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Microsphere Coating Reagents

DESCRIPTION

Microspheres may be coated with capture molecules, such as antibodies, oligonucleotides, peptides, etc. for use in diagnostic or separation applications. Microsphere coatings are typically optimized to achieve desired specific activity, while minimizing nonspecific interactions. Consideration should also be given to the required stability, development time frame and budget, and the specific biomolecule to be coated. These factors will aid in determining the most fitting coating strategy for both short- and long-term objectives.

Standard microsphere products support three basic coating strategies: adsorption, covalent coupling, and affinity binding.

Adsorption

Adsorption relies primarily on hydrophobic interactions between the biomolecule and the polymer particle. Such coatings are fairly simple to conduct, involving incubation of the microspheres with the purified biomolecule. They typically require little optimization, and reagents may be developed relatively quickly. However, as adsorption relies on the formation of multiple attachment points between the molecule and particle, this strategy is typically reserved for use with proteins and non-functionalized polymer spheres. Adsorption is generally not suitable for hormones, peptides, or nucleic acids in hybridization-based applications, and protein adsorption to silica is expected to be less efficient than to polymer.

Covalent Coupling

Covalent coupling results in the permanent attachment of the molecule 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. Additionally, specialized chemical linkers may be employed to address steric effects or to optimally orient the molecule. Although covalent binding protocols often involve a higher level of optimization than other approaches, coupling kits are available to simplify the process.

Match Reagents and Beads from One Source

Polysciences can serve as the complete source of reagents needed for coupling proteins to microparticles. Protocols for passive adsorption of proteins to polystyrene beads (Technical Data Sheet #238E), covalent coupling of proteins to carboxylated beads (Technical Data Sheet #238C) and covalent coupling of proteins to blue dyed and amino functionalized beads (Technical Data Sheet #238D) are available for download from our website at www. polysciences.com. In addition, we offer two kits for covalently attaching proteins to microparticles. Our PolyLink Kit contains buffers and other reagents for coupling proteins to carboxylated beads (Cat. # 24350), while our glutaraldehyde kit contains buffers and other reagents for coupling proteins to blue dyed and amino functionalized beads (Cat. # 19540). The contents of each kit are sufficient for coupling proteins to at least fifty 0.5ml samples (2.5% solids) of beads. A detailed instruction sheet is enclosed with each kit (Technical Data Sheet #644 - Instruction Sheet for Cat. # 24350; Technical Data Sheet #238G - Instruction Sheet for Cat. #19540). These instruction sheets are also available for download by visiting our website.

Microspheres Coated with Affinity Ligands

Polysciences also offers affinity ligand-coated polymer and magnetic microparticles for research purposes. These include undyed, fluorescent, and blue dyed polystyrene beads of 1µm diameter covalently coupled with protein A or secondary antibodies and 1µm, 2µm or 6µm microspheres coated with streptavidin. For a complete list of coated microparticle products, visit our website at www.polysciences.com. We can also couple proteins or microspheres of your choice on a custom basis. Write or call us for a quote.

These products are for research use only and are not intended for use in humans or for *in vitro* diagnostic use.

ORDERING INFORMATION

Cat. #	Description	Sizes
24350	PolyLink Protein Coupling Kit for COOH Microspheres	1 kit
19540	Glutaraldehyde Kit for Amine and Blue Dyed Microspheres	1 kit
01909	Glutaraldehyde, 25% EM Grade	100ml amp (10 x 10ml)
00084	Glutaraldehyde, USP (Glycerine)	100g or 1000g
24973	Polysciences Bead Solution	500ml, 1000ml or 2000ml
24976	Polysciences Bead Coupling Buffer, pH 4.5	250ml, 500ml, 1000ml or 2000ml
24977	Polysciences Bead Coupling Buffer, pH 6.0	250ml, 500ml, 1000ml or 2000ml
24974	Polysciences Bead Coupling Buffer, pH 7.4	250ml, 500ml, 1000ml or 2000ml
24978	Polysciences Bead Coupling Buffer, pH 9.0	250ml, 500ml, 1000ml or 2000ml
24979	Polysciences Bead Storage Buffer, pH 7.4	250ml, 500ml, 1000ml or 2000ml
24975	Polysciences Bead Storage Buffer, pH 8.5	250ml, 500ml, 1000ml or 2000ml

TO ORDER

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