

Revolutionize Metabolite Identification with Cyclic IMS

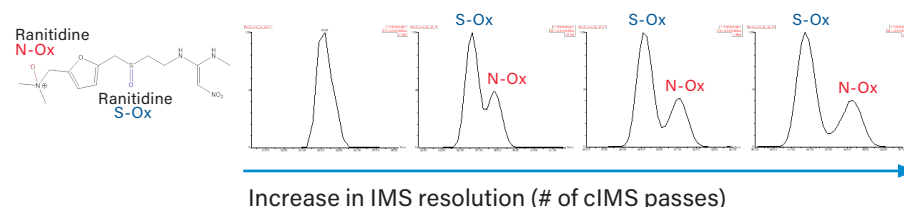
Discover, Identify and Monitor more



WHY SELECT SERIES CYCLIC IMS?

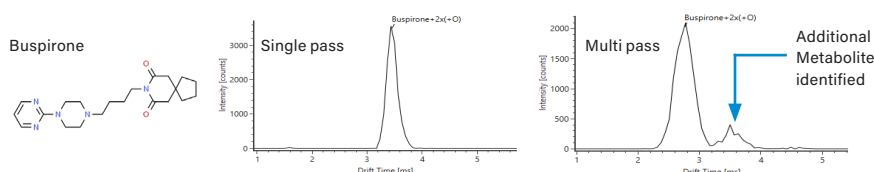
SELECT SERIES™ Cyclic™ IMS adds benefit to pharma workflows. Ultra-high ion mobility resolution and novel multi-stage IMSn capability enables discovery of co-eluting, isomeric metabolites, rapid monitoring of metabolites in chemical reactions without the need for LC and improved spectral clarity. Importantly, more routine analysis is improved by the instruments superior TOF performance; high sensitivity, over 100,000 FWHM resolution, <1ppm mass accuracy and improved dynamic range.

SEPARATION OF ISOMERS



In collaboration with Novartis - Christian Lanshoeft & Frédéric Lozach

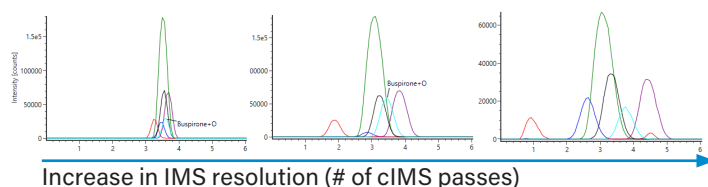
DISCOVER NEW CO-ELUTING METABOLITES



Observation of additional +2x(+O) metabolite using cIMS improved resolution.

GAIN INFORMATION ON METABOLITE LOCALISATION

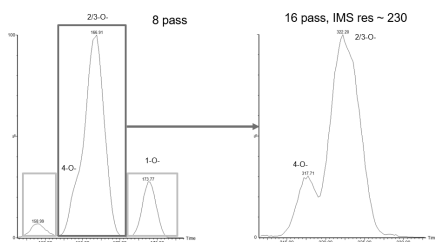
Increasing the number of passes in the cIMS mobility cell improves +O separation for the oxidized metabolites. Further localization information can be obtained from fragment ion shifts.



WHY IS CCS IMPORTANT IN PHARMA?

- Collisional Cross Section (CCS) is a physicochemical property of an ion that provides confidence in metabolite confirmation/identification and information about localisation of sites of metabolism.
- Unlike retention times (RT), CCS values are consistent across different instruments (facilities), sample matrices, LC methods and studies (CCS consistency - robust & routine).
- CCS provide potential for comparison with impurities.
- CCS prediction using CCSONDemand (research grade software for modelling structures of potential metabolites) aids further understanding of metabolite structures.

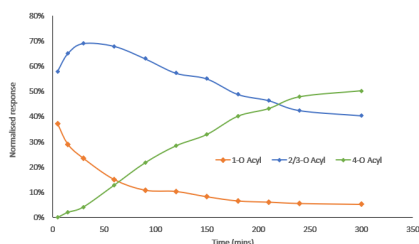
NO NEED FOR LC - THE POWER OF IMSⁿ & 'SLICING'



In collaboration with Imperial College London - Ian D. Wilson

- Investigation into acyl glucuronides via infusion
- Slicing enables further IMS separation of target metabolite (blue region) of interest and other ions can be ejected
- Increasing the IMS resolution reveals an additional 4-O acyl

REAL TIME MONITORING VIA INFUSION



- Real time monitoring of acyl migration via infusion
- Rapid study of acyl migration shows promise as potential screening approach
- Scope for any chemical reactions with isomeric species to be monitored

CUSTOMER FEEDBACK

"The Cyclic IMS can be used for routine analysis

- Straightforward familiarisation for routine operation

- Fast and fully automated calibration

- People in the lab like it very much."

RALF LAUX,
Laboratory Supervisor,
DMPK - Drug Metabolism
Boehringer Ingelheim

References

1. Higton, D. Wilson, I. et al. (2021) The use of Cyclic Ion Mobility Spectrometry (cIM) Mass Spectrometry to Study the Intra Molecular Transacylation of Diclofenac Acyl. Glucuronide. Analytical Chemistry. <https://doi.org/10.1021/acs.analchem.0c04487>
2. Webinar Series link: [The Innovation and Impact of IMS-MS](#)
3. Webinar Series QR code:



DISCOVER MORE

<https://ims.waters.com/the-cyclic/>

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