MagnaMedics

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MAGNAFACTS Newsletter 2008 - issue 2

Customized Products

This newsletter is to keep our customers and clients up-to-date of the progress in product and application development with MagnaMedics. In this issue we want to 1) give you an update about our current product development and 2) highlight the potential to request special – customized – products that can be optimized to your specific needs. Here we give some examples of what can be possible by applying our know how to your needs. Do you have such a special request? Don't hesitate to contact us via info@magnamedics.com or via phone and we can tell you what the possibilities are.

All our products are now available in our online shop at shop.magnamedics.net. If you do not want to receive future newsletters simply reply with "Stop" or inform us via info@magnamedics.com.

MagSi-proteomics

MagSi-proteomics beads are magnetic silica beads. The surface of the beads has been modified with C4, C8 and C18 alkyl groups typical for reversed phase applications.
The MagSi-proteomics C18 beads are an ideal tool for the purification, concentration and desalting of peptides and protein digests. Compared to other C18 filled pipette or column tools, desalting using MagSi-proteomics C18 results in best quality MALDI ToF spectra at a reasonable price. **A typical protein tryptic digest of up to 1 nmol in total can now be desalted at prices below 1 EUR** without time consuming, home brew column filling.

MagSi C8 beads represent an intermediate hydrophobicity and are suitable for sample preparation. The relatively low hydrophobicity of the C4 beads allows the purification and fractionation of larger biomolecules like proteins.
So MagSi-proteomics gives you the flexibility to desalt and pre-fractionate your sample ranging from small peptides to large proteins with top quality at reasonable prices.

Product Update

Tests done by several clients showed that at some conditions the magnetic strength of the MagSi-proteomics beads wasn't sufficient, which resulted in lost of beads during the washing steps. To resolve this problem the MagSi-proteomics beads have been modified to improve the recovery of sample material. The beads are now sized at 2 µm instead of 1 µm to increase the magnetic strength and improve handling characteristics. In figure 1 you can see the increased magnetic sedimentation for the 2 micron beads.

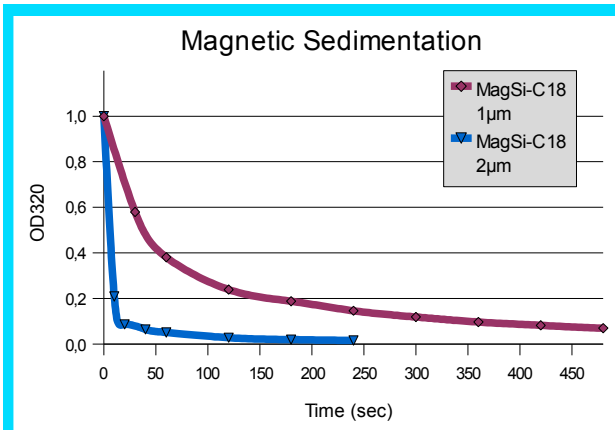

Figure 1: Difference in magnetic sedimentation by increasing the particle size. The sedimentation speed of the particles was measured using turbidity. In short: a cuvette with bead suspension was placed in a photometer with a magnet on the side of the cuvette. The decrease of absorbance was measured at 320 nm over time using an spectrometer. By placing a magnet at the side of the cuvette, the gravity had little to no influence on the sedimentation speed.

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Application Update

A Californian client noticed that MagSi-proteomics beads tend to stick to plastic material when used in a complex medium like saliva. This sticking is likely to be caused by the high amount of hydrophobic groups on the beads surface. To reduce this hydrophobicity – and the sticking of beads to plastic surfaces – a low concentration (5-10%) of a polar solvent like acetonitrile can be added to the binding solution. This will also reduce the efficiency of binding proteins, therefore an optimal concentration has to be determined by trial and error.

Customized Products

What if catalogue products do not meet your needs? For example: you have the antibody in hand to capture your specific cells or proteins; you have a read out system at hand to detect different fluorescent dyes at different wavelengths, but the fluorescent signal is under the detection limit. We can provide a customized, rapid solution for you: **MagCustom** (fig. 2). Tailor made magnetic and non magnetic beads are available in small scales and at reasonable prices. No matter if you have to couple one or two different fluorescent dyes, a specific peptide, protein, or antibody. MagnaMedics will find a solution to develop the product to your demand.

" .... optimized to your specific needs "

Fluorescent Beads

Beads with a fluorescent dye can be used for multiple applications like flow cytometry. But with flow cytometry, the kind of fluorescent, the label (e.g. antibody) on the particle and the particle size are important features. Here is where MagCustom can give the solution. For example, we coat the bead with a fluorescent protein you prefer and then this bead can be labelled (by us or at your own lab) with an antibody against a specific cell protein. Combining a specific fluorescent dye with a specific antibody to isolate and/or detect cells.

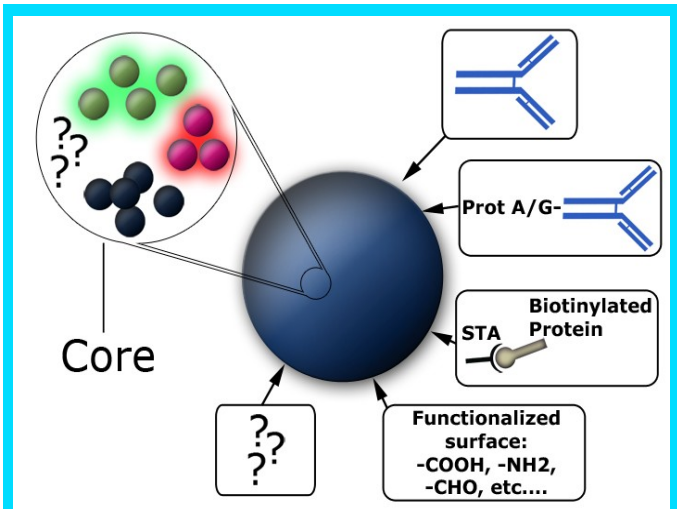

Figure 2. MagCustom toolbox. Quantum dots (green) or fluorescent dyes (red) and any other molecules (?) can be encapsulated next to the FerroFluids (black). On the surface different biomolecules like antibodies, proteins, streptavidin (STA), protein A or G and other biological and non-biological molecules can be attached on demand.

Links for more information:

- Application Notes
- MagCustom