

Direct quantitative bioanalysis of drugs in dried blood spot samples with CAMAG extraction devices

Introduction

Dried blood spot (DBS) samples for pharmaceutical studies have demonstrated many advantages over conventional plasma sampling (e.g. cost and ethics, clinical sampling simplification).

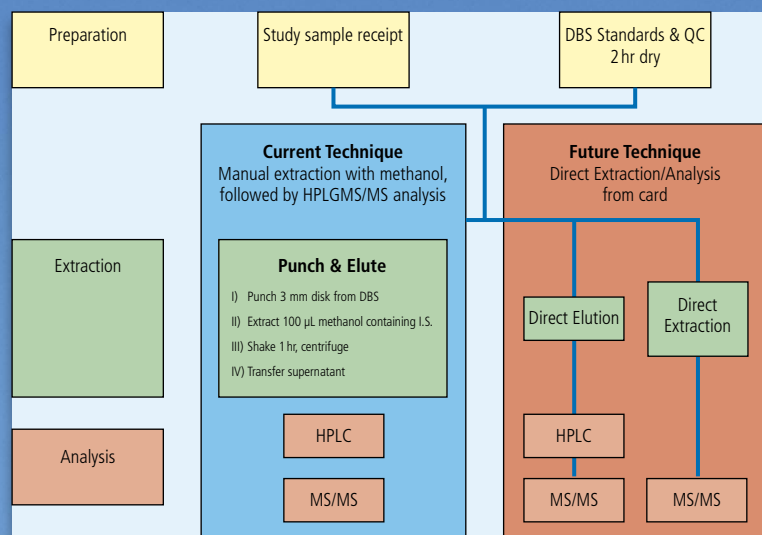
A large number of pharmaceutical companies have investigated this technique and efforts are being made to introduce this technique to replace the currently used method of plasma analysis.



CAMAG TLC-MS Interface

CAMAG TLC-MS Interface used in DBS analysis

The CAMAG TLC-MS Interface has been used for direct elution of drugs from DBS samples into mass spectrometers to perform quantitative bioanalysis. With this procedure complex and time consuming sample preparation is eliminated and sensitivity is increased. Results and progress with this concept were presented via various conferences and published papers:



- 1] 58th ASMS Conference on Mass Spectrometry: Direct quantitative bioanalysis of drugs in dried blood spot samples
Paul Abu-Rabie and Neil Spooner, GlaxoSmithKline R&D Ltd, Ware, UK; Matthias Loppacher CAMAG, Muttenz, Switzerland
- 2] Analyzing dried blood spot samples with a new thin-layer chromatography-MS interface
Future-science, Bioanalysis January 2010, Vol. 2, No. 1, Pages 39-42
- 3] Direct Quantitative Bioanalysis of Drugs in Dried Blood Spot Samples Using a Thin-Layer Chromatography Mass Spectrometer Interface
Paul Abu-Rabie and Neil Spooner, Anal. Chem., 2009, 81 (24), pp 10275-10284

New automated CAMAG DBS extraction devices

Promising results with the semi automatic CAMAG TLC-MS Interface led to the development of an automated DBS extraction device. A new fully automated high precision elution head has been developed that is specifically adapted for DBS sampling. This device optimizes elution conditions, evaluates samples, eliminates carry-over between samples, and allows for on-line addition of an internal standard.

Prototype CAMAG DBS extraction device for automatic direct analysis of up to 16 DBS sample spots



High precision adjustment and DBS location prior to analysis



*Prototype CAMAG DBS extraction device for automatic direct analysis
of up to 16 DBS sample spots*

Work is progressing on the development of this technique into a fully automated, high throughput bioanalytical tool that will include automation of DBS card handling, connection and integration to the mass spectrometer.



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