Maleimide functionalized gold nanoparticles

Part Numbers:

C1x-TMAL, D1x-TMAL

Important Product Information

Further, once hydrated the maleimide groups will hydrolize within a few days. Make sure to use the resuspended material the same day.

Procedure

Generally a 100 to 500 fold molar excess of targeted thiol over the molarity of maleimide bound gold nanoparticles is sufficient to drive the reaction. Vortexing is recommended to drive the reaction.

Maleimide loading is approximately 2 maleimides/nm^2.

A. Material Preparation

Conjugation Buffer: PBS, Thermo Pierce 28372 non potassium containing buffer between pH 6.5 and 7.5.

Table top centrifuge.

Target.

B. Protocol

1. Add thiol containing protein to maleimide terminated gold nanoparticles. Use 100 micrograms of a 150kDa antibody to get 20 micrograms loaded onto the particles. Use 1 mL of solution.

2. Sonicate to resuspend gold nanoparticles into solution.

We typically use a Branson 5510 Ultrasonic Cleaner/Water bath or a Cole Parmer 08890-01 42kHz 1-2 Amps for 30 seconds.

3. Vortex for 30 minutes at room temperature, up to 30C for faster conjugations.

4. Purify by centrifugation. Centrifugation speeds depend on centrifuge but in general, speeds from 8500 to 12000 rcf for 10 minutes are used for nanorods, 1500-15000 for

spheres.

Product	rcf
10nm rods	12000
25nm rods	9000
Spheres 100nm	3500
Spheres 50nm	6000
Spheres 10nm	15000

5. Repeat Centrifugation 2x.

Refill with a 1% PBS 0.1% Tween solution. 1% PBS means standard PBS diluted 100x. In the final centrifugation, refill with 100% PBS.

Conjugation efficiency may be estimated by electrophoretic separation and subsequent protein staining.