

Automated IMS from Dynal Biotech

BeadRetriever™ - Pathogen Testing Made Easy

What is IMS?

ImmunoMagnetic Separation (IMS) is a technology based upon uniform superparamagnetic spheres called Dynabeads®, which are used to separate specific biological targets from samples. IMS has been widely and successfully used in many biological fields including molecular biology, immunology and microbiology. For example, the attachment of target-specific antibodies to the surface of the beads allows capture and isolation of intact bacteria directly from a complex matrix.

Applying IMS to Microbiology

Dynal Biotech has been working closely with the scientific research community and governmental bodies to develop and improve existing methods for microbial analysis. As a result IMS methods have been specifically designed and developed for separation of bacteria from any sample matrix, leading to validations being awarded from regulatory bodies in USA, UK, Japan, Canada and France. The simple, efficient IMS procedure is widely accepted and routinely used around the world. IMS using Dynabeads® greatly improves sensitivity of analysis and significantly reduces total test time. The technology has been recognised and acknowledged as a fundamental improvement in sample preparation and will improve results of any detection technology.

Sensitivity

One viable target organism will be detected in a 25g sample after pre-enrichment. IMS using Dynabeads® is applicable if a minimum of 100 target organisms per ml is present in the sample tube, thus making it one of the most sensitive isolation methods available.

Automated IMS

Until recently IMS has only been performed manually. This is not only quite labour intensive and time consuming but there is also an issue with the safety of the test performer. The BeadRetriever™ is designed to perform IMS automatically in a closed system with minimal hands on time required. This system has been developed with input and suggestions from researchers and



Figure 3 : Inside the BeadRetriever™

- Clean culture plates for less confirmation work
- Maximises sensitivity of your assay
- Multiple sample parameters in one unit

Procedure

Enrich

1. Add sample to a suitable pre-enrichment broth and incubate

Automated Immunomagnetic Separation

2. Mark the tube strip with a sample identification code
3. Add Dynabeads®, pre-enriched sample and reagent buffers to the tube strip
4. Load the machine with magnet probe tip combs
5. Load the machine with the tray containing filled tube strips
6. Select program and press start

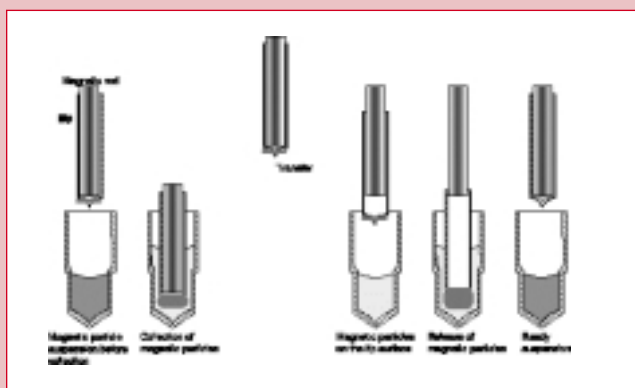


Figure 2 : Inverse magnetic particle processing



Figure 1: The BeadRetriever™ Automated ImmunoMagnetic Separation System

regular users of IMS.

The BeadRetriever™ is a small, bench top instrument pre-programmed for IMS enrichment of *Salmonella*, *Listeria* and *E.coli* using Dynabeads®. The principle of the BeadRetriever™ system is based on inverse magnetic particle processing (see Figure 2). Rather than moving the liquids, the Dynabeads® are moved from tube to tube containing specific reagents. The Dynabeads® are transferred with the aid of magnetic rods covered with disposable plastic tip combs. The instrument will hold a maximum of 15 tube strips in a tray into which the samples, Dynabeads® and buffers are dispensed. The tray and the tip combs are loaded into the machine and the desired program is selected using the keypad and display

Benefits

- Processes 15 pre-enriched 1ml samples in 20 minutes

Detection

7. Processed samples can be used in any validated detection method

Assays

- *Salmonella*
- *Listeria*
- *E.coli* O157
- *E.coli* O145
- *E.coli* O111
- *E.coli* O103
- *E.coli* O26

In Development

AIMS-ELISA

The ELISA screening procedure uses extended incubations of IMS steps on live cells. At the end of the procedure, a positive reaction is observed as an intense blue colour in the fifth tube while the bead-bacteria complexes are re-suspended in the fourth tube. Culture confirmation of the positive ELISA results is achieved by plating a sub-sample from the fourth tube using the swab-streak technique.

Product Information

Description		Product Number	No. Tests
BeadRetriever™	AFNOR Approved	159.50	-
Dimensions	290x 290 x 310mm		
Weight	10.5 kg		
BeadRetriever™ Tubes and Tips	(240 tubes , 50 tips)	159.51	240
Dynabeads® anti-Salmonella	AFNOR Approved	710.02	250
Dynabeads® anti-E.coli O157	AFNOR Approved	710.04	250
Dynabeads® anti-Listeria	AFNOR Approved	710.06	250
Dynabeads® EPEC/VTEC O145		710.07	100
Dynabeads® EPEC/VTEC O111		710.09	100
Dynabeads® EPEC/VTEC O103		710.11	100
Dynabeads® EPEC/VTEC O26		710.13	100

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