

Nsers™

Nanopartz™ has developed and optimized Nsers™ surface enhance Raman labeled nanorods for the near infrared specifically for use in biological, preclinical, *in vivo*, as well as in material applications. Nsers™ nanorods are coated in a customized polymer caged surface that shields the gold surface and gives the particles ultra long-circulation times *in vivo*. As opposed to other commercially available polymer nanoparticles with short circulation times such as quantum dots, Nsers™ nanorods have been rigorously tested to yield superior circulation times in a variety of mammalian species. For material applications, Nsers™ are perfect for long stability times in a host of mediums.



Figure 1 Nsers nanorods in 2 ml microcentrifuge tubes.

Nsers™ nanorods are 1000 times more sensitive than Quantum Dots and other fluorophores (attomolar), do not photobleach, and provide characteristic signatures for concurrent labeling from a single laser source.

Three labels are available - each one is available with methyl, carboxyl, amine, and biotin polymer conjugations. Methyl is a non reactive terminal group that leads to stable labels. Carboxyl is a reactive terminal group that can be used to bind proteins for *in vivo* labeling.

Features

- ❖ Long circulation times *in vivo*
- ❖ Low cytotoxicity *in vivo* and *in vitro*. Gold is FDA approved for rheumatoid arthritis. (Cytotoxicity is based on CTAB capping agent concentration and not on the gold itself)
- ❖ Great photothermal conversion efficiency in the near IR
- ❖ Facile conjugation ability
- ❖ Attomolar sensitivities
- ❖ Three labels from one excitation source

Benefits

- ❖ Monodisperse shapes and sizes in production volumes satisfies high volume applications
- ❖ Tunable scattering/absorptions in the NIR create good for multi-label imaging and therapy
- ❖ NIR absorptions are advantageous for *in vivo* applications at the peak transmission window of skin and tissue
- ❖ High photothermal conversion is advantageous for thermally destroying tumors and viruses *in vivo*
- ❖ Attomolar sensitivities are advantageous for *in vivo* imaging
- ❖ Easy conjugations provide necessary vehicle for gene therapy

Applications

Imaging

Photoacoustic Imaging

Optical Coherence Tomography

SERS

Therapeutics

Photothermal

Cancer

Viral

Drug Delivery

Materials

Product Number

Nsers 780-808	Methyl	Carboxyl	Amine	Biotin
Label 1	35-PM-780-L1-1	35-PC-780-L1-1	35-PA-780-L1-1	35-PB-780-L1-1
Label 2	35-PM-780-L2-1	35-PC-780-L2-1	35-PA-780-L2-1	35-PB-780-L2-1
Label 3	35-PM-780-L3-1	35-PC-780-L3-1	35-PA-780-L3-1	35-PB-780-L3-1