4 mL, 1 mL, 3 mL
GNP-NH2-80-*X*-*Y*	80 nm	Amine-Coated Gold Nanoparticles	2 kDa, 5 kDa, 10 kDa	50 OD	0.4 mL, 1 mL, 3 mL
GNP-NH2-100-*X*-*Y*	100 nm	Amine-Coated Gold Nanoparticles	2 kDa, 5 kDa, 10 kDa	50 OD	0.4 mL, 1 mL, 3 mL
GNP-NH2-150-*X*-*Y*	150 nm	Amine-Coated Gold Nanoparticles	2 kDa, 5 kDa, 10 kDa	50 OD	0.4 mL, 1 mL, 3 mL
GNP-NH2-200-*X*-*Y*	200 nm	Amine-Coated Gold Nanoparticles	2 kDa, 5 kDa, 10 kDa	50 OD	0.4 mL, 1 mL, 3 mL

X *= '2' – 2 kDa, '5' – 5 kDa, '10' – 10 kDa PEG spacer*
Y *= '04' – 0.4 mL, '1' – 1 mL, '3' – 3 mL scale*