BIOTECH SUPPORT GROUP

NuGel™ Poly-Amine

Polymer Coated Silica Affinity Matrices

Special Features of NuGel™:

- Non-specific sites are virtually eliminated by a polymer coating
- Stable across a wide pH range 2 - 10
- 1000Å, 50µm Silica suitable for LC and batch processes

Special Features of Poly-Amine ligand:

- Covalently couples ligands containing free carboxyl groups in the presence of a carbodiimide.
- Covalently couples ligands containing free aldehyde, anhydride and epoxy groups.
- Covalently couples non-polar ligands in organic solvents.
- pH stable from 2 to 9.

Silica has been an industry standard as an advantageous matrix suitable for high performance liquid chromatography. With NuGel™, non-specific sites have been virtually eliminated making it an ideal support for affinity purification. Through a proprietary polymer coating, Silica is cross linked forming a reactive Poly-Epoxy functionality stable across a wide pH range (pH 2 to 10). From this foundational chemistry, all of the NuGel™ affinity products are derived.

For Immobilization of Proteins, Antibodies, Hormones, Peptides, Haptens, Drugs, Etc.						
Product Name	**Matrix Reactive Group**	**Ligand Reactive Group**	**Special Features**	**Size**	**Column Volume (Approx)**	**Item No.**
NuGel™ Poly-Epoxy	Terminal Epoxy	Amino	Direct Coupling of Amino Groups	25 Grams	50 ml	NPEY-25
NuGel™ Poly-Amine	Terminal Amine	Carboxylic Acid, or Carbohydrate	Carbodiiamide reaction, or $NaIO_4$ derived Aldehyde	25 Grams	50 ml	NPAM-25
NuGel™ Poly-Aldehyde	Terminal Aldehyde	Amino	Direct Coupling of Amino Groups	25 Grams	50 ml	NPAY-25
NuGel™ Poly-Hydroxy	Terminal Glycol	Amino	Carbodiimidazole mediated reaction	25 Grams	50 ml	NPHX-25
NuGel™ Poly-Carboxy	Terminal Carboxylic Acid	Amino	Carbodiiamide mediated reaction	25 Grams	50 ml	NPCY-25

* Kilogram quantities and other particle sizes and porosity of NuGel™ are also available upon request.

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NuGel™ Poly-Amine Protocol

NuGel™ Poly-Amine is a derivative of NuGel™ Poly-Hydroxy affinity support. This affinity support contains amino groups at the end of hydrophilic spacer arms and is used to couple ligands containing carboxyl, aldehyde, anhydride and epoxy groups.

Technical Data	
Spacer Arm	Polymerized hydrophilic carbon chain
Porosity	1000Å
Average Particle Size	50um
Substitution Level	100-200 uEq/gm of Amino groups

Special Features:

- Covalently couples ligands containing free carboxyl groups in the presence of a carbodiimide.
- Covalently couples ligands containing free aldehyde, anhydride and epoxy groups.
- Covalently couples non-polar ligands in organic solvents.
- pH stable from 2 to 9.

Carbodiimide-Mediated Protocol for Aqueous Coupling of Poly-Amine to Carboxy-Containing Ligands Or Poly-Carboxy to Amine-Containing Ligands

1. Carbodiiamides can be used to facilitate the formation of amide bonds between carboxylate groups and amines. For protein coupling, water soluble EDC {1-ethyl-3-(3-dimethylamino-proplyl)Carbodiimide} is used; solvent soluble Carbodiimide such as DCC are also available. For protein-ligand, optimal coupling takes place under high protein concentrations, 10-20 mg/ml, but good results can be achieved with 1-2 mg/ml. Typical protein coupling ranges from (10 to 20) mg per ml column volume. Most literature references give an optimum reaction pH of 4.75, but any pH between 4.5 and 7.5 should work well. A suitable coupling buffer is 0.1 M MES, pH 4.75.

2. One gram of NuGel™ produces approximately 2 ml column (or bed) volume. Weigh out required amount and wash on a sintered glass funnel with DI water containing 0.1 M NaCl. Transfer to mixing vessel.

3. Transfer the protein-ligand solution to the washed NuGel™. Add 60 mg EDC per Gram of NuGel™ into suspension. Mix by orbital shaker or overhead stirrer. Do not use magnetic stirrer. Mix at room temperature for 3 hours.

4. Using a filter or column, wash the coupled suspension with cold coupling buffer. Wash the gel extensively with aqueous 0.1 M NaCl. Store at 4°C in a well-sealed container.

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Operating Modes

Since the support matrix is based on a rigid 50 µm particle, NuGel™ can be operated in low pressure pump or gravity flow columns, or in batch mode.

Related NuGel™ References

Patents

Monoclonal antibodies directed to the cytotoxic lymphocyte maturation factor European Patent EP0790255

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Affinity

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Membrane-based receptor affinity chromatography. Journal of Chromatography A Volume 597, Issues 1-2, 24 April 1992, Pages 155-166 9th International Symposium on Affinity Chromatography and Biological Recognition

Ion Exchange

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Contact Us

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