Neutravidin, Streptavidin, Biotin, IgG Functionalization

Part Numbers:

C1x-TN,TS: D1x-VN,VS

Procedure

Generally a 100 to 500 fold molar excess of targeted biotin over the molarity of neutravidin/streptavidin bound gold nanoparticles is sufficient to drive the reaction. Vortexing is recommended to drive the reaction.

Neutravidin/Streptavidin loading is listed on the COA per nanoparticle. Total concentration of the nanoparticles is also listed on the COA.

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 biotin containing target to neutravidin/streptavidin terminated gold nanoparticles. The product comes in densities of 2.5mg/mL. We recommend using > 1mg/mL for the next steps.

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	11000

25nm rods	8500
Spheres 100nm	1500
Spheres 50nm	4000
Spheres 10nm	12000

5. Repeat 3x.

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.