

# Researchers may have uncovered the mechanism by which progesterone prevents preterm birth

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Researchers at Yale School of Medicine believe they may have discovered how the hormone progesterone acts to prevent preterm birth.

The findings will be presented at the Annual Scientific Meeting of the Society for Maternal-Fetal Medicine (SMFM) in Chicago by Errol Norwitz, M.D., professor in the Department of Obstetrics, [Gynecology](#) & Reproductive Sciences at Yale.

[Preterm birth](#)—delivery prior to 37 weeks gestation—has become increasingly common over the past 40 years. Currently, one in eight pregnancies in the U.S. are delivered prematurely. These premature infants are at least seven times more likely to die or have long-term neurologic injury compared with infants delivered at term. Efforts to date to prevent preterm birth have been largely unsuccessful. Several recent studies have suggested that [progesterone](#) supplementation from weeks 16-20 of gestation through 36 weeks may prevent preterm birth in about one-third of high-risk women, but the molecular mechanism by which progesterone acts was not known until now.

One-third of preterm birth is linked to premature rupture of the fetal membranes. Prior studies have suggested that rupture results from weakening of the membranes by apoptosis (programmed cell death). Norwitz and his Yale colleagues have shown for the first time that progesterone can prevent apoptosis in fetal membranes.

"We were able to demonstrate that progesterone prevents apoptosis in an artificial environment in the laboratory in which we stimulated healthy fetal membranes with pro-inflammatory mediators," said Norwitz.

"Interestingly, and somewhat unexpectedly, we also saw an inhibition of apoptosis under basal conditions without the presence of pro-inflammatory mediators. This suggests that the same mechanism may also be important for the normal onset of labor at term."

Provided by Yale University

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