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 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
- 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

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 forth tube. Culture confirmation of the positive ELISA results is achieved by plating a sub-sample from the forth tube using the swab-streak technique.
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<th>Description</th>
<th>Product Number</th>
<th>No. Tests</th>
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<td>Dimensions 290x 290 x 310mm</td>
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<td>Weight 10.5 kg</td>
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<td>BeadRetriever™ Tubes and Tips</td>
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