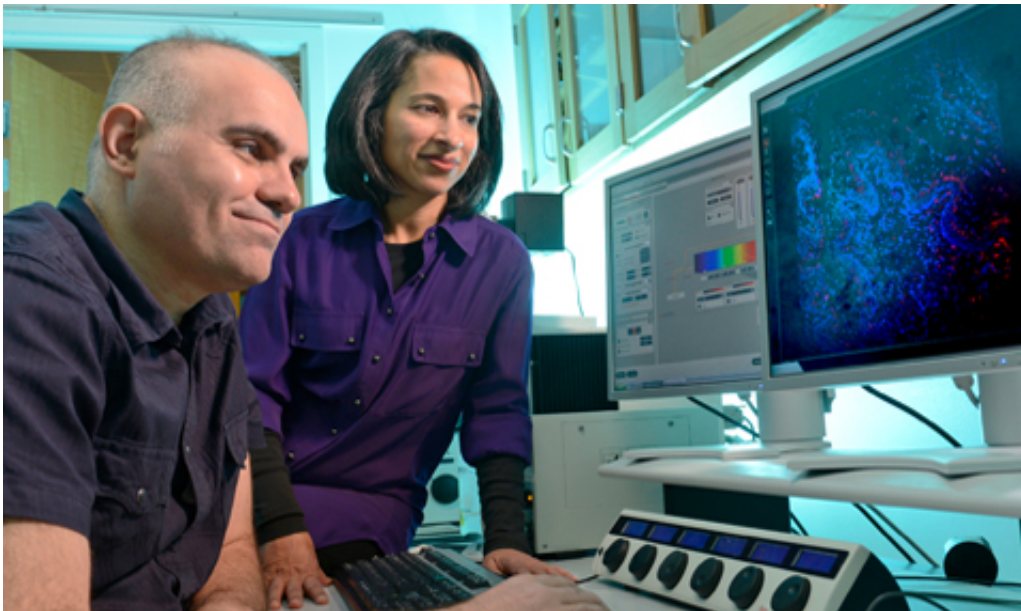


Researchers identify key substance that protects against pre-term birth

January 12 2015



First author Dr. Yucel Akgul and senior author Dr. Mala Mahendroo. Credit: UT Southwestern

Researchers at UT Southwestern Medical Center have identified hyaluronon (HA) as a critical substance made by the body that protects against premature births caused by infection. Pre-term birth from infection is the leading cause of infant mortality in many countries according to the World Health Organization. The findings of the study, recently published in the *Journal of Clinical Investigation*, are the first to identify the specific role that HA plays in the reproductive tract.

"We found that HA is required to allow the epithelial lining of the [reproductive tract](#) to serve as the first line of defense against bacterial infections," said senior author Dr. Mala Mahendroo, an Associate Professor in the Department of Obstetrics and Gynecology's Cecil H. and Ida Green Center for Reproductive Biology Sciences. "Because of this action, HA offers cervical protection against the bacterial infections that cause 25 to 40 percent of pre-term births in women."

Hyaluronon is a natural substance found in many tissues, and is both a lubricant and a beneficial component of eyes, joints, and skin. It has long been thought to play an essential role in increasing the cervix's flexibility during the birth process; however, the study, which was conducted using mouse models, showed that HA is not essential for increased cervical pliability during late pregnancy. Rather, the substance plays an important barrier role in epithelial cells of the lower reproductive tract and in so doing protects against infection-related pre-term birth. The World Health Organization estimates that 1.09 million children under age 5 die from direct complications of being born prematurely, meaning before the 37th week of pregnancy.

Previous studies by UT Southwestern reproductive biology researchers showed that HA is present in both the cervix and cervical mucus of pregnant women. Next steps include determining the mechanism by which HA affects cervical protection against infection.

"This study demonstrates that HA plays a crucial role in the epithelial barrier as well as the cervix's mucus," said Dr. Yucel Akgul, first author of the study and research scientist in the Department of Obstetrics and Gynecology. "Our next step is to identify exactly how HA protects the cervix, which can have important clinical implications in the effort to reduce infection-mediated pre-term labor."

Provided by UT Southwestern Medical Center

Citation: Researchers identify key substance that protects against pre-term birth (2015, January 12) retrieved 26 April 2024 from <https://medicalxpress.com/news/2015-01-key-substance-pre-term-birth.html>

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