

# EXCELLIMS

Innovation for Excellence in Detection Technology

## IA3100 Complete HPLC-HPIMS Solution



- IA3100 high performance IMS for HPLC systems
- Provides high resolution, multi-dimensional separation based on principles of chromatography and ion mobility
- Unique advantages in isomer separation
- Detects compounds of interest within complex matrices
- Separates coeluting compounds without changing columns or altering established HPLC methods

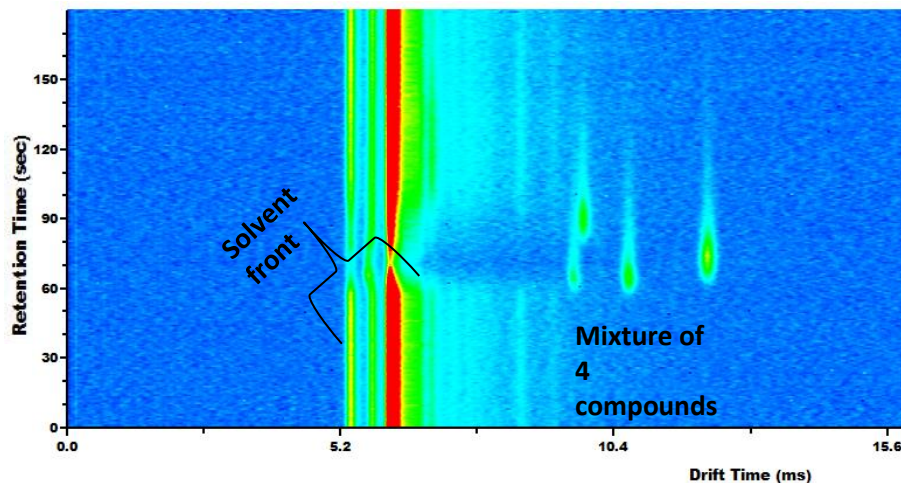
### Two dimensional separation with IA3100 – Bolt-on HPIMS enhances performance of HPLC systems

When an HPIMS detector is coupled with an HPLC instrument it provides an orthogonal separation that enhances the system's abilities. Liquid chromatography separates based on a molecule's polarity, while ion mobility spectrometry separates based on its size and shape. These two mechanisms working together allow the IA3100 HPLC-HPIMS system to analyze a wide variety of compounds and mixtures, including those with coeluting peaks or compounds with similar drift times.

In an integrated HPLC-HPIMS system, a liquid sample elutes from the LC column and flows through a capillary line. This line leads to an electrospray ionization source, where the sample ionizes and enters the HPIMS drift tube in the gas phase. The molecular ions are pulled through the tube by an applied electric field, while undergoing collisions with a drift gas flowing in the opposing direction. A Faraday plate detector creates a signal that can be plotted as a 2D spectrum, with LC drift time on the y-axis and IMS drift time on the x-axis.

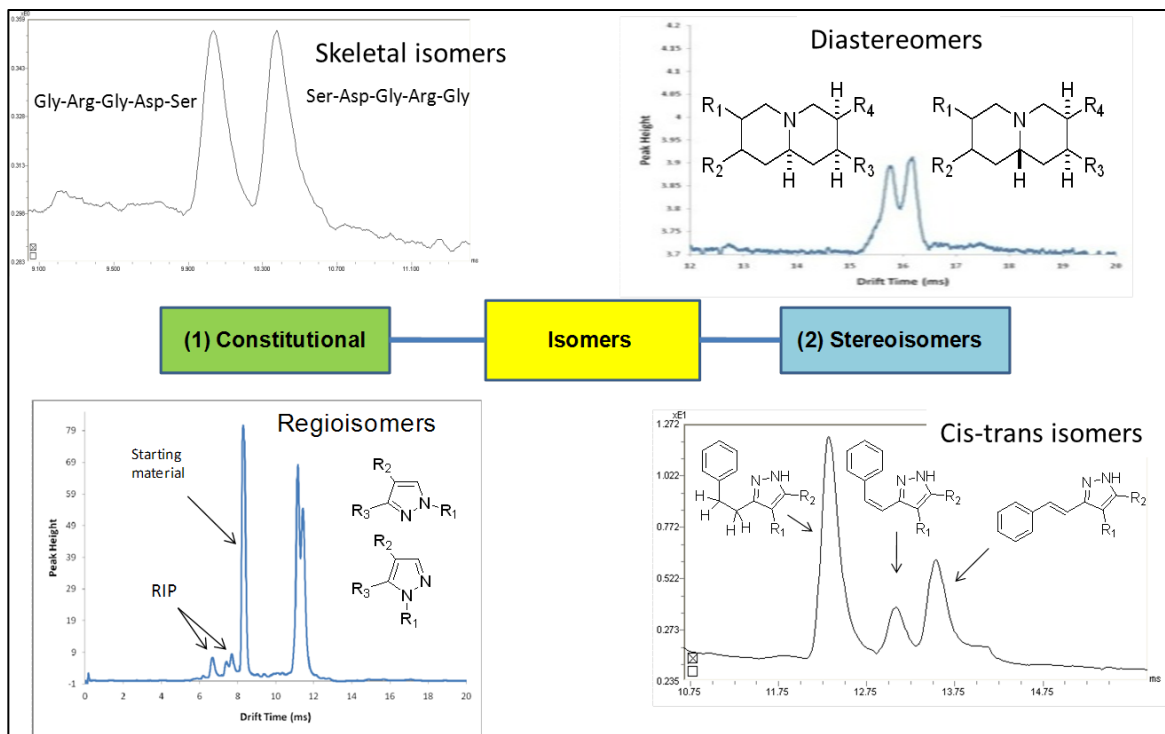
#### A 2D Spectrum

The four compounds in this spectrum produced two peaks by a C18 LC method and three peaks by HPIMS. The IA3100 system was able to simultaneously separate and detect all four compounds.



## HPIMS adds versatility to HPLC in the IA3100 system

Separates and detects isomers, UV transparent molecules, and co-eluting compounds



### Isomer separation

Isomers that co-elute from an LC column are separated by the HPIMS detector. This expands the range of LC analysis to include skeletal isomers, diastereomers, regioisomers, and cis-trans isomers.

### UV transparent compounds

HPIMS uses a Faraday plate detector, allowing the IA3100 to separate and detect compounds that do not have a UV chromophore.

