

# Beyond beads

Develop high performance assays, fast



# Agilent goes beyond the bead to help you develop high performance assays, fast

As manufacturers of in vitro diagnostic (IVD) assays, you demand high-performance and high-quality beads to deliver robust and reliable assays. The pressure to achieve productivity gains and cost-efficiencies while meeting the exacting standards of the regulatory agencies is greater than ever before. Beads or microparticles are a critical raw material in the IVD manufacturing process and innovations in particle design, coating, and performance are a key part of meeting the technological and regulatory requirements.

## We take care of your beads so you can focus on results

As manufacturers of *in vitro* diagnostic assays, you know exactly what you need from your bead supplier - performance you can rely on.

### Agilent delivers:

- Rapid assay development potential
- Batch-to-batch reproducibility
- Flexible, face-to-face technical support
- Reliable, robust characterization package

## Working with Agilent

Supported by expert technical support and worldwide service, Agilent provides magnetic and nonmagnetic beads tailored to your unique needs.

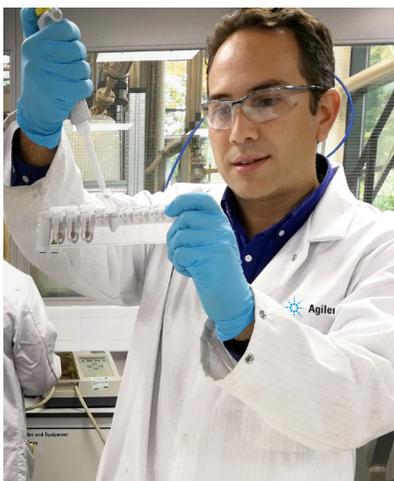
You can focus with confidence on developing the next generation of diagnostic systems for your customer when partnering with Agilent, a leading manufacturer and supplier of magnetic beads for the immunodiagnostics industry.

### Agilent gives you:

<b>Expertise</b>	Access to 40 years' experience in the manufacturing and development of innovative, high-technology products.
<b>Quality</b>	Beads with demonstrated performance, manufactured reproducibly, to a robust process in an ISO 9001 facility.
<b>Flexibility</b>	Custom quality and supply agreements. Small to multikilogram batch sizes.
<b>Supply management</b>	Scheduled deliveries and worldwide logistics minimize expense and risk, ensuring your beads are in the right place, at the right time. Inventory management provides batch and shelf life control.

# Driving optimum performance with innovative solutions

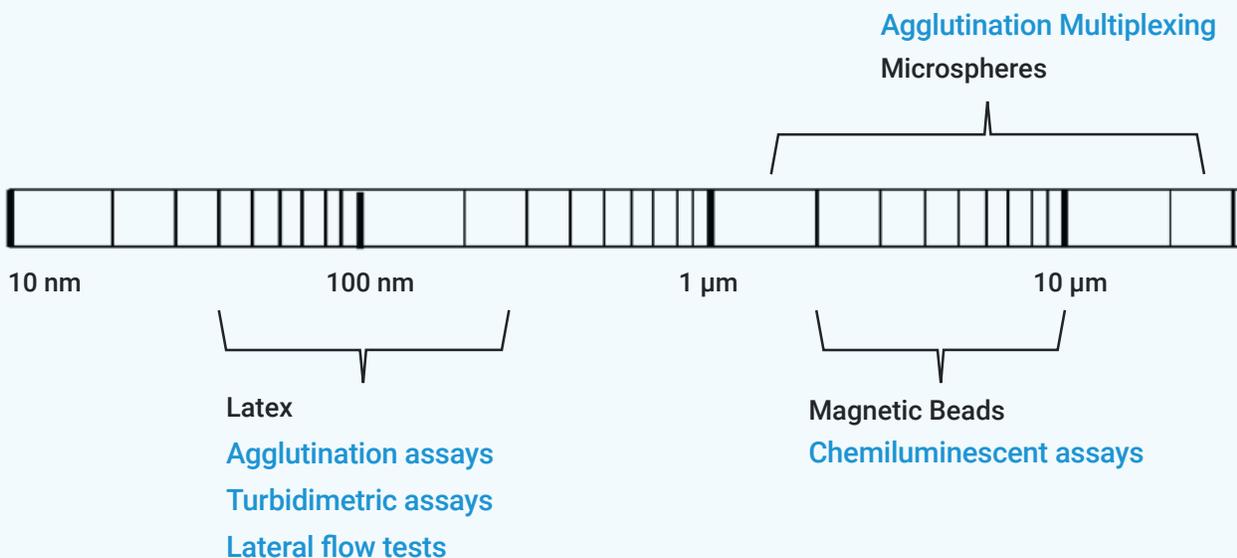
Agilent continually invests in both research and development and manufacturing technologies enabling us to continually deliver innovation and improvements to our customers.



## Agilent designs and builds beads that help to:

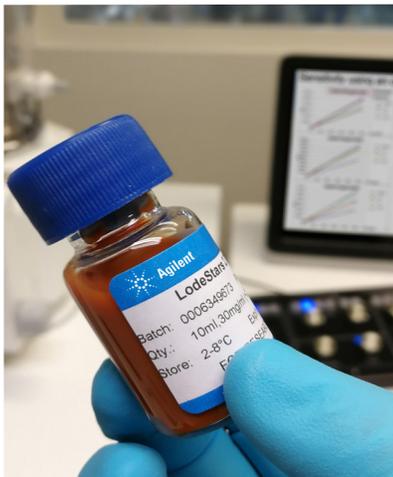
- Reduce cost-per-test
- Speed up time-to-market
- Increase sensitivity and reproducibility
- Deliver improved efficiency for your applications

In addition, these high-performance magnetic and nonmagnetic beads for IVD manufacture can be customized to meet your specific requirements. When you work with Agilent, the technical details are finalized and backed up with a written guarantee of quality, and ongoing service, support, and long-term security of supply is ensured.



# Agilent LodeStars beads for precise magnetic bioseparations

LodeStars beads are Agilent's proprietary high performance, superparamagnetic beads designed for biomagnetic separations. Based on patented technology and experience, they are a powerful magnetic bead platform for bioscience and life science applications.



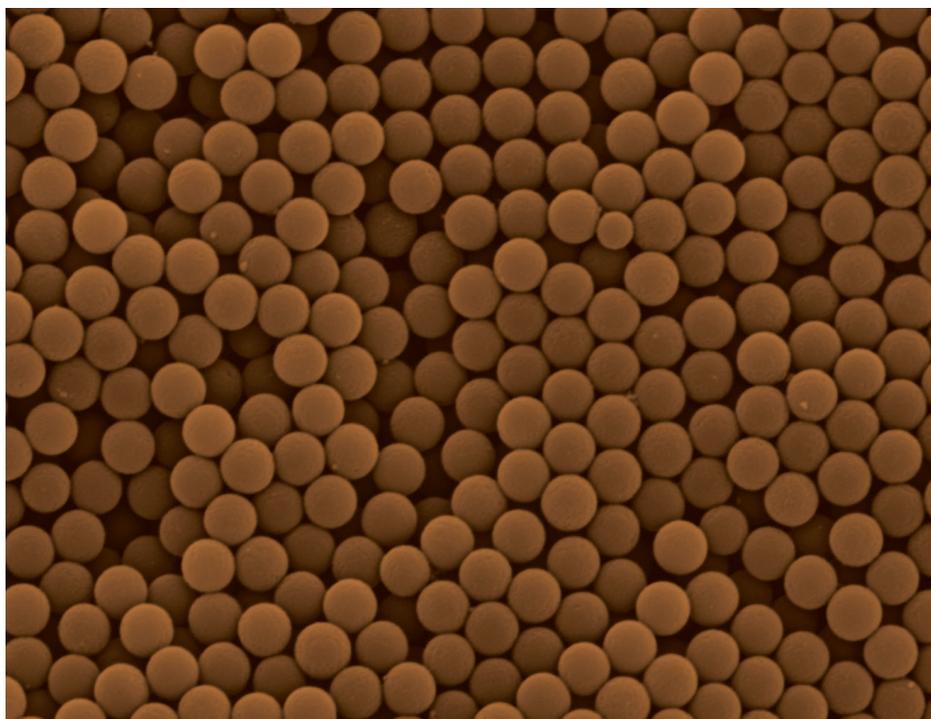
With a unique internal architecture and a hydrophilic outer polymer surface, Agilent LodeStars beads offer reliable bead performance and are a fast, efficient and affordable solution to many bioscience applications.

- Highly selective ligand capture due to controlled surface functionality.
- Excellent assay performance due to low backgrounds.
- Rapid magnetic response.
- Uniform, monodispersed, batch-to-batch reproducibility due to controlled manufacture.
- Suitable for automated platforms.

**LodeStars beads and LodeStars High Bind beads are both available in two formats, Streptavidin 2.7  $\mu\text{m}$ , and LodeStars Carboxyl 2.7  $\mu\text{m}$ .**

They are suitable for use in applications such as:

- Immunodiagnostic assays
- Molecular diagnostic assays
- DNA/RNA capture
- Cell separation



## Beyond beads

Agilent beads are used as raw materials in the manufacture of hundreds of immunodiagnostic assays worldwide. What's more, with over 20 years of experience in magnetic separation technologies, our highly trained engineers offer customers a profound understanding of beads architecture and surface coatings.

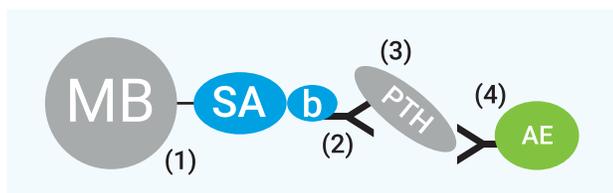
# Optimum performance

Comparison studies against commercially available beads have demonstrated the excellent performance and economic benefits of Agilent LodeStars beads for the manufacture of immunoassays.

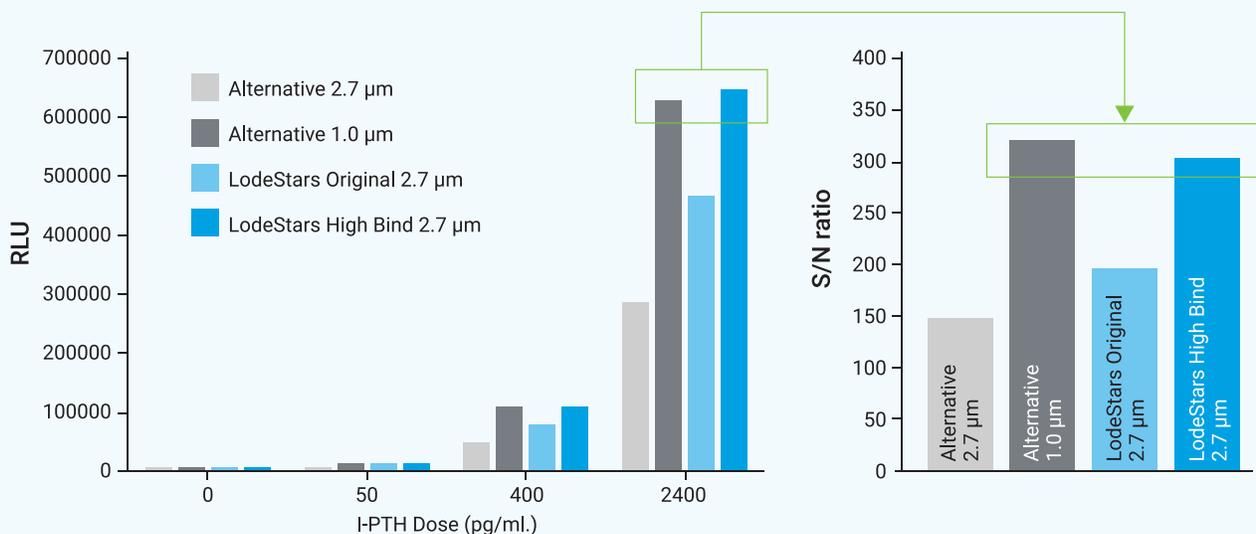
LodeStars High Bind beads combine the higher binding capacity of a 1 µm bead with the rapid magnetic response of a 2.7 µm bead. This provides the ideal combination of assay sensitivity, sample throughput, and reproducibility without bead losses.

Agilent engaged a contract research organization to conduct a nonclinical performance study of bead performance using a commercially available intact parathyroid hormone (i-PTH) assay kit. The kit is designed to measure the amount of i-PTH present in a sample (See scheme for assay configuration): i-PTH calibrators were used in this study.

The study measured the chemiluminescence (relative light unit, RLU) output of acridinium ester in a direct sandwich chemiluminescent assay, using an automated immunoanalyzer platform.



The assay (performed in cuvette) comprised a biotinylated antihuman PTH antibody (2) pre-bound to streptavidin coated beads (1). These beads were mixed with an i-PTH sample (3) in the presence of antihuman PTH antibody labeled with acridinium ester (4).



The assay used a constant amount of antihuman PTH antibody labeled with acridinium ester and a constant number of beads per cuvette. The dose amount of i-PTH was varied between 0–2400 pg/mL. The streptavidin magnetic beads used were: LodeStars original beads (2.7 µm), LodeStars High Bind beads (2.7 µm), alternative 2.7 µm beads, or alternative 1 µm beads.

LodeStars High Bind 2.7 µm beads resulted with similar RLU for 2400 pg/mL i-PTH compared to alternative 1.0 µm bead and higher RLU compared to the other 2.7 µm beads. S/N ratio also indicates the good performance of LodeStars High Bind 2.7 µm beads, 40% higher than LodeStars original beads and 50% than alternative 2.7 µm beads.



## Agilent PL-Latex beads with high uniformity and reproducibility

Agilent PL-Latex beads are submicron uniform latex beads that are a raw material component in many diagnostic tests. All PL-Latex products are produced by emulsion polymerization in the presence of surfactants.

PL-Latex beads are used in applications where their uniformity of size, mobility, consistency of surface properties, and versatility deliver advantages over other solid supports. Alternative solid phase supports include membranes, wells and tubes. These alternatives offer smaller surface areas compared to latex, meaning latex has a higher binding capacity, which impacts the sensitivity of the assay.

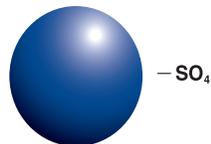
Applications of PL-Latex beads include:

- Slide agglutination
- Nephelometry
- Particle capture
- Immunoturbidimetry
- Particle enhanced
- Microfluidics

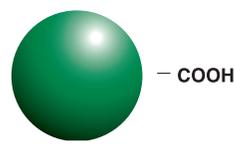
Particles are available in a range of sizes, 50 to 1000 nm, carboxyl variants, and customization.

## HiDye beads

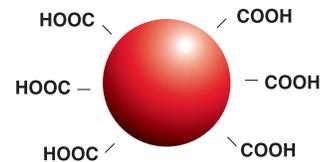
PL-Latex beads are available in a range of colors (blue, red, yellow, green, and purple), offering all the features of the white beads with the added advantage of intense color. As the dye is not surface bound, it does not interfere with the binding of ligand.



PL-Latex Plain



PL-Latex Carboxyl



PL-Latex SuperCarboxyl

# Agilent - get more from your bead supplier

A reliable supplier is essential to the IVD manufacturing industry. Agilent products are manufactured to stringent standards, under the Agilent quality management system. This system follows the lean six sigma manufacturing principles for process improvement and complies with ISO 9001 for Quality Management.

## Quality built-in

Agilent's state-of-the-art manufacturing facility in Church Stretton, Shropshire, UK, manufactures magnetic and nonmagnetic particles in multikilogram batch sizes. To help customers meet the increasing demand for high-quality immunodiagnostic assays, we can also support scale-up of manufacturing and provide all necessary documentation to meet registration requirements.

Agilent's proven track record with product quality enables us to deliver high levels of customer satisfaction. These strict manufacturing and testing processes mean that Agilent can offer a world-class product and consistency.

## **You, and your customers, can be confident of accurate results:**

- All Agilent products are provided with proof of performance and certification/conformance documentation to validate specifications.
- Multiple testing at different stages in the manufacturing process.
- Quality testing for material characteristics and functional capabilities.
- Fully traceable and controlled manufacturing processes for microparticles.
- Custom quality agreements and onsite audits are welcome.

# Choose your options to achieve quality characterization

## Technical information

Specifications	LodeStars beads	LodeStars High Bind beads
Diameter	2.7 µm	2.7 µm
Iron content	~ 20%	~ 20%
<b>Streptavidin binding capabilities</b>		
Biotin	> 1,200 pmoles /mg bead	> 3,000 pmoles /mg bead
Biotinylated IgG and anti-IgG-OG*	~ 3.6 µg/mg bead	~ 6.5 µg/mg bead
<b>Carboxyl binding capabilities</b>		
BCA assay*	~ 20 µg/mg bead	~ 40 µg/mg bead

\* Assay details available on request.

## Ordering information

Description	LodeStars beads (30 mg/mL)		LodeStars High Bind beads (50 mg/mL)	
	Volume	Part Number	Volume	Part Number
LodeStars Carboxyl beads	2 mL	PL6727-0001	1 mL	PL6827-0001
	10 mL	PL6727-0003	10 mL	PL6827-0003
	100 mL	PL6727-0005	100 mL	PL6827-0005
	400 mL	PL6727-0006	400 mL	PL6827-0006
	800 mL	PL6727-0007		
LodeStars Streptavidin beads	<b>(10 mg/mL)</b>		<b>(50 mg/mL)</b>	
	2 mL	PL6727-1001	1 mL	PL6827-1001
	10 mL	PL6727-1003	10 mL	PL6827-1003
	100 mL	PL6727-1005	100 mL	PL6827-1005
	800 mL	PL6727-1007	400 mL	PL6827-1006

**Non-functionalized products:**

PL-Latex Plain White beads	15 mL	100 mL	1 L
50 nm 10% Solids	PL6000-7101	PL6000-7102	PL6000-7103
100 nm 10% Solids	PL6001-4101	PL6001-4101	PL6001-4103
200 nm 10% Solids	PL6002-2101	PL6002-2102	PL6002-2103
300 nm 10% Solids	PL6003-2101	PL6003-2102	PL6003-2103
400 nm 10% Solids	PL6004-4101	PL6004-4102	PL6004-4103
600 nm 10% Solids	PL6006-4101	PL6006-4102	PL6006-4103
800 nm 10% Solids	PL6008-4101	PL6008-4102	PL6008-4103
1000 nm 10% Solids	PL6010-4101	PL6010-4102	PL6010-4103

PL-Latex Plain HiDye beads	15 mL	100 mL	1 L
<b>Blue</b>			
300 nm 10% Solids		Available on request	
400 nm 10% Solids		Available on request	
800 nm 10% Solids		Available on request	
1000 nm 10% Solids		Available on request	
<b>Red</b>			
200 nm 10% Solids		Available on request	
300 nm 10% Solids		Available on request	
400 nm 10% Solids		Available on request	
800 nm 10% Solids		Available on request	
<b>Yellow</b>			
600 nm 10% Solids	PL6006-4161	PL6006-4162	PL6006-4163

Carboxy-modified products:

PL-Latex Carboxyl White beads	15 mL	100 mL	1 L
100 nm 10% Solids	PL6101-6101	PL6101-6102	PL6101-6103
150 nm 10% Solids	PL6115-6101	PL6115-6102	PL6115-6103
200 nm 10% Solids	PL6102-6101	PL6102-6102	PL6102-6103
300 nm 10% Solids	PL6103-6101	PL6103-6102	PL6103-6103
400 nm 10% Solids	PL6104-6101	PL6104-6102	PL6104-6103

PL-Latex SuperCarboxyl White beads	15 mL	100 mL	1 L
50 nm 10% Solids	PL6200-6101	PL6200-6102	PL6200-6103
100 nm 10% Solids	PL6201-6101	PL6201-6102	PL6201-6103
125 nm 10% Solids	PL6212-5101	PL6212-5102	PL6212-5103
150 nm 10% Solids	PL6215-6101	PL6215-6102	PL6215-6103
200 nm 10% Solids	PL6202-6101	PL6202-6102	PL6202-6103
300 nm 10% Solids	PL6203-6101	PL6203-6102	PL6203-6103
400 nm 10% Solids	PL6204-6101	PL6204-6102	PL6204-6103

PL-Latex Carboxyl HiDye beads	15 mL	100 mL	1 L
<b>Blue</b>			
400 nm 10% Solids	PL6104-6121	PL6104-6122	
<b>Red</b>			
400 nm 10% Solids	PL6104-6141	PL6104-6142	

PL-Latex Carboxyl HiDye beads	15 mL	100 mL	1 L
<b>Blue</b>			
200 nm 10% Solids		Available on request	
300 nm 10% Solids		Available on request	
400 nm 10% Solids		Available on request	
800 nm 10% Solids		Available on request	
<b>Purple</b>			
300 nm 10% Solids		Available on request	
<b>Red</b>			
200 nm 10% Solids		Available on request	
300 nm 10% Solids		Available on request	
400 nm 10% Solids		Available on request	
600 nm 10% Solids		Available on request	
<b>Green</b>			
300 nm 10% Solids		Available on request	

## Why choose Agilent?

Agilent delivers trusted answers to our customers' critical questions and challenges – helping them achieve optimal outcomes in their laboratories, organizations, and the world they seek to improve. Agilent goes beyond the bead to help you deliver quality assays, fast.



Learn more

[www.agilent.com/chem/beyondbeads](http://www.agilent.com/chem/beyondbeads)

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