

# Researchers find link between folic acid and blood cell production

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Researchers at Huntsman Cancer Institute at the University of Utah discovered that the level of blood and immune cells in mouse model offspring would fluctuate based on the amount of folic acid consumed by their mothers during pregnancy.

The study was presented at the [American Society of Hematology \(ASH\) annual meeting](#) during the plenary session.

Folic acid, or folate, is a vitamin that can prevent birth defects in the brain and spine and also can help make new blood cells. With research in its early stages, Anna Beaudin, Ph.D., member of the Cell Response and Regulation Program at Huntsman Cancer Institute and professor in the division of hematology and hematologic malignancies at the U, and her team found that nutrients consumed by the female animals during [pregnancy](#) can shape the function of adult blood systems of their offspring.

"Pregnant women have been advised to take [folic acid](#) supplements to prevent [birth defects](#), such as [spina bifida](#)," says Brian Krum, a Ph.D. student in Beaudin's lab at Huntsman Cancer Institute and first author on the article.

"We have little understanding of how varying folic acid intake during pregnancy might affect the development of other organ systems. We are investigating how too much or too little folate during pregnancy drives susceptibility to disease in the mom's adult offspring based on how it affects the development of their blood system."

In the comprehensive study conducted on mouse models, Krum and colleagues tested female mouse models who had consumed too much, or not enough, of the recommended amount of folic acid to see how these conditions affected their offspring.

"There's a hypothesis that focuses on the developmental origins of health and disease that a lot of adult-onset diseases form at the time of development," says Krum. "This could include certain types of cancers, obesity, diabetes, allergies, cardiovascular diseases, and more."

Blood stem cells play a paramount role in shaping our health from the earliest stage of fetal development by producing all blood and [immune cells](#).

"One of the most intriguing findings of this research is that too little or too much folate during pregnancy could be potentially harmful to the babies and their future as adults. This study now opens the question about how much and for how long folate is needed during pregnancy. This is just the beginning of much needed research," says Ramiro Garzon, MD, physician-scientist at Huntsman Cancer Institute and chief of the division of hematology and hematologic malignancies at the U.

"There were almost 8,000 abstracts submitted for ASH's annual meeting with roughly 5,000 accepted, and only six of those were chosen for the plenary session," Krum says. "To be chosen to speak about our lab's work during this session is an honor to me. It also creates the space for Huntsman Cancer Institute and the division of hematology and hematologic malignancies to be at the forefront showing what we are doing and the opportunity to collaborate with hematologists around the world."

"We are extremely excited that ASH has chosen to recognize our basic discovery work investigating developmental programming of stem cell function among the top plenary abstracts and thrilled to represent the fantastic research at the U's division of hematology and [hematologic malignancies](#) and Huntsman Cancer Institute," says Beaudin.

Provided by Huntsman Cancer Institute

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