

Accessory Reagents

For Use in Microparticle Reagent Development



Bangs Laboratories offers a collection of accessory products for use in microparticle reagent development. Our collection includes crosslinking reagents and surfactants, as well as solutions and buffers for microsphere coating and storage. These products complement our extensive catalog of polymer, silica, and magnetic microparticles, and also offer a convenient means to replenish individual components of coupling kits.

COUPLING REAGENTS

Microspheres are routinely coated with ligands such as antibodies, oligonucleotides, and peptides for use in diagnostics and bioseparations. While affinity and adsorbed coatings are useful, covalent coupling results in the permanent attachment of the biomolecule to the functionalized (e.g. carboxyl or amine) microsphere. It can provide needed stability when developing a commercial reagent, and for multiplexed assays, where analyte-specific bead populations are mixed.

Carboxyl- and amine-modified microspheres require the use of a chemical linker for activation and covalent immobilization of ligand. EDAC and glutaraldehyde are two of the most common crosslinkers used in bead coating protocols.

DEPC-Carbodiimide (EDAC)

EDAC is a zero-length crosslinker that is routinely used for the covalent binding of amine-containing ligands to carboxylated microspheres. Sample coupling protocols are provided in *TechNotes 205, Covalent Coupling*, and *302, Molecular Biology*, and *PDS 644, PolyLink Protein Coupling Kit for COOH Microspheres*.

Glutaraldehyde, EM Grade, 25%

Glutaraldehyde is a homobifunctional linker that is suitable for binding amine-containing ligands to amine-modified beads. We supply EM (electron microscopy) grade glutaraldehyde in ampoules to ensure highest activity. A sample coupling protocol is provided in *TechNote 205, Covalent Coupling*.

SURFACTANTS

Surfactants are commonly utilized with microspheres composed of hydrophobic polymer matrices such as polystyrene to facilitate bead wetting and deter or treat aggregation. Common concentrations are ~0.1% for uncoated polymer beads and ~0.01% in the storage buffer of coated polymer, magnetic, and silica beads. The type and concentration of surfactant should be optimized to achieve best performance. To avoid interference with binding reactions, surfactant is washed out prior to bead coating or use of the coated microsphere reagent.

Triton® X-100 Nonionic Surfactant

Triton® X-100 is often used in the storage buffers of coated bead suspensions. Very low concentrations may be used in wash or binding buffers if needed (e.g. 0.0005%). (MW: 625.00)

Tween® 20 Nonionic Surfactant

Tween® 20 is often used in the storage buffers of coated bead suspensions. Very low concentrations may be used in wash or binding buffers if needed (e.g. 0.0005%). (MW: 1,227.50)

Sodium Dodecyl Sulfate Anionic Surfactant

Sodium dodecyl sulfate (SDS) is an anionic surfactant, which will both decrease hydrophobicity and participate in charge stabilization of the suspension. SDS is a more rigorous surfactant that is commonly used in uncoated polymer bead preparations. (MW: 238.38)

BUFFERS AND SOLUTIONS

Coupling Buffers

With pHs ranging from 4.5 to 9.0, our surfactant-free Coupling Buffers are available in 250mL, 500mL, 1000mL, and 2000mL volumes. These coupling buffers can also be used as wash buffers.

Storage Buffers

As for the Storage Buffers, we offer pH 7.4 and pH 8.5 varieties, both with stabilizers to keep your coated beads happy.

Bead Solution

The Bangs Bead Solution is a ready-to-use aqueous suspending solution for the dilution and/or storage of uncoated plain, dyed, or functional beads. It contains minimal stabilizers.

COUPLING KIT

PolyLink Protein Coupling Kit

Our PolyLink Protein Coupling Kit is ideal for investigators who are new to microsphere coating, or simply desire the convenience of a kit. The kit is intended for use with carboxyl-functionalized microspheres of 1µm or larger. It contains sufficient EDAC, coupling buffer, and wash / storage buffer for 50 reactions using ~200 – 500µg protein and 12.5mg COOH-functionalized microspheres per reaction. The protocol may be adapted for smaller or larger diameter spheres and our Vivaspin® ultrafiltration devices may be used for wash steps with submicron spheres.

Equipment

Vivaspin® Concentrators are disposable ultrafiltration devices that may be utilized for the washing and concentration of submicron (20 nm - 0.5µm) microspheres. Vivaspin® present an excellent (fast, easy, economical) alternative to dialysis or more laborious/wasteful filtration devices.



Vivaspin® 2mL, image courtesy of Vivaproducts

REAGENT PRODUCTS & COMPLIMENTARY PRODUCTS

Cat. #	Product Description
PL01N	PolyLink Protein Coupling Kit
AA022	Vivaspin® 2 mL Ultrafiltration Device (5 units)
AA010	DEPC-Carbodiimide (EDAC)
AA012	Glutaraldehyde, EM Grade, 25%
AA014	Triton® X-100
AA016	Tween® 20
AA018	Sodium Dodecyl Sulfate (SDS)
BUFF1	Bangs Bead Coupling Buffer, pH 4.5
BUFF2	Bangs Bead Coupling Buffer, pH 6.0
BUFF3	Bangs Bead Coupling Buffer, pH 7.4
BUFF4	Bangs Bead Coupling Buffer, pH 9.0
BUFF5	Bangs Bead Storage Buffer, pH 7.4
BUFF6	Bangs Bead Storage Buffer, pH 8.5
SOLN1	Bangs Bead Solution

- Vivaspin® is a registered trademark of Sartorius Stedim Biotech GmbH.
- Tween® is a registered trademark of ICI Americas, Inc.
- Triton® is a registered trademark of The Dow Chemical Company.



Bangs Laboratories manufactures magnetic, polymeric and silica microsphere products setting the standards for diagnostic, research, and flow cytometry applications. No matter the project, we have a product that serves or we'll work to custom-design a solution to fit. And that's not the half of it.


We also stand behind our products. Regardless of the size of your question or the size of your company, we offer tech support, absolutely free.


Sound interesting?



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 info@bangslabs.com

 800.387.0672