FAQ – Dexter LifeSep® Biomagnetic Separation Units

Are there any printed resources that will tell me more about biomagnetic separation?

Two good printed resource materials are Advances in Biomagnetic Separation published by Eaton Publishing, ISBN 1881-299-0105 and Magnetic Separation Techniques Applied to Cellular and Molecular Biology published by Wordsmiths Conference Publications, ISBN 0 9518459 0 X.

Can Dexter Dexter LifeSep® products help where availability of skilled lab technicians is an issue?

Protocols using magnetic beads, particularly for DNA isolation, call for a great deal of skill and experience. Tube handling, repeated washing of the magnetic beads and final elution of bead-free samples takes practice, without which the chance of a failed sample is high. Directions for using Dexter LifeSep® are very straightforward, and it has been demonstrated that someone with little or no experience in the biotech area can be correctly utilizing the unit in a very short time. Beginners can quickly begin performing consistent and reproducible isolations, leaving skilled personnel available for more complicated upstream processing activities.

For what tube sizes (or platforms) does Dexter Magnetic Technologies supply magnetic separation units?

DMT's line of optimized magnetic separators is designed for the most widely used tube sizes and platforms including 1.5 mL and 2 mL sizes through larger 15 mL and 50 mL tubes. For performing rapid separations on a larger scale or using automated robotic equipment, DMT provides separation solutions for 96, 384 and 1536 well trays.

I have a unique tube for an automated piece of equipment. Can Dexter Magnetic Technologies provide a customized size of equipment?

While Dexter's line of optimized magnetic separation products provides an immediate starting point for performing rapid separation in single tubes and through 96, 384 and 1536 well trays, we welcome the opportunity to work on custom solutions. Technology and resources are available to provide designs that provide improved rates of magnetic separation, reduced cycle time and maximized yield.

Is it possible to recover the nucleic acid in a very small volume of 20 µl or less?

Nucleic acid from 20 µl using 200 µl PCR tubes may be recovered. For processing test volume below 50 µl, an instrument for the 96 well microtiterplate format may be more suitable.

To improve my yield or to make certain of isolating the protein of interest, why wouldn't I just keep adding more beads?

While adding more beads to a sample may increase the chance of affinity binding of beads to target, the overall process may suffer because of it. Too many beads loaded into too small a sample may result in a slurry-like suspension. Diluting in a larger tube may help although this will introduce problems with elution and with the sample being lost on the tube walls. Cost may also become prohibitive.

What are the advantages of DMT's patented technology in the Dexter LifeSep® 96F and Dexter LifeSep® 384F plate separators?

The magnet arrangement incorporated into these two products produces the necessary optimized field gradient and magnetic profile for rapid and, most importantly, uniform separation.

What kind of protocols can be run, and what are the parameters that can be adjusted?

Dexter LifeSep® products can be used for any purification based on super-parmagnetic particles or beads. They can be used to isolate/purify nucleic acids, proteins and immunoassays.

What size of particles can effectively be separated?

Dexter LifeSep® magnetic bead separators and products are designed to work with most commercially available superparamagnetic beads, roughly 0.8 microns in size and above. Smaller beads can be used, but it is important to ensure that the size distribution of the beads is narrow and the magnetic mass susceptibility is adequate.

Why should I choose Dexter LifeSep® products from Dexter Magnetic Technologies?

Protocols have been developed by the leading bead suppliers for immunomagnetic separation of nearly all cell types, purification of DNA and mRNA, isolation of subcellular organelles and microorganisms from food. DMT's technology complements what these protocols offer. We do what no one else does and we do not sell beads. Dexter Magnetic Technologies is the leader in the magnetic separation hardware industry. Our technical focus in the area of biomagnetic processing enables us to understand protocols and develop the best separation solution for you.

Will Dexter LifeSep® help reduce my reagent and bead costs?

In many cases, the advantage of using magnetic bead based protocols for DNA and mRNA isolation is so great when compared with phenol/chloroform extraction or column extraction that the cost of the magnetic beads becomes incidental. This is certainly the case where the number of isolations is small and the focus is on upstream processing. In particular areas though, where the number of samples processed is high, consumable expense becomes much more of an issue.