

# Sugars in breast milk could help treat infections, prevent preterm births

August 9 2023

---



Credit: Pixabay/CC0 Public Domain

Breastfeeding has long been used as a method to help keep newborns healthy and protected against a variety of diseases. But certain sugars naturally found in breast milk could also help prevent infections before a

baby arrives.

Researchers reporting in *ACS Central Science* have found that these sugars can stop a common prenatal infection in human tissues and pregnant mice. This could someday help avoid preterm births or complications without the need for additional antibiotics.

One of the most common bacteria that can affect pregnancies is Group B streptococcus (GBS). If left untreated, GBS infections can potentially lead to adverse effects, including neonatal pneumonia or [preterm birth](#). Though treatments are available, they primarily rely on antibiotics, which can give rise to resistant strains. However, many of the compounds already present in [human breast milk](#), such as human milk oligosaccharides (HMOs), naturally have antibacterial effects.

[Previously](#), Steven Townsend, Jennifer Gaddy and colleagues explored the antimicrobial effects of HMOs, finding that they could inhibit growth of GBS in vitro and in certain reproductive cells. But before the [compounds](#) could be used to boost existing antibiotics or become a new therapeutic option entirely, researchers need to show how the sugars work in many tissues and in vivo. So now, the team wanted to investigate HMO activity in GBS infections in pregnant mice and human tissues.

The team first analyzed the protective effects of HMOs on [human tissue](#) infected with GBS, using both ex vivo fetal tissues and an organoid model of the vagina. When they added a mixture of HMOs designed to mimic the sugar composition in [breast milk](#), the bacteria could not adhere and form colonies. The HMO mixture was then tested in [pregnant mice](#) infected with GBS.

The treated mice had a relatively typical level of inflammation, reduced numbers of bacteria in several reproductive tissues, and experienced no instances of preterm births, ruptured membranes or maternal deaths.

Taken together, these results demonstrate that HMOs can have antimicrobial effects without additional antibiotics. The researchers say that this work could allow for these sugars to be used as a viable therapeutic option to treat GBS infection and prevent adverse pregnancy outcomes.

**More information:** The Utility of Human Milk Oligosaccharides Against Group B Streptococcus Infections of Reproductive Tissues and Cognate Adverse Pregnancy Outcomes, *ACS Central Science* (2023).

[DOI: 10.1021/acscentsci.3c00101](https://doi.org/10.1021/acscentsci.3c00101) ,  
[pubs.acs.org/doi/abs/10.1021/acscentsci.3c00101](https://pubs.acs.org/doi/abs/10.1021/acscentsci.3c00101)

Provided by American Chemical Society

Citation: Sugars in breast milk could help treat infections, prevent preterm births (2023, August 9) retrieved 27 April 2024 from

<https://medicalxpress.com/news/2023-08-sugars-breast-infections-preterm-births.html>

<p>This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.</p>
--