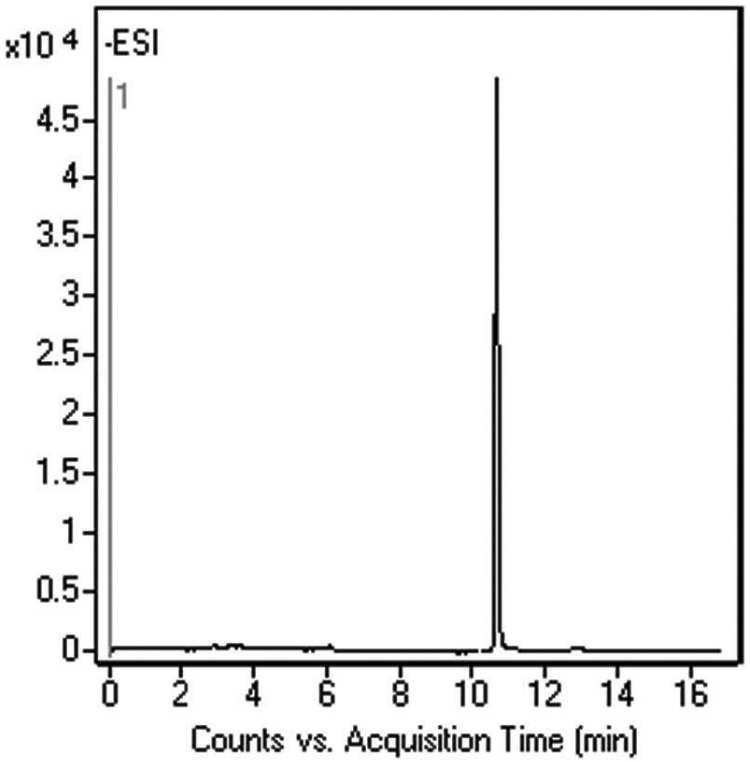
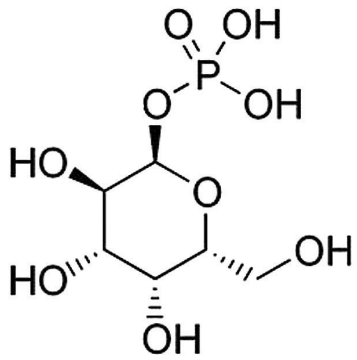
Galactose-1-Phosphate Analyzed with LCMS - AppNote

Potential Clinical Screening Method for Galactosemia

This Method is useful as a quantitative screening or routine clinical test to detect infants suspected of having a defect of Galactose Metabolism. It can also be used to monitor blood levels of Galactose-1-Phosphate in children with Galactosemia who are on a lactose-free diet.





Peak:

Galactose-1-phosphate, 259.0224 m/z (M-H)–

Method Conditions

Column: Cogent Diamond Hydride™, 4µm, 100Å
Catalog No.: 70000-15P-2
Dimensions: 2.1 x 150mm

Mobile Phase:

A: DI Water with 0.1% Formic Acid (v/v)

B: 90:10 Acetonitrile / DI Water with 16.5mM Ammonium Acetate (v/v)

Gradient:

Time *(minutes)*	%B
0	95
1	95
3	85
6	85
7	75
10	50
12	50
13	30
15	30
15.00	95

Post Time: 5 minutes

Injection vol.: 1µL

Flow rate: 0.4mL / minute

Detection: ESI – NEG - Agilent 6210 MSD TOF Mass Spectrometer

Sample Preparation:

Stock Standard: 1mg / mL Galactose-1-phosphate in DI Water, stored at -20°C.

Working Solution: Stock was diluted 1:100 with 50:50 Acetonitrile / DI Water Solution.

t_0: 0.9 minutes

Note: *The biochemical mechanism of (Gal 1-P) toxicity is still unknown. Recent experiments strongly suggest that Galactose-1-phosphate is also a substrate for Inositol Monophosphatase (IMPase). The brain is critically dependent on IMPase for the supply of free Inositol in order to sustain signaling. There is evidence which strongly supports the possibility that being a substrate, Gal 1-P could modulate IMPase function in vivo. This modulation has a role in a bipolar disorder.*

COGENT HPLC Columns™

Attachment

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