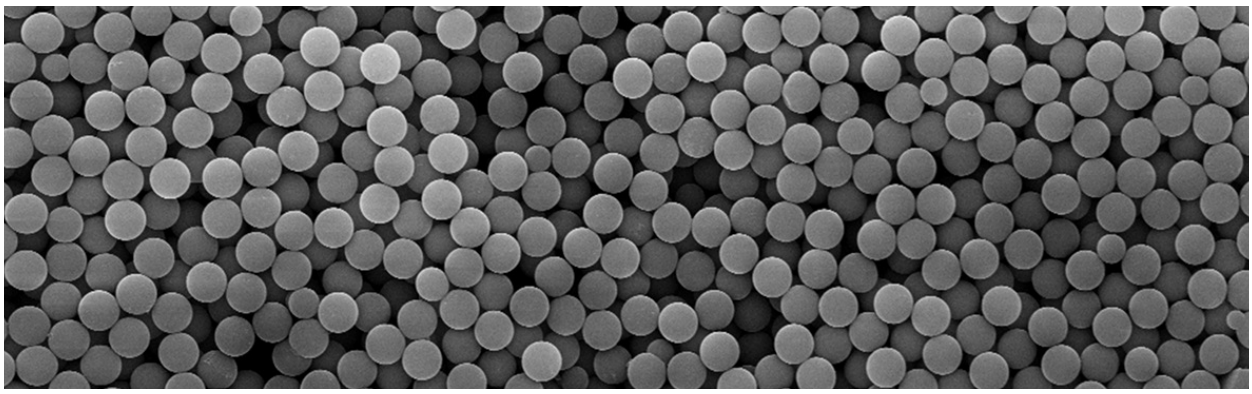
Silica Microspheres

Silica microspheres for research use with excellent quality, uniformity, & reproducibility.



Description

Inorganic supports, such as silica microspheres, have become increasingly important for a variety of applications. They offer the combined benefits of a bead platform and the unique properties of a silica substrate:

- Flexibility (coat any number of bead populations with a biomolecule of choice)
- Large specific surface area
- Improved binding kinetics over planar surfaces
- Robust statistics
- Flexible silanization chemistries
- Unique refractive index and density
- Low autofluorescence
- Low nonspecific binding of many biomolecules
- Hydrophilicity
- Easy manipulation

Nucleic Acid Isolation

The utility of silica has been demonstrated for the isolation of nucleic acid. Negatively charged biomolecules, such as nucleic acid, will bind to silica in the presence of divalent cations (e.g. $Ca2^{+}$, $Mg2^{+}$). Protocols have also been developed for the adsorption of nucleic acids to siliceous supports in the presence of salt and chaotropes [1,3], and developed protocols for binding of DNA to glass surfaces may be adapted for use with silica microspheres [2,4].

Cells and Biomolecule Purification

With its high density, silica has also been utilized as an alternative to other supports (e.g. magnetic particles) for the separation of cells or biomolecules. An antibody or other ligand is first bound to functional silica. The coated silica microspheres are then mixed with sample to bind the targeted cell population(s) or analyte(s). Centrifugation or simple settling may be done to isolate the targeted cells or biomolecules. Our silica microspheres have been utilized for these applications and many others. See our collection of TechNotes (www.bangslabs.com) for protocols and additional references.

We offer a range of bead sizes (from ~0.15µm- 5µm) to meet the requirements of a variety of applications. If we don't have a suitable product, we would be glad to discuss a custom project.

Functionalized and Coated Silica

Carboxyl, amine, and streptavidin silica are available in our general offerings and in three standard diameters: ~0.5µm, ~1.0µm, and ~5.0µm.

References

1. Boom WR, Adriaanse HMA, Kievets T, Lens PF. *Process for isolating nucleic acid.* 1993. US Patent 5,234,809.
2. Dederich DA, et al. *Glass bead purification of plasmid template DNA for high throughput sequencing of mammalian genomes.* Nucleic Acid Res 2002; 30(7):e32.
3. Engelstein, M, et al. *An efficient, automatable template preparation for high throughput sequencing.* Microbial and Comparative Genomics 1998; 3(4):237.
4. Kumar A, Larsson O, Parodi D, Liang Z. *Silanized nucleic acids: a general platform for DNA immobilization.* Nucleic Acids Res 2000; 28(14):e71.

SILICA

Cat. #	Product Description
SC03000	Carboxyl Silica 0.5µm
SC04000	Carboxyl Silica 1.0µm
SC05000	Carboxyl Silica 2.0µm
SC05001	Carboxyl Silica 5.0µm
SA03000	Amine Silica 0.5µm
SA04000	Amine Silica 1.0µm
SA05000	Amine Silica 5.0µm
CS01000	Streptavidin Silica 0.5µm
CS01001	Streptavidin Silica 1.0µm
CS01002	Streptavidin Silica 5.00µm

SILICA

Cat. #	Product Description
SS02000	Plain Silica 0.15µm
SS02001	Plain Silica 0.30µm
SS02002	Plain Silica 0.40µm
SS03000	Plain Silica 0.50µm
SS03001	Plain Silica 0.70µm
SS03002	Plain Silica 0.90µm
SS04000	Plain Silica 1.0µm
SS04001	Plain Silica 1.50µm
SS04002	Plain Silica 2.0µm
SS05000	Plain Silica 2.50µm
SS05001	Plain Silica 3.0µm
SS05002	Plain Silica 4.0µm
SS05003	Plain Silica 5.0µm
SSD2001	Dry - Plain Silica 0.30µm
SSD3000	Dry - Plain Silica 0.50µm
SSD4000	Dry - Plain Silica 1.0µm
SSD4001	Dry - Plain Silica 1.50µm
SSD5000	Dry - Plain Silica 2.50µm
SSD5001	Dry - Plain Silica 3.0µm
SSD5002	Dry - Plain Silica 4.0µm
SSD5003	Dry - Plain Silica 5.0µm