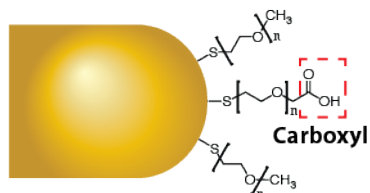


## PRODUCT DATA SHEET

### Gold Nanorod – Carboxyl PEG



PEG Spacer = 2000, 5000, 10000 Da

### Features

- High absorbance cross section yields optimal heat generation
- A range of wavelength absorbance maxima: 670 to 760 nm
- Selection of sizes and aspect ratios
- Multiple PEG Spacer sizes available (2 kDa to 10 kDa)
- Stable in high salt conditions
- Ready for conjugation of proteins and small molecules

### General Information

Gold nanorods have a very high absorbance cross section and efficiently convert the energy of optical excitation into heat generation. Nanorod geometry can be varied to adjust the maximum absorbance wavelength, allowing it to extend into the near-infrared tissue penetration optical window. This makes gold nanorods optimal probes for photothermal therapy, dark field microscopy and plasmonic nanosensors.

Carboxyl-terminated polyethylene glycol (PEG) grafting introduces a terminal carboxyl group that can be used to conjugate amine-containing proteins and other ligands to the nanoparticle surface using standard EDC/NHS chemistry.

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

### Applications

- Contrast agents for photothermal therapy
- Actively and passively targeted drug and contrast agent delivery vehicles for *in vitro* and *in vivo* studies
- Plasmonic sensors for detection of biological molecules
- Imaging probes for dark field microscopy

### Specifications

Physical properties are listed in Table 1

Methoxy-to-carboxyl PEG ratio: 6-to-4

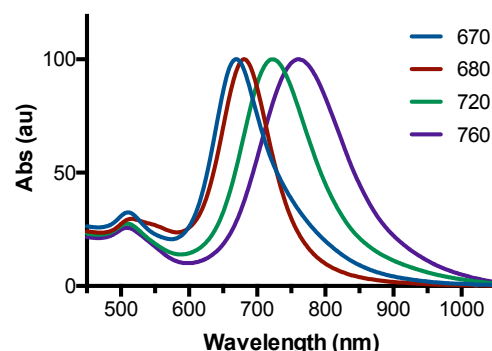
Shelf life: > 1 year (4°C storage)

Supplied as liquid suspension in PBS or in water with 0.05% (w/v) Tween-20 @ 50 OD

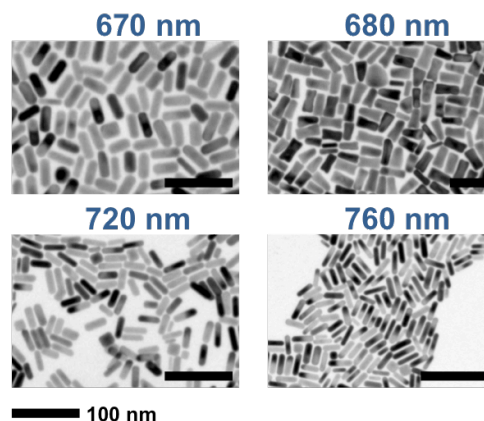
**Table 1: Gold Nanorod Physical Properties**

Abs (nm)	Length (nm)	Cross Section Diameter (nm)	Aspect Ratio
670	37.9 (±4.4)	13.8 (±2.6)	2.8
680	52.6 (±5.7)	23.9 (±4.2)	2.2
720	30.7 (±5.0)	8.8 (±2.2)	3.5
760	29.2 (±4.7)	7.5 (±1.2)	3.9

### Absorbance Spectra



### Electron Microscopy



### 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 nanorods to aggregate.

Vortex briefly prior to use to resuspend nanoparticles.

**This product is for R&D uses only. MSDS documentation is available at [www.lunanano.com](http://www.lunanano.com)**

## Ordering Information

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

Catalog Number	Product Description	PEG Size	Conc.	Scale
<b>GNR-COOH-670-X-Y</b>	670 nm Peak Abs Carboxyl-Coated Gold Nanorods	2 kDa, 5 kDa, 10 kDa	50 OD	0.4 mL, 1 mL, 3 mL
<b>GNR-COOH-680-X-Y</b>	680 nm Peak Abs Carboxyl-Coated Gold Nanorods	2 kDa, 5 kDa, 10 kDa	50 OD	0.4 mL, 1 mL, 3 mL
<b>GNR-COOH-720-X-Y</b>	720 nm Peak Abs Carboxyl-Coated Gold Nanorods	2 kDa, 5 kDa, 10 kDa	50 OD	0.4 mL, 1 mL, 3 mL
<b>GNR-COOH-760-X-Y</b>	760 nm Peak Abs Carboxyl-Coated Gold Nanorods	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