Use of Differential Mobility Spectrometry for the Rapid Analysis of Histamines and its Metabolites in Biological Matrices

For Research Use Only. Not for use in diagnostic procedures.

Cindy Berg; Alexandre Wang; W Istol Woltersdorf; Huai-fen Liu

AB SCIEX, 503 Hatch Drive, Foster City, CA 94404

126>109 for 3

Technology.

minutes.

Kinetex HILIC 50mm x 2.1mm, 2.6µ column.

HPLC analyses were performed using a Shimadzu Prominence system with a

Table 1. LCMS optimized conditions and compensation voltage

Table 2. Sample Settings

Table 3. Optimized MRM conditions and compensation voltage

Table 4. LCMS optimization conditions and compensation voltage

HIIU Conditions:

Injection volume was 30µL.

MS Conditions:

During compound optimization for histamine and its metabolites, we tried to identify unique fragments for the N-

Table 5. LC optimization conditions and compensation voltage

RESULTS

Using the SelexION™ Technology, we are able to take advantage of the planar differential mobility spectrometry (DMS) compensation voltage allowing them to be retained one at a time through the tripositive quadrupolar system. In addition, DMS also helps eliminate chemical noise from the background improving the sensitivity for the assay.

CONCLUSIONS

A fast, robust, and sensitive method was developed for the detection of histamine and its isobaric metabolites. N-methylhistamine, 3-phthaldialdehyde, and other metabolites. This method is cost-effective and quick, which make the method impractical for routine analysis.

For the 3-N-methylhistamine, the 109 fragment was also a common fragment. This strategy worked for N-

In order to determine if there was interference in the detection of histamine and the 3 isobaric metabolites, a method with a shallow gradient and long run time would be required.

During compound optimization for histamine and its metabolites, we tried to identify unique fragments for the N-

This strategy worked for N-

Table 1. LCMS optimization conditions and compensation voltage

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-

N-