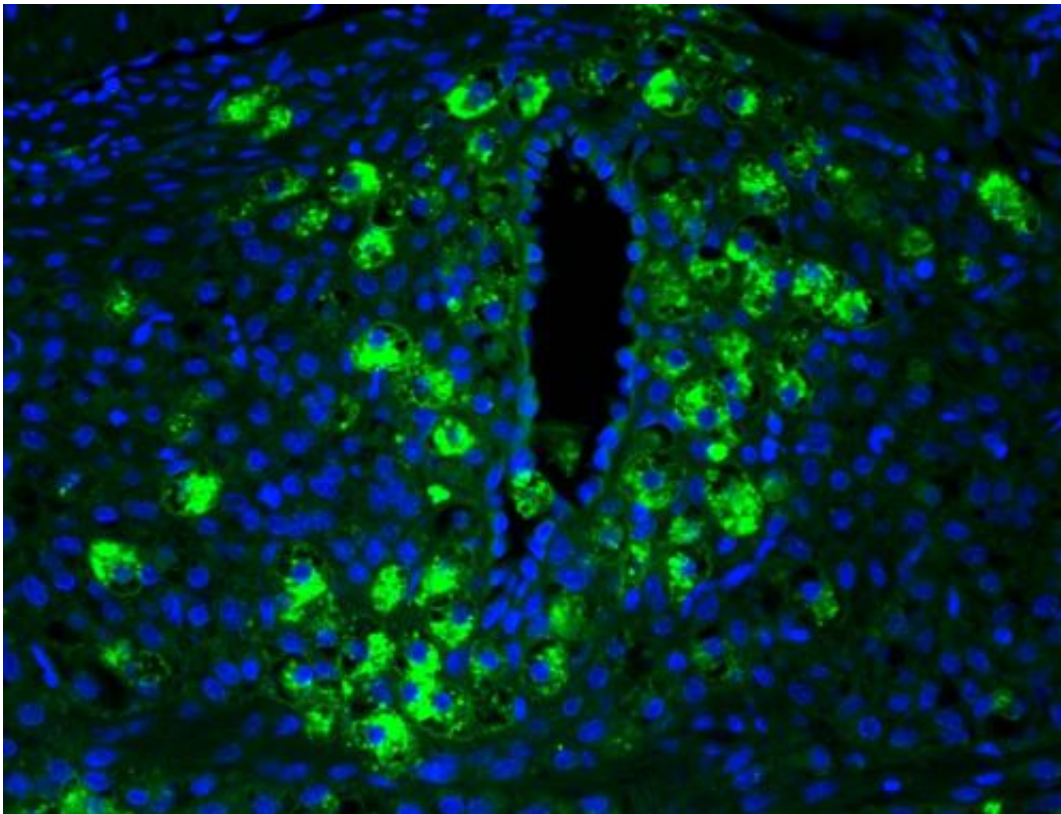


Baby knows best: Fetuses emit hormone crucial to preventing preeclampsia

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Hormonal signals from a developing fetus help recruit special cells (shown here in green) that enlarge the mother's blood vessels (black area), sending more blood to the fetus and preventing preeclampsia. Credit: Caron Lab, UNC School of Medicine

In a study using mice, researchers from the University of North Carolina at Chapel Hill found that a hormone, adrenomedullin, plays a crucial role

in preventing the pregnancy complication preeclampsia. Surprisingly, this hormone protects women from preeclampsia when emitted by the fetus, not the mother, during the most critical times in pregnancy.

"We've identified the fact that the baby is important in protecting the mom from preeclampsia," said the study's senior author, Kathleen M. Caron, Ph.D., Assistant Dean for Research at the UNC School of Medicine and an associate professor in the Department of [Cell Biology](#) and Physiology. "If the baby's cells are not secreting this hormone, the mother's [blood vessels](#) don't undergo the dilation that they should."

Preeclampsia affects roughly one in fifteen pregnancies. An important characteristic of the condition is that blood vessels in the [placenta](#) fail to enlarge, or dilate, to accommodate increased blood flow to the fetus. Untreated, it can threaten the life of both mother and baby.

"We really don't know that a pregnant woman is going to get preeclampsia until she has it," said Caron. Because the condition has numerous risk factors and causes, it's difficult for doctors to know which patients are at highest risk. "Identifying molecules that could predict preeclampsia would be really important."

The researchers studied mice that were genetically programmed to produce either reduced or increased levels of adrenomedullin. The study revealed that in a normal pregnancy, the fetus secretes adrenomedullin into the placenta during the second trimester, signaling special cells called "[natural killer cells](#)" to help dilate the mother's blood vessels and allow more blood to flow to the growing fetus.

The study is one of the first to identify an important chemical message sent from [fetus](#) to mother in the womb. Scientists understand more about the mom's side of the 'chemical conversation' that goes on between mother and baby, but much of the hormonal signaling in the placenta

remains a mystery.

By identifying the key role of adrenomedullin, the research could pave the way to new methods for detecting and preventing preeclampsia. For example, adrenomedullin levels could potentially be used as a biomarker, or early indicator, to identify which patients might be predisposed to the condition. "Having a biomarker would be wonderful—it could allow the physician to manage a woman differently in the early part of her pregnancy," said Caron.

As a next step, the researchers plan to build upon their mouse studies to examine patterns of adrenomedullin levels and preeclampsia in pregnant women.

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