

Preterm birth by Filipino women linked to genetic mutational change

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Dr. Bryant-Greenwood in her lab at Kaka'ako

(Medical Xpress)—Scientists at the University of Hawai'i at Mānoa have uncovered a genetic explanation for why Filipino women in the state have a higher chance of delivering their babies before full term.

Preterm birth is the leading cause of [newborn deaths](#) in the United States. Being born too early is not just detrimental to a baby's survival outside of the [womb](#). It can also lead to health complications in the child including [mental retardation](#), [blindness](#), [deafness](#), neurological and [behavioral problems](#). It is also now known that it makes them more prone to diabetes and cardiovascular diseases as adults.

Nearly 12% (11.7%) of women of Filipino descent in Hawai'i deliver their babies early compared to either white (7.2%) or other Asian populations (9.0%) in the state. The normal length of pregnancy is 40 weeks and the study focused on late [preterm birth](#) (34 weeks to 36 weeks and six days).

The new research featured as the cover story in September's *American Journal of Obstetrics & Gynecology*, found an association between a

genetic variant in the DNA of Filipino women and higher levels of a hormone that increases the chances of preterm birth.

The article, "Genetic associations of relaxin: preterm birth and premature rupture of fetal membranes" was written by Frederico Rocha, MD; Thomas Slavin, MD; Dongmei Li, PhD; Maarit Tiirikainen, PhD and Gillian Bryant-Greenwood, PhD.

Researchers selected maternal blood, DNA, and tissue from the UH Biospecimen Repository. The repository contains a collection of samples from over 8,000 pregnant women in Hawai'i who volunteered over the last several years to assist in health research. Ninety-four patients met the inclusion criteria and could trace back their Filipino ancestry to all four of their grandparents.

The scientific team found a small genetic mutational change in the women's DNA was linked to the higher levels of the protein relaxin in the uterine cells.

"We were excited because there are very few studies which link genetics right the way through to the levels of a protein being expressed in the cells of interest," said Dr. Bryant-Greenwood from the JABSOM Department of Obstetrics, Gynecology and Women's Health. "Often people look at the genetics but they don't look at the effects of the genetics on the protein being produced in an actual cell type and that's why this is important."

"It's the protein which does the job," Dr. Bryant-Greenwood said.

What makes this development even more fascinating is that a previous study in Denmark showed that Danish women also carried this small change in their DNA, making them susceptible to preterm birth. This connection between the study on preterm birth in Danish women and Filipino

women suggests that this is important in more than one population in the world.

Dr. Bryant-Greenwood hopes that with this new information, pregnant Filipino patients could potentially be offered a test to show if they were at high risk. In any event, she said, Filipino moms-to-be should be more carefully monitored.

More information: "Genetic associations of relaxin: preterm birth and premature rupture of fetal membranes." Frederico G. Rocha, Thomas P. Slavin, Dongmei Li, Maarit I. Tiirikainen, Gillian D. Bryant-Greenwood. *American Journal of Obstetrics & Gynecology* - September 2013 (Vol. 209, Issue 3, Pages 258.e1-258.e8, [DOI: 10.1016/j.ajog.2013.05.020](https://doi.org/10.1016/j.ajog.2013.05.020))

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