ChromTech BioTrap 500

- **Direct injection of serum/plasma**
- **General methods for extraction**
- **Automated methods**
- **High recoveries of highly protein bound drugs (normally > 95%)**

In bioanalysis, the sample usually has to go through an isolation procedure prior to the chromatographic step. All isolation methods are time consuming and may introduce errors in the assay. The more manipulations the sample undergo prior to the quantification step, the lower the accuracy and precision obtained. It is therefore advantageous to inject the sample directly into a liquid chromatographic system without off-line isolation procedures. ChromTech has developed a series of online extraction columns to make the sample preparation easier and faster. The series is called BioTrap 500 and is available in three different phases, C18, C8 and now MS.

The principles behind the BioTrap 500 column

The BioTrap 500 column material has an external surface which is biocompatible due to the coverage with the extremely stable α_1-acid glycoprotein (AGP). The internal surface is very hydrophobic. The pore size of the particle is small enough to allow only low molecular weight drug molecules to penetrate and absorb to the inner surface. The macromolecules are excluded and directly flushed to waste.

Injection volume on BioTrap 500

Up to 1000µL plasma/serum can be injected directly onto the BioTrap 500 columns (20 x 4.0mm I.D.). By using optimal conditions, a total amount of more than 100mL of plasma/serum may be injected onto the BioTrap 500 column.

How to use BioTrap 500

Figure 1 demonstrates how to connect one BioTrap 500 online-extraction column together with an analytical column using a 6-port valve. Two pumps are used, one for the extraction mobile phase (pump A) and the other for the analytical mobile phase (pump B).

In the extraction position the analyte is trapped on the BioTrap 500 column, while the plasma proteins are transported to waste. When all the proteins are removed, the valve is switched to the elution position. In that position, the trapped analyte is back flushed onto the analytical column with the analytical mobile phase.

When the analyte has been transferred to the analytical column, the valve can be switched back to the extraction position for re-equilibration of BioTrap 500 with the extraction mobile phase, prior to the next injection.

Double the speed of analysis using a 10-port valve

By using a 10-port valve faster bioanlayses can be achieved. By connecting two BioTrap 500 columns in a 10-port valve (2-position), it is possible to handle two samples simultaneously. **Figure 2** shows the connection of two BioTrap 500 columns and one analytical column in one HPLC system.

Electrically Actuated Valves

Cat. No.	Description
MX7900	6-port electrically actuated valve
MX7960	10-port electrically actuated valve

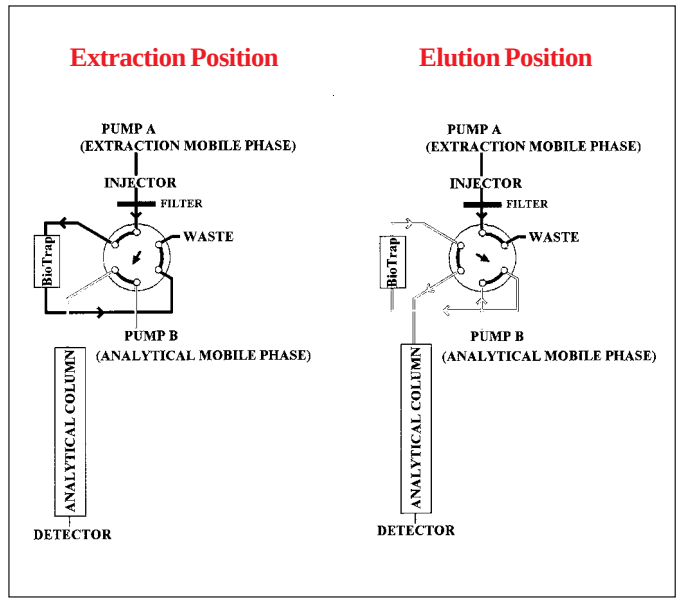

Fig. 1: How to Use BioTrap 500

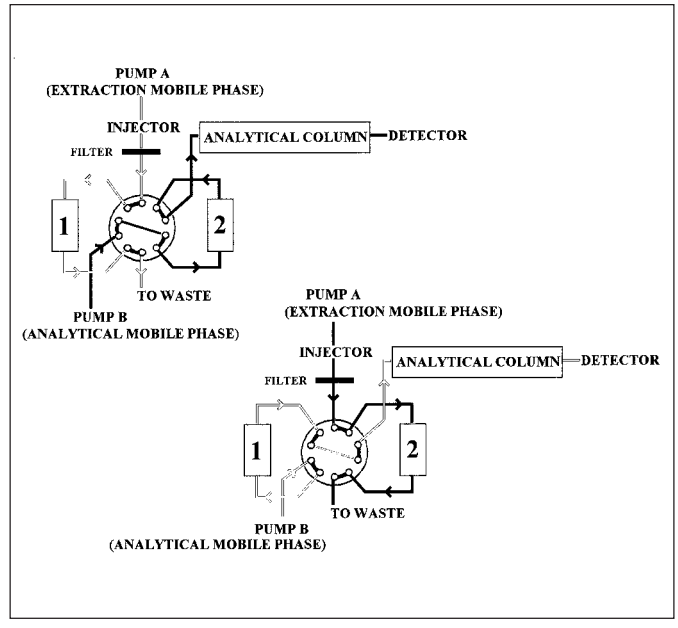

Fig. 2: Double the Speed Using a 10-Port Valve

In the first position, the sample is extracted on BioTrap 500 column **1**, while the previous sample is back-flushed with the analytical mobile phase from BioTrap 500 column **2** onto the analytical column. In the second valve position, the sample extracted on BioTrap 500 column **1** is back-flushed onto the analytical column, while the next sample is injected onto BioTrap 500 column **2** for extraction.