# **HUMAN MILK OLIGOSACCHARIDE PANEL**



#### About Human Milk Oligosaccarides (HMOs)

Human milk oligosaccharides (HMOs) are complex sugars with unique structural diversity which are found in breast milk at significant concentrations.

HMOs are important prebiotics and display many unique health effects for infants. These sugars act by promoting growth of beneficial bacteria in the large intestine, thereby generating short-chain fatty acids which are critical for gut health.

As antiadhesive antimicrobials, HMOs selectively reduce binding of pathogenic bacteria and viruses to the gut epithelium, preventing the emergence of a disease.

Certain HMOs can help establish immunocompetence, both locally and systemically. HMOs may also participate in a gutbrain connection, thereby modulating brain and cognitive development.

#### **Applications**

- · Studies in infant nutrition and therapeutic uses of HMOs
- Pharmacokinetic studies of HMOs, providing insights on dose-response relationships of HMOs in clinical or experimental studies
- Applications that require measuring low levels of HMOs in biological samples

#### **Key Advantages - Reproducible Results**

- Fully guantitative LC-MS/MS method with a minimum of 6 to 8 calibrators per analyte
- Wide range of sample matrices
- Proprietary technology facilitates low level quantitation in biological matrices with excellent accuracy and precision
- Matching <sup>13</sup>C labelled internal standards for all analytes

#### **Key Advantages Continued**

- HMO isomers are separated (2'-FL/3-FL; LNT/LNnT; 3'-SL/6'-SL)
- Calibrator and quality control sample precision (% CV) typically <10%

#### **Analytical Method and Instrumentation**

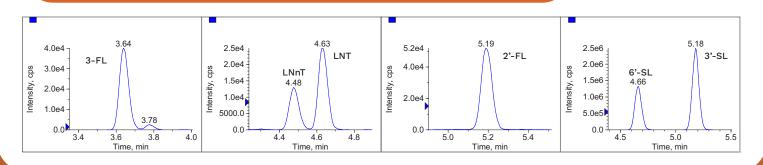
- Analysis performed by LC-MS/MS
- Sciex Exion UHPLC, coupled to a Sciex 5500+ Triple Quadrupole Mass Spectrometer

| Panel Analytes                             |  |  |
|--|--|--|
| Measured Metabolites                       |  |  |
| 2'-Fucosyllactose (2'-FL)                  |  |  |
| 3-Fucosyllactose (3-FL)                    |  |  |
| Lacto-N-tetraose (LNT)                     |  |  |
| Lacto-N-neotetraose (LNnT)                 |  |  |
| 3'-Sialyllactose (3'-SL)                   |  |  |
| Customization with other HMOs upon request |  |  |
|  |  |  |

#### **Sample Requirements**

| Sample Matrix               | Sample Amount |  |
|-----------------------------|---------------|--|
| Plasma/Serum                | 100 - 200 μL  |  |
| Feces/Intestinal<br>Content | 200 - 500 mg  |  |
| Bacterial Cultures          | 200 - 500 μL  |  |
| Urine                       | 200 - 500 μL  |  |
| Others upon request         |               |  |

## **Representative Chromatograms at Low Levels of HMOs in Feces Samples**



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