

Technical Data Sheet

BARE GOLD NANORODS

Description

Gold nanorods are tiny cylinders of gold whose aspect ratios tune the surface plasmon resonance band from the visible to near infrared optical region. Gold nanorods offer advantages of good biocompatibility, facile preparation, and conjugation with a variety of biomolecular ligands, antibodies, and other targeting moieties. Along with their unique optical properties, gold nanorods have found wide applications in the fields of life sciences, metamaterials, catalysis, electronics, and solar cells.



General Information

Bare gold nanorods of *NanoSeedz*TM are dispersed in DI water, with < 0.1% CTAB as surfactant capping agent. Axial sizes of 10, 20, and 40 nm are available. The longitudinal surface plasmon resonances of the gold nanorods can be tuned from 550-850 nm. Other sizes are special order. Please contact info@nanoseedz.com.

Shape monodispersity	> 95% nanorods
In batch size variation	< 10% CV
Axial sizes available	10, 20, 40 nm
Wavelength coverage	600-850 nm
Surface charge (zeta)	+40 mv
Solution pH	6-8
CTAB content	< 0.1 wt%

Quantity

All our products are delivered in 10 mL, but with three different concentrations. The concentration is denoted by 10 mL × optical density. In the product part number, -50, -100, -500 represents 10mL of products with peak optical density at 5, 10 and 50, respectively.

Storage

Store the nanorod solution upright in tightly closed containers in a cool, dry environment away from direct sunlight at a temperature of 40-70°F (4-21°C). Store away from light, acids, heat and sources of ignition. Shelf life is six months from date of manufacture. Sedimentation may occur after long storage time. Make sure to homogenize the

solution by hand-shaking or sonication before use.

Health & Safety

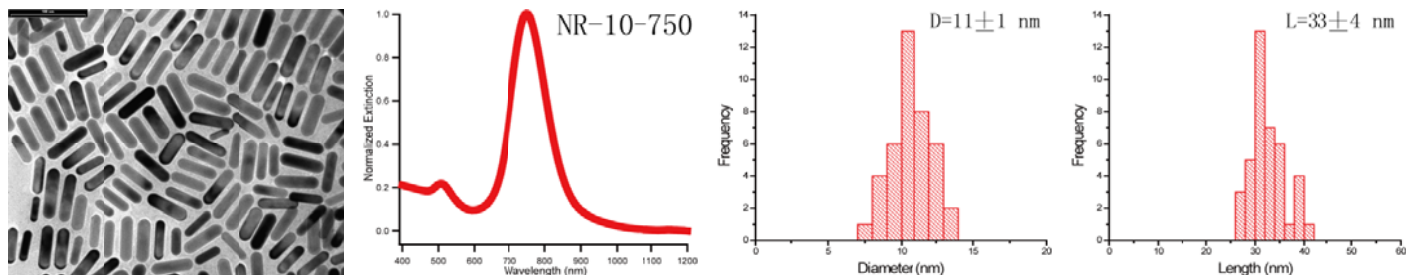
Consult product Material Safety Data Sheet before working with the gold nanorod solution. Handle with care. Wear chemical goggles, chemical gloves and suitable protective clothing when handling solutions. Do not get into eyes, or onto skin or clothing. In case of contact with skin, wash affected area with soap and water. In case of contact with eyes, rinse immediately with water and flush for 15 minutes lifting eyelids frequently. Get emergency medical assistance.

Characteristics

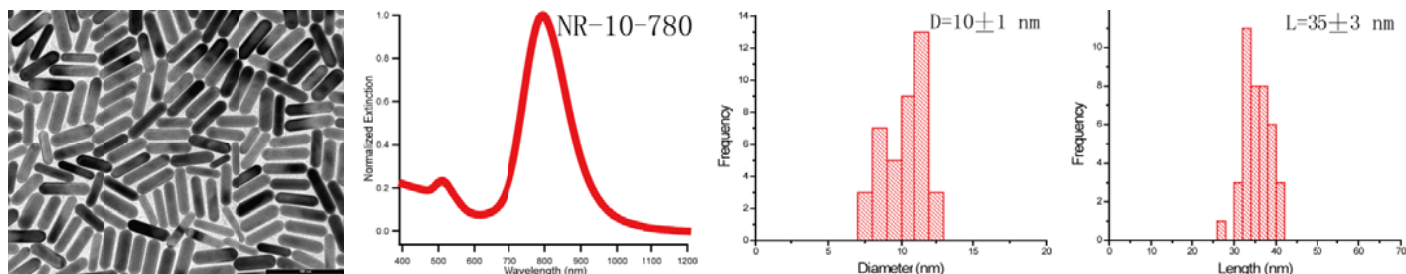
NR-10 Series Gold Nanorods

NR-10 ultra-thin gold nanorods have high photothermal conversion efficiency, which makes them perfect candidates for photothermal therapy applications.

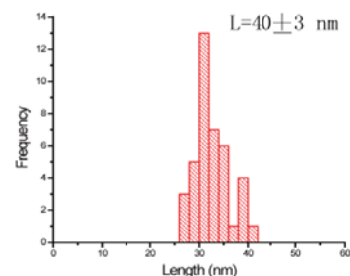
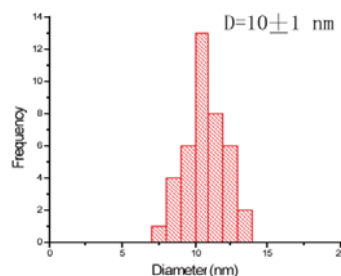
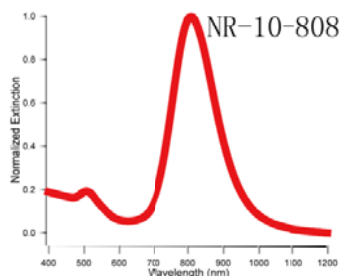
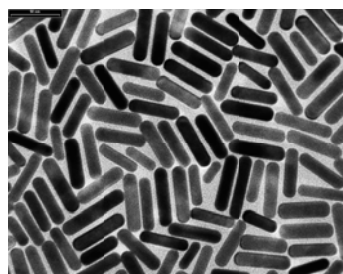
NR-10-750



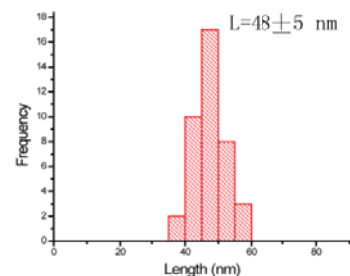
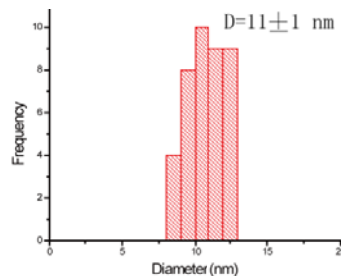
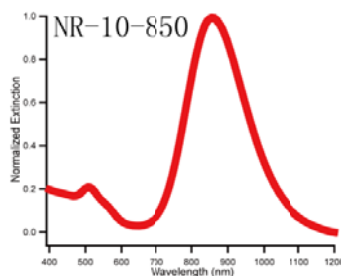
NR-10-780



NR-10-808



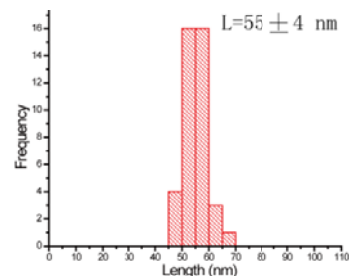
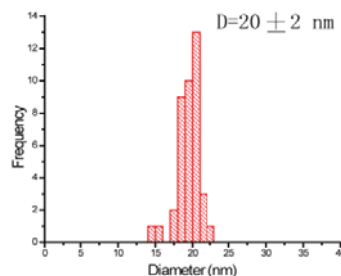
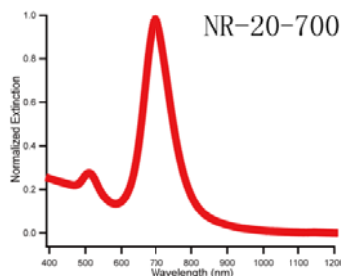
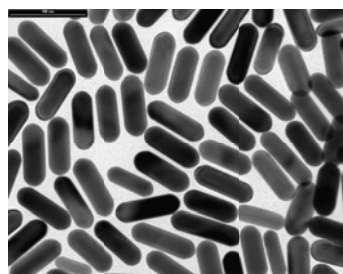
NR-10-850



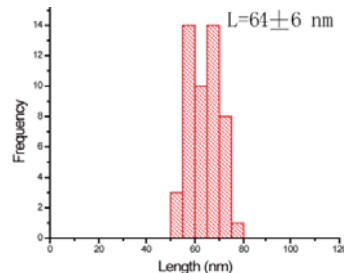
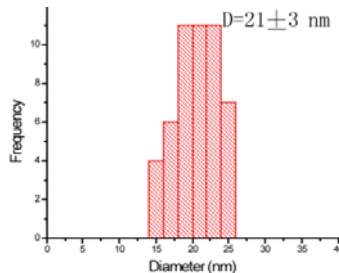
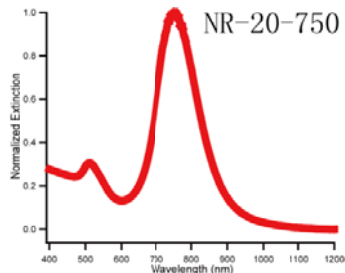
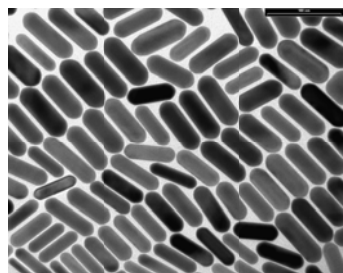
NR-20 Series Gold Nanorods

NR-20 medium-sized gold nanorods have balanced scattering/absorption cross sections, which are suitable for optical signal enhancement and photothermal therapy.

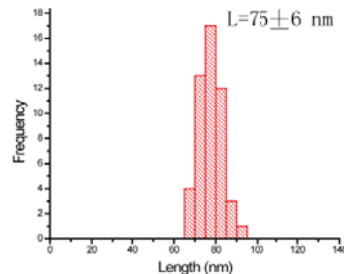
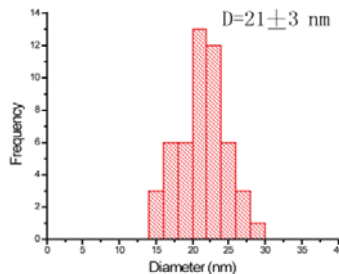
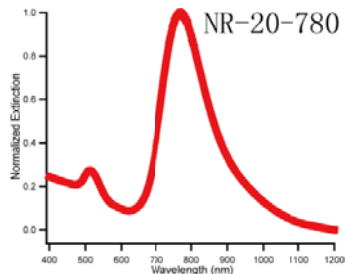
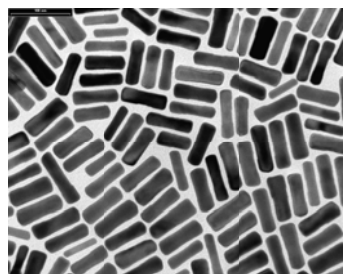
NR-20-700



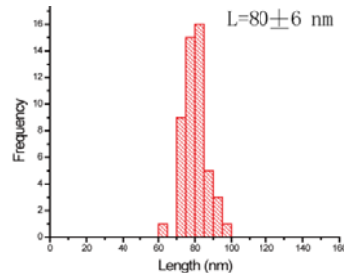
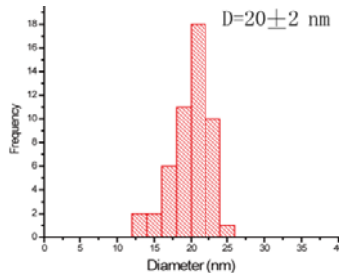
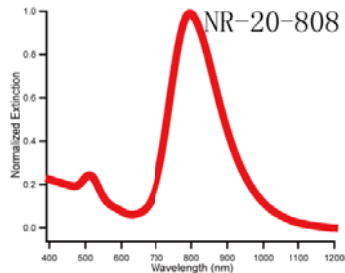
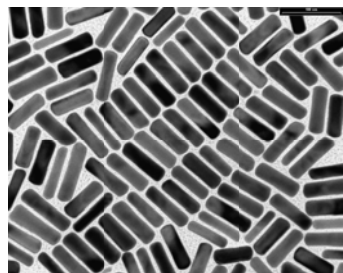
NR-20-750



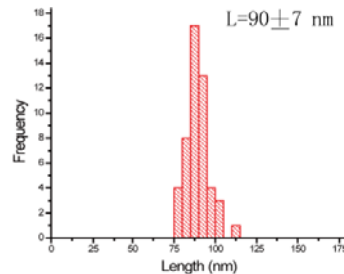
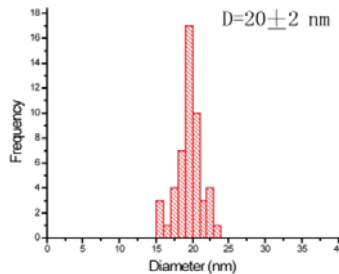
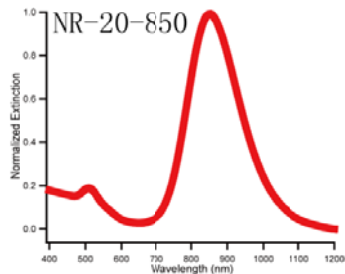
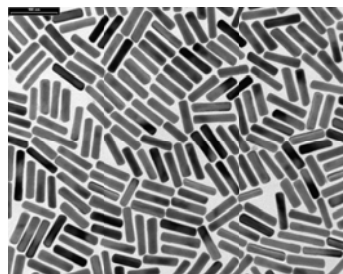
NR-20-780



NR-20-808



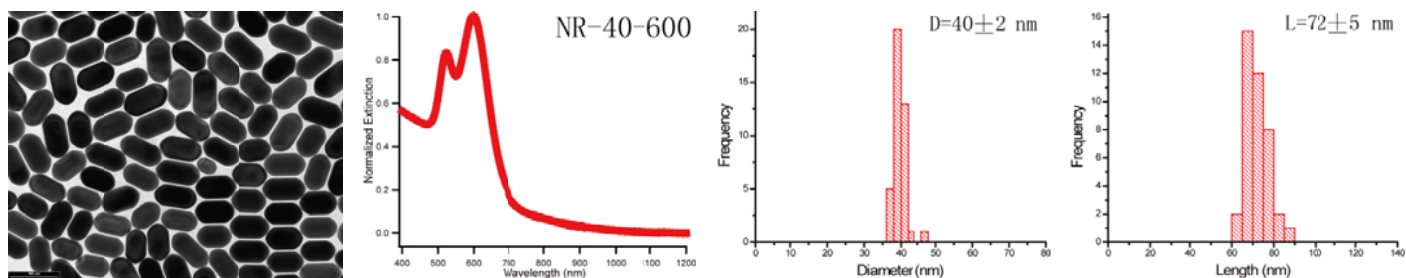
NR-20-850



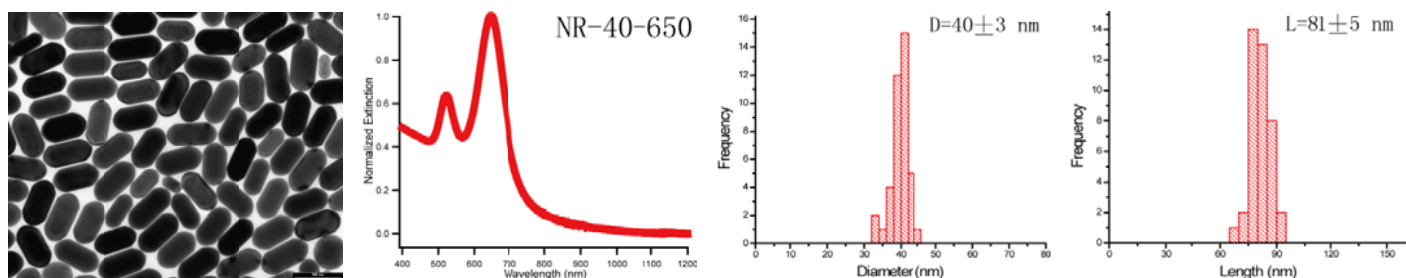
NR-40 Series Gold Nanorods

NR-40 gold nanorods have ultra-high scattering cross sections. Sub 100 nm in size, they are bright red under dark-field scattering microscope, which makes them suitable for single particle tracing and optical signal enhancement.

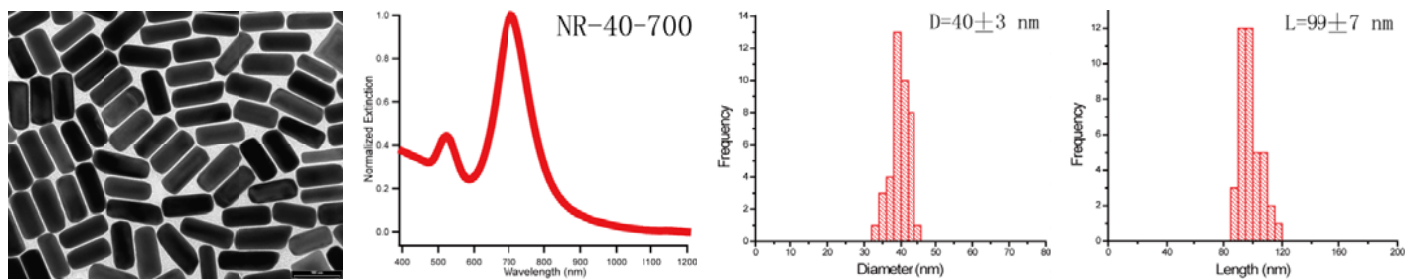
NR-40-600



NR-40-650



NR-40-700



Specifications

Part #	Diameter (nm)	Length (nm)	TSPW (nm)	LSPW (nm)	Aspect Ratio	Molar Absorption Coefficient* (M ⁻¹ cm ⁻¹)	Molar Scattering Coefficient* (M ⁻¹ cm ⁻¹)	Particle Conc.* (NPs/ml)	Weight conc.* (µg/ml)
NR-10-750	10	34	508	750	3.4	1.34E+07	7.42E+08	3.98E+12	185.13
NR-10-780	10	39	508	780	3.9	3.76E+07	1.41E+09	2.08E+12	112.61
NR-10-808	10	43	508	808	4.3	8.68E+07	3.04E+09	9.63E+11	57.91
NR-10-850	10	51	508	850	5.1	2.34E+08	5.96E+09	4.86E+11	35.10
NR-20-700	20	51	512	700	2.5	1.31E+09	8.09E+09	3.20E+11	86.10
NR-20-750	20	66	512	750	3.3	1.61E+09	6.92E+09	3.53E+11	126.94
NR-20-780	20	75	512	780	3.8	6.72E+09	2.43E+10	9.69E+10	40.16
NR-20-808	20	84	512	808	4.2	4.57E+09	1.64E+10	1.44E+11	67.34
NR-20-850	20	95	514	850	4.8	3.49E+09	1.04E+10	2.17E+11	116.43
NR-40-600	40	68	522	600	1.7	8.30E+09	1.80E+10	1.15E+11	151.86
NR-40-650	40	84	522	650	2.1	1.55E+10	2.00E+10	8.48E+10	145.36
NR-40-700	40	96	525	700	2.4	3.37E+10	2.89E+10	4.80E+10	96.27

TSPW: Transverse surface plasmon wavelength

LSPW: Longitudinal surface plasmon wavelength

* Molar absorption and scattering coefficients are calculated by FDTD solutions according to the actual dimension of each Au nanorod product.

* Particle conc. and weight conc. correspond to Au nanorod product with OD = 5. For products with OD = 10 or 50, the concentration should multiply with 2 or 10, respectively.