

Jennewein publishes results on norovirus-inhibiting effect of complex oligosaccharides

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28-May-2020 - Last updated on 28-May-2020 at 11:06 GMT

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German biotechnology company Jennewein Biotechnologie GmbH has published the latest results from its norovirus research program in the Journal of Biotechnology.



Breast-fed infants are less likely than bottle-fed infants to contract norovirus infections, and earlier work has indicated a link between this protective effect and human milk oligosaccharides (HMOs).

The company said in its previous study, it found the most abundant HMOs, 2'-fucosyllactose (2'-FL) and 3-fucosyllactose (3-FL), can directly inhibit certain serotypes of norovirus by blocking interactions between the virus and its natural receptor.

In this latest study, "Biotechnologically produced fucosylated oligosaccharides inhibit the binding of human noroviruses to their natural receptors," the company extended its work to include additional HMOs such as lacto-N-fucopentose I and even more complex oligosaccharides.

"With more than 600m infections and 200,000 deaths per year and no treatment available, norovirus is definitely a global health problem, and a particular threat to infants, small children and the elderly," Dr Stefan Jennewein, CEO of Jennewein Biotechnologie, said.

"Our company has been working for many years on the development of HMOs and other complex carbohydrates that bind to norovirus and prevent infections."

Dr Katja Parschat, co-head of R&D at Jennewein Biotechnologie, said, *"Complex oligosaccharides such as HMOs can mimic the structure of the virus's natural receptor on human cells, coating the virus and preventing it from interacting with its targets. We demonstrated this ability for 2'-FL and 3-FL in our previous study. But the development of more complex oligosaccharides, which mimic the virus receptors even more closely, allows us to significantly improve this protective effect."*

HMOs are complex sugar molecules that are only present in breast milk. Excluding water, they are the third most abundant constituent of human milk after fats and lactose. More than 200 structurally distinct HMOs have been identified.

The most abundant HMO is 2'-FL, which is produced by about 80% of all lactating mothers and is present at concentrations of up to 3 g/L. HMOs, and 2'-FL in particular, have a positive impact on infant

development by promoting the growth of beneficial microorganisms and inhibiting the growth of pathogens, directly and indirectly preventing colonization.

Jennewein Biotechnologie launched its 2'-FL product onto the global baby food market in 2015, and several infant milk formulas around the world now contain 2'-FL (e.g., Abbott Similac, Danone Aptamil ProFutura).

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