

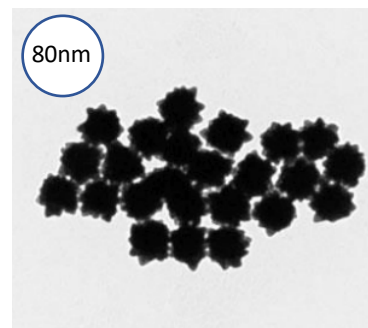


GOLD NANOURCHINS

have many applications in biology and medicine due to their unique optical and physical properties.

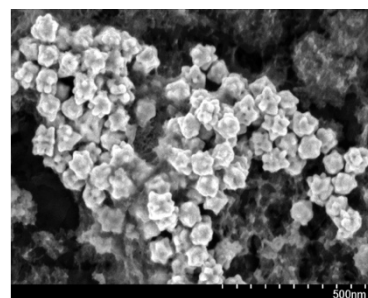
These versatile reagents can be used for biosensor development, as cellular probes, as drug delivery vehicles, or as optical contrast agents among others.

Cytodiagnosics' Gold NanoUrchins are available in six different core sizes (50-100nm) and with a comprehensive range of surface functionalities designed for *in vivo* and *in vitro* applications.



APPLICATIONS

- Conjugate Development (Proteins, Antibodies, Oligonucleotides, Aptamers)
- Biological Sensor Development
- Molecular Imaging
- Surface Enhanced Raman Spectroscopy (SERS)
- Dark Field Microscopy
- Nanotoxicology
- Lateral and Vertical Flow Assay Development
- Cellular Uptake
- Immunoblotting
- Nanoelectronics
- Plasmonic ELISA



PROPERTIES

When compared to traditional spherical particles of the same core diameter, Gold NanoUrchins have:

- Higher (blue-shifted) absorption maximums into the near-infrared spectrum.
- Larger surface areas allowing for more functional groups or bioactive molecules to be loaded on.
- Less background for *in vivo* applications due to infrared light penetrating further into biological tissues.
- Higher signals in surface plasmon resonance (SPR) based assays due to the enhancement of electromagnetic fields upon the NanoUrchin spikes.
- Extensive range of surface functionalities designed for *in vitro* and *in vivo* applications.

PRODUCTS

- Standard Gold NanoUrchins
- Reactant Free Gold Nanoparticles
- Endotoxin-Free Gold NanoUrchins
- Antibody and Small Protein NanoUrchin Conjugates
- NHS and Maleimide Activated Gold NanoUrchins
- Carboxylated, Aminated and Biotinylated Gold NanoUrchins
- OligoREADY™ & AptamerREADY™ Gold NanoUrchins
- Membrane & Microscopy Silver Staining Kits
- Passive Adsorption and Covalent Conjugation Kits
- Custom Conjugate Development Services

RELATED PRODUCTS

- Silver Nanoparticles
- Universal Lateral Flow Development Kits
- Fluorescent Nanocrystals
- Iron Oxide Magnetic Particles



Application	Range	Surface Chemistry	Benefits
Protein Conjugation	50nm-100nm	Standard, Reactant or Endotoxin Free	Quick
		NTA	Binding of Histidine Tagged Proteins.
		NHS	Covalent conjugation to primary amines, increased stability, less non-specific protein binding.
		Maleimide	Covalent conjugation to thiol groups, increased stability, less non-specific protein binding.
		Carboxyl	Covalent conjugation, increased stability, less non-specific protein binding.
		Azide, Alkyne, DBCO	Conjugation of ligands using Click Chemistry.
		Amine	Conjugation of carboxylated ligands.
Modification with thiolated ligands (PEG-SH etc.)	50nm-100nm	Streptavidin	Can be used with any biotinylated ligand, ideal for high-throughput screenings.
Oligonucleotide Conjugation	50nm-100nm	Standard, Reactant or Endotoxin Free	Classic starting material, no additional stabilizers added.
	50nm-100nm	Standard, Reactant or Endotoxin Free	Ideal for conjugation of thiolated oligonucleotides.
	50nm-100nm	OligoREADY™, AptamerREADY™	Ideal for conjugation of thiol modified oligos to particles between 50nm-100nm in diameter.
	5nm-100nm	Maleimide	Ideal for covalent conjugation of thiol modified oligos to particles between 50nm-100nm in diameter.
Immuno-dot blot/Western blot	50nm-100nm	NHS	For covalent conjugation of amine functionalized oligonucleotides. Ideal when a linker is required between the Gold NanoUrchin surface and conjugated oligonucleotide.
Cellular Uptake	50nm-80nm	Protein conjugated gold nanourchin (antibodies, streptavidin etc)	Colorimetric straightforward detection (no equipment required). Generates a permanent dark blue/purple label.
		Transferrin gold nanourchin conjugate	Active uptake through endocytosis.
Darkfield Microscopy	50nm-100nm	Standard, Reactant or Endotoxin Free	Non-specific cellular uptake.
Lateral Flow/Dip-Stick Assays	50nm-80nm	Gold nanourchin conjugates	Ideal for localization studies.
		Standard, Reactant or Endotoxin Free	Ideal for generation of gold conjugates through passive adsorption of antibodies to the Gold NanoUrchin's surface.
		NHS	Ideal for covalent conjugation of antibodies to Gold NanoUrchin.
		Maleimide	Ideal for conjugation of thiol-modified ligands to Gold NanoUrchin.
Vertical Flow	50nm-80nm	Gold NanoUrchin Conjugates	Pre-made secondary antibody conjugates.
		Standard, Reactant or Endotoxin Free	Ideal for generation of gold conjugates through passive adsorption of antibodies to the Gold NanoUrchin's surface.
		NHS	Ideal for covalent conjugation of antibodies to Gold NanoUrchin.
		Maleimide	Ideal for conjugation of thiol-modified ligands to Gold NanoUrchin.
Tumor Targeting	50nm-80nm	Gold NanoUrchin Conjugates	Pre-made secondary antibody conjugates.
Light Microscopy	50nm-80nm	Methoxy-PEG Gold NanoUrchin	Allows for passive targeting of certain tumors <i>in vivo</i> . Inert material with low non-specific protein binding in serum.
Plasmonic ELISA	50nm-100nm	Gold NanoUrchin secondary antibody conjugates	Ability to label tissue sections for both light and electron microscopy. Alternative to peroxidase and PAP based stains. Sensitivity can be enhanced with silver enhancement techniques.
		Gold NanoUrchin conjugates	Straightforward colorimetric detection.