

Product information  
Leaflet

# GlyCare® 3FL

Human Milk  
Oligosaccharides  
brought to you by  
dsm-firmenich, at  
the forefront of  
HMO innovation

## Early life nutrition innovation from dsm-firmenich

Providing the best infant nutrition is vital for all families. That's why dsm-firmenich is proud to offer GlyCare® HMOs. These compounds are developed with science-backed quality and safety at their core. As a fully integrated manufacturer with one of the broadest HMO offerings, dsm-firmenich can reliably provide ease-of-scale no matter the size of your business. Partner with us to get your products one step closer to what nature intended.

Partner with dsm-firmenich for access to our broad portfolio of products, customized solutions, and expert services aimed at supporting your entire product life cycle, from concept to consumption.

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## Human Milk Oligosaccharides (HMOs): delivering the benefits nature intended

### Uniquely human

- HMOs are complex carbohydrates found in human breastmilk
- No other mammal has near the concentration and complexity of structures in their milk<sup>1-6</sup>

### Abundance and diversity in human milk

- 3rd largest component of human milk<sup>7</sup>
- >200 different HMOs identified in human milk, a diversity not seen in other animal milks<sup>4-6</sup>
- Variation in concentration and diversity occurs over lactation period, by maternal genetics, geographic region, and ethnicity<sup>8,9</sup>

### Complex structures with potential functional benefits

- Help establish a balanced early-life microbiota<sup>10,11</sup>
- Growing evidence suggests a link between the gut microbiota and the immune system<sup>12,13</sup>
- Contribute to immune system support<sup>14-18</sup>

### 3-fucosyllactose (3-FL): A fucosylated HMO detected in the milk of most mothers<sup>19</sup>

- 3-FL has been identified in amniotic fluid and cord blood, suggesting a critical role in early development<sup>20-21</sup>
- Unlike many other HMOs, levels of 3-FL have been shown to increase during lactation<sup>19,22-24</sup>

**HMO functionality is structure-specific: not all HMOs serve the same purpose<sup>25,26</sup>**

## Potential functional benefits of GlyCare® 3FL, as demonstrated primarily in pre-clinical studies



- Stimulates the growth of beneficial bacteria, including bifidobacteria<sup>27-29</sup>
- A potential role in regulating normal gut motility is being explored<sup>30,32</sup>

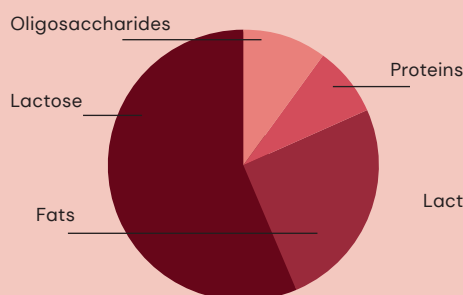


- Supports immune health. Emerging data suggest 3-FL may deflect undesirable microbes from adhering to cell walls<sup>33</sup>
- Reported to support the gut wall and gut barrier function<sup>32,34</sup>

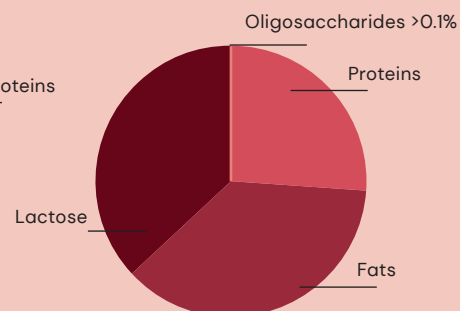


## Breastmilk – the gold standard

Breastmilk provides nutrients that are vital for an infant's growth and development and sets the standard in infant feeding.<sup>35,36</sup> Human milk oligosaccharides (HMOs) are the third largest solid component of human milk after lipids and lactose and a key differentiating feature between human milk and cow's milk. The unique structure, concentration, and variety of oligosaccharides in human milk sets them apart from those found in cow's milk.<sup>37,38</sup> Differences in health outcomes between breastfed and formula-fed infants may partly be explained by these features.<sup>8,37,39,40</sup>



Composition of human milk<sup>41,42</sup>



Composition of cow milk<sup>41,42</sup>

## HMOs stimulate the growth of beneficial bacteria

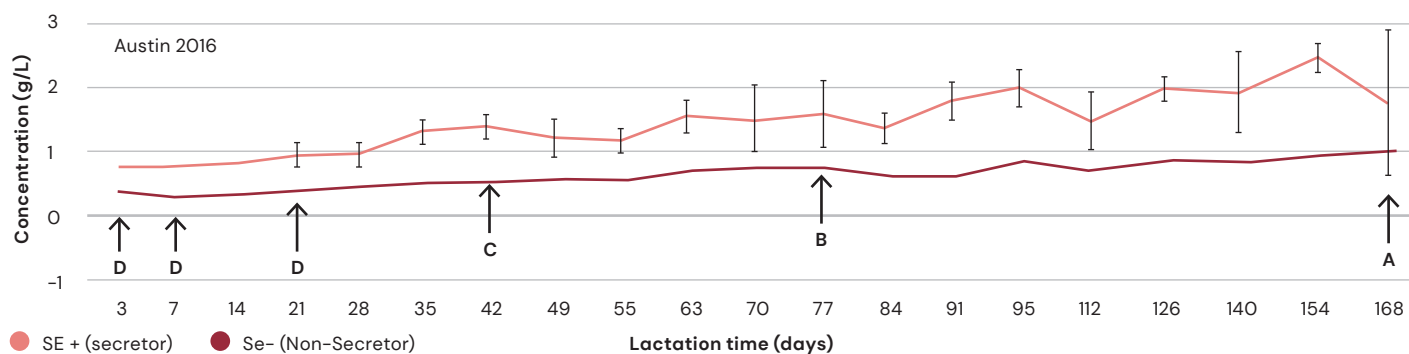
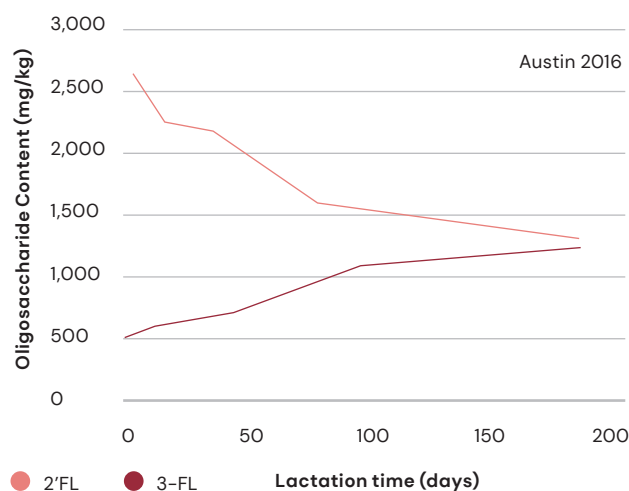
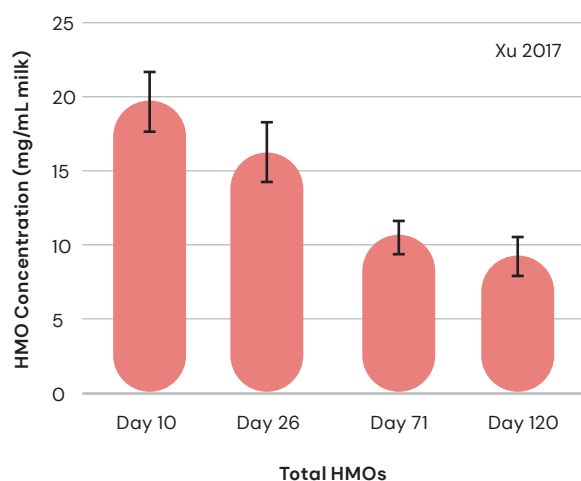
- While the concentration of most HMOs declines over the course of lactation, levels of 3-FL have been shown to increase.<sup>19,22,23,43-46</sup>
- In a study that tested the concentrations of 24 HMOs during lactation, only 3-FL levels increased from birth through approximately 5 months of lactation.<sup>22</sup> Another study showed a 10-fold increase in 3-FL between 1 and 24 months of lactation.<sup>23</sup>
- The unique pattern of 3-FL levels in human milk may correlate to a specific function, yet further study is needed.

## GlyCare® 3FL product information

- 5 years of shelf life from production date
- Purity levels from 87%
- White to off-white, homogenous, amorphous powder with a neutral to slightly sweet taste
- Contains up to 5% lactose<sup>§</sup>
- Manufactured without contact to latex, bisphenol A, or phthalates
- This product is free from: Animal derived ingredients (ADI), Allergens (except milk),<sup>§</sup> Genetically modified organisms (GMO)<sup>¶</sup>

§ according to EC regulation 1169/2011 annex II

¶ according to EC regulation 1829/2003 and 1830/2003



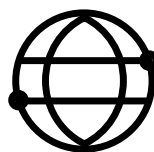
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dsm-firmenich GlyCare® HMOs are produced to  
the highest quality of certifications, approvals,  
and procedures



## The full GlyCare® HMO portfolio

- GlyCare® 2FL
- GlyCare® LNnT
- GlyCare® 2FL/DFL
- GlyCare® 6SL
- GlyCare® 3SL
- GlyCare® LNT
- GlyCare® 3FL
- GlyCare® LNFP I

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