Supplementary Material

MS instrument parameters for panel 1.

| | |
|---|---|
| Curtain Gas (CUR) | 30 L/h |
| Collision Gas (CAD) | Medium |
| Ion Spray Voltage | 5500 V |
| Temperature (TEM) | 480$^0$C |
| Ion Sourse Gas 1 (GS1) | 50 L/h |
| Ion Sourse Gas 1 (GS2) | 65 L/h |
| Dwell time | 18 ms |
| Declustering potential (DP) | 40 V |
| Entrance Potential (EP) | 10 V |
| Collision Cell Exit potential (CXP) | 10 V |

MRM parameters for panel 1.

| | Precursor ion (*m/z*) | Product ion (*m/z*) | CE (V) |
|---|---|---|---|
| GALC-P | 412.20 | 264.20 | 30 |
| GALC-IS | 417.20 | 264.20 | 30 |
| GAA-P | 498.20 | 398.20 | 32 |
| GAA-IS | 503.20 | 403.20 | 32 |
| GLA-P | 484.20 | 384.20 | 32 |
| GLA-IS | 489.20 | 389.20 | 32 |
| ABG-P | 384.20 | 264.20 | 28 |
| ABG-IS | 391.20 | 271.20 | 28 |
| ASM-P | 398.20 | 264.20 | 30 |
| ASM-IS | 405.20 | 264.20 | 30 |
| IDUA-P | 426.20 | 317.20 | 25 |
| IDUA-IS | 431.20 | 322.20 | 25 |

P, product of enzyme reaction
IS, internal standard.
DP, declastering potencial
CE, collision energy

HPLC method for panel 1.

| | |
|---|---|
| Column | XBridge BEH C18 (Waters, USA).<br>Particle diameter: 3.5 μm<br>Internal diameter: 2.1 mm<br>Length: 50 mm |
| Column temperature | 60°C |
| Wash solvent | 80% Methanol in water |
| Mobile phase A | 0.2% formic acid in water |
| Mobile phase B | 0.2% formic acid in acetonitrile |
| Gradient (% B) | 0 - 0.50 min: 10% B – 98% B<br>0.50 - 2.00 min: 98% B<br>2.00 – 3.00 min: 10% B |
| Flow rate | 0.4 mL/min |
| Injection volume | 10 μL |
| Autosampler temperature | 15°C |

MS instrument parameters for panel 2.

| | |
|---|---|
| Curtain Gas (CUR) | 20 L/h |
| Collision Gas (CAD) | Medium |
| Ion Spray Voltage | 5500 V |
| Temperature (TEM) | 600$^0$C |
| Ion Sourse Gas 1 (GS1) | 50 L/h |
| Ion Sourse Gas 1 (GS2) | 65 L/h |
| Dwell time | 20 ms |
| Entrance Potential (EP) | 10 V |

| | |
|---|---|
| Collision Cell Exit potential (CXP) | 10 V |

MRM parameters for panel 2.

| | Precursor ion (*m/z*) | Product ion (*m/z*) | DP (V) | CE (V) |
|---|---|---|---|---|
| NAGLU-P | 420.30 | 311.30 | 65 | 21 |
| NAGLU-IS | 423.30 | 314.30 | 65 | 21 |
| GALNS-P | 685.40 | 373.30 | 80 | 35 |
| GALNS-IS | 690.40 | 378.30 | 80 | 35 |
| ARSB-P | 657.40 | 345.20 | 80 | 33 |
| ARSB-IS | 662.40 | 350.30 | 80 | 33 |
| GLB1-P | 436.30 | 336.30 | 50 | 21 |
| GLB1-IS | 439.30 | 339.30 | 50 | 21 |
| GUSB-P | 434.30 | 325.30 | 80 | 34 |
| GUSB-IS | 439.30 | 330.30 | 80 | 34 |
| I2S-P | 644.40 | 359.30 | 80 | 30 |
| I2S-IS | 649.30 | 364.30 | 80 | 30 |
| TPP1-P | 350.30 | 250.30 | 36 | 20 |
| TPP1-IS | 359.30 | 251.30 | 36 | 20 |

P, product of enzyme reaction
IS, internal standard.
DP, declastering potencial
CE, collision energy

HPLC method for panel 2.

| | |
|---|---|
| Column | Fusion-RP (Phenomenex, USA).<br>Particle diameter: 4.0 μm<br>Internal diameter: 2.1 mm<br>Length: 50 mm |
| Column temperature | 60°C |
| Wash solvent | 80% Methanol in water |
| Mobile phase A | 0.2% formic acid in water |
| Mobile phase B | 0.2% formic acid in acetonitrile |
| Gradient (% B) | 0 – 2.00 min: 10% B – 80% B<br>2.00 - 2.50 min: 80% B<br>2.50 – 3.50 min: 10% B |
| Flow rate | 0.5 mL/min |
| Injection volume | 5 μL |
| Autosampler temperature | 15°C |