

Chiral chromatography, drug-plasma protein binding and on-line/off-line sample preparation

ChromTech has developed and manufacture unique chromatography products for use in different areas:

- The wellknown **chiral** columns **CHIRAL-AGP**, **CHIRAL-CBH** and **CHIRAL-HSA** resolves a large amount of chiral compounds from many different compound classes.
- Another product group is the specially designed **albumin and AGP columns** for the determination of **drug-plasma protein binding**.
- ChromTech has also developed the widely used **sample preparation** products:
 - **BioTrap** for fast, automated, online injection of plasma and other complex matrices directly onto the HPLC system.
 - **RePeat**, an SPE -cartridge for repeated use, which reduces the price for each sample.

Drug-plasma proteinbinding columns

Drug/protein binding measurements are important in early drug discovery. The reason is that only **free drug** can exert pharmacological activity and the free drug concentration is dependent on the degree of plasma protein binding.

Traditionally, timeconsuming ultra-dialysis has been used for these determinations.

However, using **HPLC** for the determination of plasma protein binding is an accurate and much faster method with the following **advantages**:

- very fast method
- easy retention time measurements
- reproducible and robust
- easy to automate
- easy to differentiate between very strong binders
- possibility to differentiate between the binding of enantiomers

ChromTech has developed a range of specially designed HPLC columns that can be used for these kind of studies:

HSA - human serum albumin

AGP - α_1 -acid glycoprotein

RSA - rat serum albumin

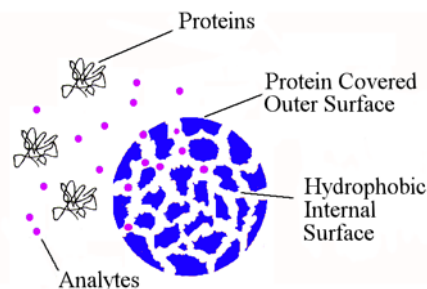
DSA - dog serum albumin

MSA - mouse serum albumin

(as well as columns based on albumins from other species or other drug binding proteins and receptors).

On-line sample preparation

In bioanalysis and analysis of compounds present in other complex matrices, the sample has to go through an isolation procedure prior to chromatography. All isolation methods are time-consuming and may introduce errors in the assay. It is therefore advantageous to inject the sample directly into an LC-system without off-line isolation procedures. The **BioTrap MS** column enables direct injection of a biological sample, like plasma, into the HPLC system. The 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 particles is small enough to allow only low molecular weight molecules to penetrate and adsorb to the inner surface. The macromolecules are excluded and directly flushed to waste.



General extraction methods are available for amines and acids. The column can be used with detectors such as MS, UV, fluorescence, EC, etc. The BioTrap MS column is used in an ordinary HPLC system equipped with an extra pump and a 6-port switching valve.

Off-line sample preparation

RePeat is a unique off-line extraction cartridge designed for **repeated extractions** of drugs from complex matrices, such as plasma, serum, milk, supernatants of cell cultures and fermentation broth. In contrast to ordinary disposable solid phase extraction columns, each **RePeat** cartridge can be used for hundreds of samples. This will highly **reduce the cost per sample**. **RePeat** is based on polymeric particles with a hydrophobic internal surface and a biocompatible external surface.

For more information on the different columns please visit:

www.chromtech.co.uk