

Discovery sheds light on new strategy to treat some instances of preterm labor

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A new research report appearing in the August 2016 issue of the [Journal of Leukocyte Biology](#) reveals a potentially new therapeutic target for preventing or stopping preterm labor. Specifically, using mice, researchers from the United States show that blocking specific cell signaling pathways may reduce the risk of preterm labor caused by the immune system or inflammation, or stop it altogether. This discovery is important because according to the U.S. National Institute of Child Health and Human Development, NIH, preterm birth is the most common cause of infant death and is the leading cause of long-term disability related to the nervous system in children.

According to Varkha Agrawal, a researcher involved in the work from the NorthShore University HealthSystem in Evanston, Illinois, this report is important because the "identification of key molecules in Notch signaling pathways will pave an approach for therapies to control [preterm labor](#) in humans."

To make this discovery, researchers used two mouse models of preterm labor and a control. The first model simulated preterm labor induced via the immune system through the introduction of lipopolysaccharides, which are molecules common in some bacterial infections. The second model simulated preterm labor caused by maternal hormones. In both models, the researchers checked for the expression of genes related to Notch signaling pathways and compared their observations with the controls. The lipopolysaccharide-induced preterm labor group had altered gene expression, while no changes were seen in the normal

control mice. The hormonally-induced preterm labor group also had no changes in [gene expression](#) in comparison to controls.

"The increased recognition of the link between preterm labor, and inflammation and the immune system opens the door for immunotherapy approaches," said John Wherry, Ph.D., Deputy Editor of the *Journal of Leukocyte Biology*. "The identification of the role of the Notch pathway specifically is quite exciting since there are known drugs that can modulate this pathway."

More information: V. Agrawal et al, Role of Notch signaling during lipopolysaccharide-induced preterm labor, *Journal of Leukocyte Biology* (2015). [DOI: 10.1189/jlb.3HI0515-200RR](https://doi.org/10.1189/jlb.3HI0515-200RR)

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