Zero Order In Vitro Conjugations

Part Numbers:

CZ

Introduction

The CZ family of products include spheres and rods that have been conjugated to a proprietary short length ligands which are then bound to the terminal group chosen by the customer. The short length ligand provides a strong coupling to the protein, and provides a limited protection from salt and variations in pH found in in vitro buffers and environments.

The sensitivity of the product depends on a number of factors including the size and shape of the gold nanoparticle and the size of the target protein. In general, nanorods are more sensitive than spheres (shifts in aspect ratio result in a greater SPR change than a change in diameter for spheres), and larger particles are more sensitive than smaller ones. Also, a system targeting larger proteins will be more sensitive than one targeting smaller proteins.

Another very important variable is whether the system is a homogeneous or heterogeneous system. In general, a homogeneous system will measure many particles simultaneously (normally through a path length). A heterogenous system can be designed to look at individual, fixed gold nanoparticles on a slide (for example). Consequently, the fact that single particle statistics are more sensitive than bulk particle statistics, a heterogeneous system will be more sensitive.

Given these parameters, publications have shown attomolar detection for nanorods using a biotin/streptavidin system in a heterogenous system on a glass slide. A good example of this is shown in Nucz et al. "Label-Free Plasmonic Detection of Biomolecular Binding by a Single Gold Nanorod"
http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3003601/.

Important Product Information

Avoid buffers with high salt or pH variations beyond 5 to 8.5.