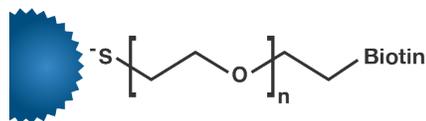


PRODUCT DATA SHEET

Biotin Gold NanoUrchins



Biotin



Description

Gold NanoUrchins have unique optical properties compared to spherical gold nanoparticles of the same core diameter. The spiky and uneven surface causes a red shift in the surface plasmon peak and a larger enhancement of electromagnetic fields at the tips of the Gold NanoUrchin spikes compared to that of a spherical particles. For example, 100nm spherical gold nanoparticles have an SPR peak at 570nm while 100nm Gold NanoUrchins have a SPR peak at around 680nm.

Cytodiagnosics biotin functionalized Gold NanoUrchins are suitable for binding of streptavidin labeled conjugates. In addition, the gold nanourchin label and distinct color allows for straightforward detection of streptavidin labeled samples in for example immunoblotting.

Our biotin gold nanourchins are available in 6 different sizes ranging from 50 -100nm and have uniform size distribution (CV <10%).

For custom sizes, formulations or bulk quantities please contact our customer service department.

Features

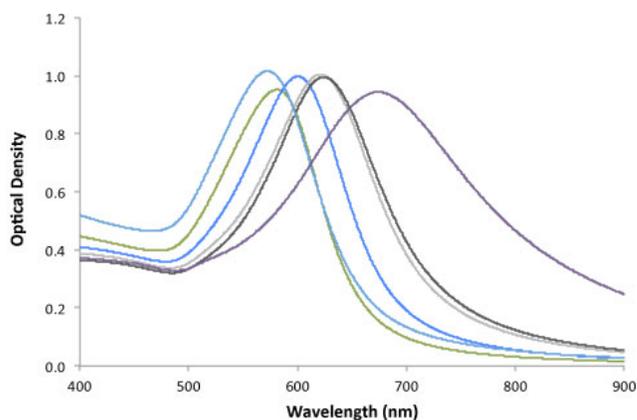
- Superior size distribution compared to the leading competitor; available from 50nm to 100nm.
- Precisely engineered surface with an optimized biotin group density for easy conjugation.

Applications

- Ideal for development of gold conjugates for use in applications such as blotting, lateral flow assays, LSPR assays, light microscopy, and transmission electron microscopy (TEM) among others.

Characteristics

Core diameter: 50 -100nm (Coefficient of Variance < 10%)
 Polydispersity Index (PDI): < 0.250
 Amount: OD=50
 Absorbance (λ_{max}): 580-680nm
 Nr of biotin groups on surface: $\sim 0.5/nm^2$
 PEG linker: 10,000Da
 Supplied in USP Grade H₂O



Storage

This product should be stored at 4°C. **DO NOT FREEZE.** If stored as specified, Cytodiagnosics Biotin Gold NanoUrchins are stable for at least 12 months.

Handling

When stored for a long period of time gold nanourchins may sediment at the bottom of the vial, which is especially true for larger particle sizes. Prior to use, re-suspend the sedimented particles by swirling until a homogenous solution is obtained.

Precautions and Disclaimer

These products are for R&D use only, not for drug, household, or other uses. Please consult the Material Safety Data Sheet available online at www.cytodiagnosics.com for information regarding hazards and safe handling procedures.

Table II. Gold nano-urchin specifications by size. Please note that all values below are indicated at an optical density of 1 (OD/cm^{-1}) at their respective λ_{max} . At other optical densities the values needs to be adjusted (e.g. $NPS/ml (@OD2) = 2 \times NPS/ml (@OD1)$).

Diameter (nm)	Peak SPR Wavelength (nm)	NPS/ml	Wt. Conc. (mg/ml)	Molar Ext ($M^{-1}cm^{-1}$)	Size Dispersity (+/-nm)	Particle Volume (nm^3)	Surface Area (nm^2)	Surface/Volume Ratio	Particle Mass (g)	Molar Mass (g/mol)	Molar Conc.
50	585	3.51E+10	4.45E-02	1.72E+10	<8%	6.54E+04	7.85E+03	0.12	1.27E-15	7.64E+08	5.83E-11
60	585	1.96E+10	4.30E-02	3.07E+10	<10%	1.13E+05	1.13E+04	0.1	2.19E-15	1.32E+09	3.25E-11
70	600	1.20E+10	4.17E-02	5.03E+10	<10%	1.80E+05	1.54E+04	0.086	3.48E-15	2.10E+09	1.99E-11
80	620	7.82E+09	4.06E-02	7.70E+10	<10%	2.68E+05	2.01E+04	0.075	5.20E-15	3.13E+09	1.30E-11
90	630	5.37E+09	3.97E-02	1.12E+11	<8%	3.82E+05	2.54E+04	0.067	7.40E-15	4.46E+09	8.92E-12
100	680	3.84E+09	3.89E-02	1.57E+11	<8%	5.24E+05	3.14E+04	0.06	1.02E-14	6.11E+09	6.37E-12

Catalog Number	Description	Lambda max (nm)	Sizes
GUB10K-50- X*	50nm Biotin Gold Nanourchins (10,000Da PEG)	585	0.5ml, 1.0ml (50 OD)
GUB10K-60- X*	60nm Biotin Gold Nanourchins (10,000Da PEG)	585	0.5ml, 1.0ml (50 OD)
GUB10K-70- X*	70nm Biotin Gold Nanourchins (10,000Da PEG)	600	0.5ml, 1.0ml (50 OD)
GUB10K-80- X*	80nm Biotin Gold Nanourchins (10,000Da PEG)	630	0.5ml, 1.0ml (50 OD)
GUB10K-90- X*	90nm Biotin Gold Nanourchins (10,000Da PEG)	630	0.5ml, 1.0ml (50 OD)
GUB10K-100- X*	100nm Biotin Gold Nanourchins (10,000Da PEG)	680	0.5ml, 1.0ml (50 OD)

Note: X* is either -25 for the 0.5ml format, or -50 for the 1.0ml format.

For custom sizes (up to 400nm available), bulk quantities, and custom gold nanoparticle surface chemistry, please order online or contact our customer service department.