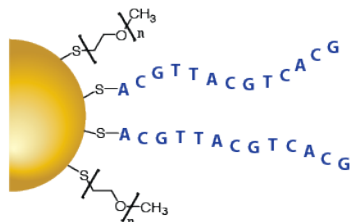


PRODUCT DATA SHEET

Gold Nanoparticles – single-stranded DNA



mPEG Backfill = 1, 2, 5, 10 kDa

Features

- Functionalized with single-stranded DNA (11-90 bases).
- Customizable DNA oligonucleotide sequence.
- 5' or 3' covalent oligonucleotide attachment.
- A range of available nanoparticle sizes: 4 to 100 nm diameter.
- High monodispersity (PDI < 0.2) and circularity (> 0.9).

General Information

The oligonucleotides are covalently attached to the nanoparticle surface through a thiol bond. They can be attached either through their 5' or 3' end.

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

Applications

- Gold nanoparticle clustering-based colorimetric nucleic acid detection assays.
- Components of supramolecular assembly structures.
- *In vitro* and *in vivo* RNA capture probes.
- Reporter probes for detection of surface-immobilized oligonucleotides.

Specifications

Core Diameter: 4 nm – 100 nm

Polydispersity Index (PDI): < 0.2

Shelf life: > 4 months (4°C storage)

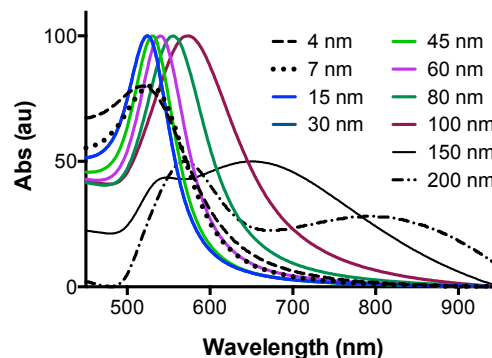
Supplied as liquid suspension in PBS or in water with 0.05% Tween-20

Storage and Handling

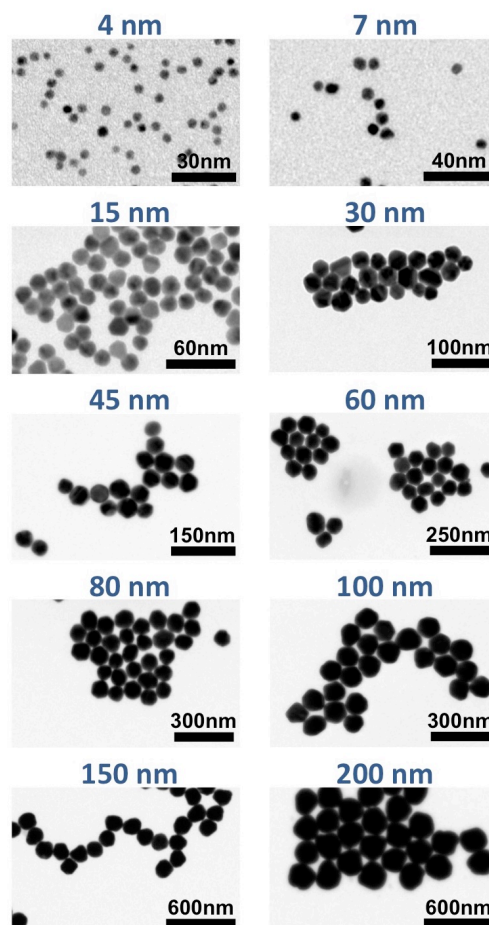
For long-term storage (>1 month), store the product at 4°C. For shorter periods (<1 week) product can be stored at room temperature. **DO NOT FREEZE:** freezing will cause nanoparticles to aggregate.

Vortex briefly prior to use to resuspend nanoparticles.

Absorbance Spectra



Electron Microscopy



This product is for R&D uses only.
MSDS 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.

Oligonucleotides can be chosen to be between 11 and 90 bases long. For nucleotides of 59 bases and below, please choose "Short" oligonucleotide length. For nucleotides between 60 and 90 bases please choose "Long" option.

Please provide the sequence of the oligonucleotide. In the sequence please indicate the location of the thiol (SH) group. For example, the following sequence would be absorbed through it's 5' end:

"5'--SH-ACGCGATTCGACCCTGACGATTGGC--3'"

Catalog Number	Product Description	Nucleotide Length	PEG Backfill	Conc.	Scale
GNP-sDNA-4-D-X-Y	4 nm ssDNA Coated Gold Nanoparticles	S (11-59 b), L (60-90 b)	1 kDa, 2 kDa, 5 kDa, 10 kDa	10 OD	0.4 mL, 1 mL, 3 mL
GNP-sDNA-7-D-X-Y	7 nm ssDNA Coated Gold Nanoparticles	S (11-59 b), L (60-90 b)	1 kDa, 2 kDa, 5 kDa, 10 kDa	10 OD	0.4 mL, 1 mL, 3 mL
GNP-sDNA-15-D-X-Y	15 nm ssDNA Coated Gold Nanoparticles	S (11-59 b), L (60-90 b)	1 kDa, 2 kDa, 5 kDa, 10 kDa	10 OD	0.4 mL, 1 mL, 3 mL
GNP-sDNA-30-D-X-Y	30 nm ssDNA Coated Gold Nanoparticles	S (11-59 b), L (60-90 b)	1 kDa, 2 kDa, 5 kDa, 10 kDa	10 OD	0.4 mL, 1 mL, 3 mL
GNP-sDNA-45-D-X-Y	45 nm ssDNA Coated Gold Nanoparticles	S (11-59 b), L (60-90 b)	1 kDa, 2 kDa, 5 kDa, 10 kDa	10 OD	0.4 mL, 1 mL, 3 mL
GNP-sDNA-60-D-X-Y	60 nm ssDNA Coated Gold Nanoparticles	S (11-59 b), L (60-90 b)	1 kDa, 2 kDa, 5 kDa, 10 kDa	10 OD	0.4 mL, 1 mL, 3 mL
GNP-sDNA-80-D-X-Y	80 nm ssDNA Coated Gold Nanoparticles	S (11-59 b), L (60-90 b)	1 kDa, 2 kDa, 5 kDa, 10 kDa	10 OD	0.4 mL, 1 mL, 3 mL
GNP-sDNA-100-D-X-Y	100 nm ssDNA Coated Gold Nanoparticles	S (11-59 b), L (60-90 b)	1 kDa, 2 kDa, 5 kDa, 10 kDa	10 OD	0.4 mL, 1 mL, 3 mL

D = 'S' – short oligonucleotide (11-59 bases), 'L' – long oligonucleotide (60-90 bases)

X = '1' – 1 kDa, '2' – 2 kDa, '5' – 5 kDa, '10' – 10 kDa PEG backfill

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