

# Breast milk as drug-delivery device

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Treating sick babies with engineered breast milk could someday be a reality, according to an article in *Chemical & Engineering News* (C&EN), the weekly newsmagazine of the American Chemical Society. Modified cells in the liquid could potentially deliver vaccines, fix birth defects or provide proteins that some babies can't make on their own.

At the forefront of this research is Katie Whitehead, Ph.D., who was inspired while nursing her infant daughter, says Senior Editor Megha Satyanarayana. Breast milk contains carbohydrates, fats, proteins, nucleic acids, microbes and maternal cells. Other researchers have found that the carbohydrates end up everywhere throughout a nursing baby. And [stem cells](#) from [human breast milk](#) fed to mice can become integrated into many organs, even the brain. At the moment, Whitehead and her team are following the path that [epithelial cells](#) from goat breast milk take in mice. Her grand plan is to eventually isolate cells from human milk, engineer them to produce proteins or vaccines, put them back into the milk and feed it to a sick baby.

Given the scientific progress in other areas of science, Whitehead finds it surprising that breast milk research is somewhat lacking. And the [breast milk](#) studies are only the tip of the iceberg when it comes to the questions in female biology that still remain to be answered, she says. Whitehead wonders if the fact that women often haven't been in leadership positions in science is a factor, and hopes that as more women become professors and lab leaders, they will feel empowered to draw from their [personal experiences](#) as women to build their research programs.

**More information:** "These scientists want to engineer breast-milk cells to deliver drugs to babies. Here's how.,"

[cen.acs.org/pharmaceuticals/dr...ngineer-breast/97/i9](https://cen.acs.org/pharmaceuticals/dr...ngineer-breast/97/i9)

Provided by American Chemical Society

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