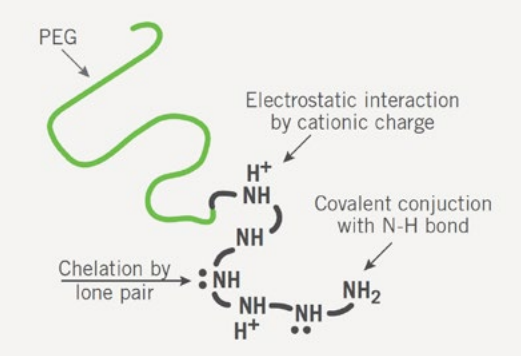
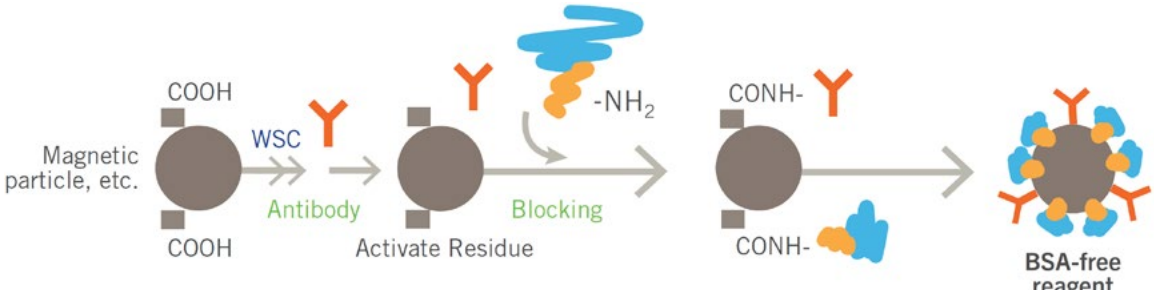
FULLY CHEMICAL SYNTHESIZED BLOCKING REAGENT

Blockmaster™ CE510 and CE210 are fully synthetic, water soluble blocking reagents consisting of a hydrophilic PEG tail and multiple amine-end groups. While the PEG tail reduces the non-specific binding, the amine end-group allows for a covalent conjugation with amine reactive surfaces.

Key Properties

- A unique composition consisting of a hydrophilic PEG-tail and multiple amine end-groups
- High durability by covalent coupling
- Low non-specific binding of proteins/cells
- Signal enhancement thanks to improved antibody orientation
- Improvement of beads dispersion





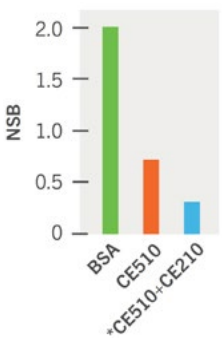
Example Protocol For Covalent Coupling

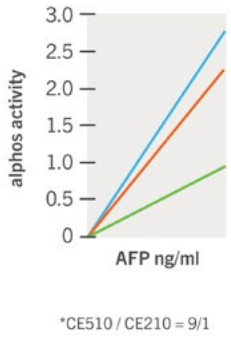
1. Magnetic beads 10 mg (1%, 1000 µL or 10% 100 µL) remove supernatant with magnet
2. Mix Magnetic beads and Binding Buffer* 500 µL to pre-wash (Suspend the beads by vortexing. Then, remove supernatant with magnet)
3. Mix Magnetic beads and Binding Buffer* 900 µL at 25˚C
4. Add 1% EDC** 100 µL, mixing at 25˚C for 30 min
5. Add antibody 1 mg/mL 100 µL, mixing at 25˚C for 1–3 hours
6. Add Blocking solution 500 µL (2 wt% Blockmaster™ CE510) mixing at 25˚C for 1–3 hours
7. Remove the supernatant by magnet
8. Add Washing Buffer 500 µL, washing 4 times
9. Add desired Buffer, suspending the beads by vortexing
10. Store at 2–8˚C

**Magnosphere™ carboxyl beads*

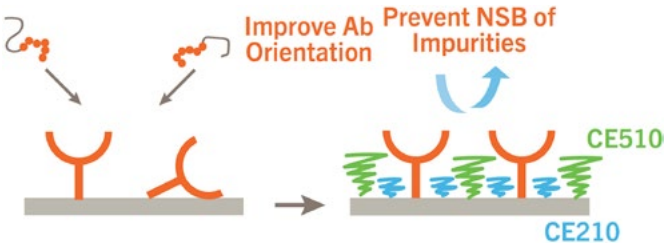
Performance

Prevention of Protein Adsorption / Signal Enhancement[9]



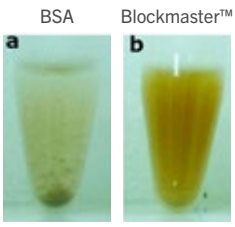


*CE510 / CE210 = 9/1



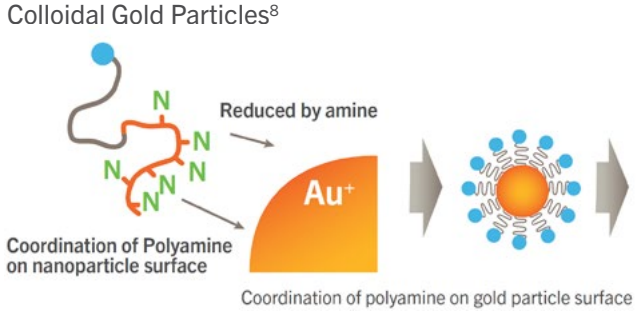
Dispersion Stability

Magnetic Beads[9]



Blockmaster™ coated magnetic beads show improved dispersion stability compared to those coated with BSA in cell lysate.

Colloidal Gold Particles[8]



Coordination of polyamine on gold particle surface

1. Thangavel Lakshmipriya, Makoto Fujimaki, Subash C.B. Gopinath, Koichi Awazu, Yukichi Horiguchi and Yukio Nagasaki, High-performance waveguide-mode biosensor for detection of Factor IX uses PEG-based blocking agents to suppress non-specific binding and improve sensitivity, Analyst, in press (DOI: 10.1039/C3AN00298E).
2. Xiaofei Yuan, Dolça Fabregat, Keitaro Yoshimoto and Yukio Nagasaki, High PEGylation Efficiency of Pentaethylenehexamine-end Poly(ethyleneglycol) (mPEG-N6) for Active-ester Surface, Colloid and Surface B: Biointerface, 92, 25-29 (2012) (DOI: 10.1016/j.colsurfb.2011.11.013).
3. Xiaofei Yuan, Dolça Fabregat, Keitaro Yoshimoto and Yukio Nagasaki: Development of a high-performance immunolatex based on "soft landing" antibody immobilization mechanism, Colloid and Surface B: Biointreface, Vol. 9945-52(2012)(10.1016/j.colsurfb.2011.09.040).
4. Masaki Kubota, Keitaro Yoshimoto, Yuan Xiaofei, Yukio Nagasaki: Improvement of the thermal stability of streptavidin immobilized on magnetic beads by the construction of a mixed poly(ethylene glycol) tethered-chain layer, Polymer Journal, 43, 493-496 (2011).
5. Xiaofei Yuan, Dolça Fabregat, Keitaro Yoshimoto, Yukio Nagasaki, Design of Highly Functional Antiferritin-Immunolatex by Hybridization of Antiferritin/Mixed-PEG Polymers onto Polystyrene Submicroparticles, Biomaterials Chapter 13, pp 243–258 ACS Symposium Series, Vol. 1054 (2010).
6. Yuan Xiaofei, Fabregat Dolça, Yoshimoto Keitaro, Nagasaki Yukio: Efficient Inhibition of Interfacial Nonspecific Interaction to Create Practically Utilizable High Ferritin-Response Immunolatex, Analytical Chemistry, 81 10097-10105 (2009).
7. Yuan Xiaofei, Yoshimoto Keitaro, Nagasaki Yukio: High-performance Immunolatex Possessing A Mixed-PEG/Antibody Co-immobilized Surface: High Sensitive Ferritin Immunodiagnostics. Analytical Chemistry: 81(4),1549-1556(2009).
8. Furusho Hitoshi, Kitano Katsuhisa, Hamaguchi Satoshi, Nagasaki Yukio: Preparation of Stable Water-Dispersible PEGylated Gold Nanoparticles Assisted by Nonequilibrium Atmospheric-Pressure Plasma Jets. Chemistry of Materials: 21(15).3526-3535 (2009).
9. Nagasaki Yukio, Kobayashi Hiroshi, Katsuyama Yoshinori, Jomura Tomoko, Sakura Takeshi: Enhanced immunoresponse of antibody/mixed-PEG co-immobilized surface construction of high-performance immunomagnetic ELISA system. Journal of Colloid and Interface Science 309: 524-530 (2007).

JSR Life Sciences