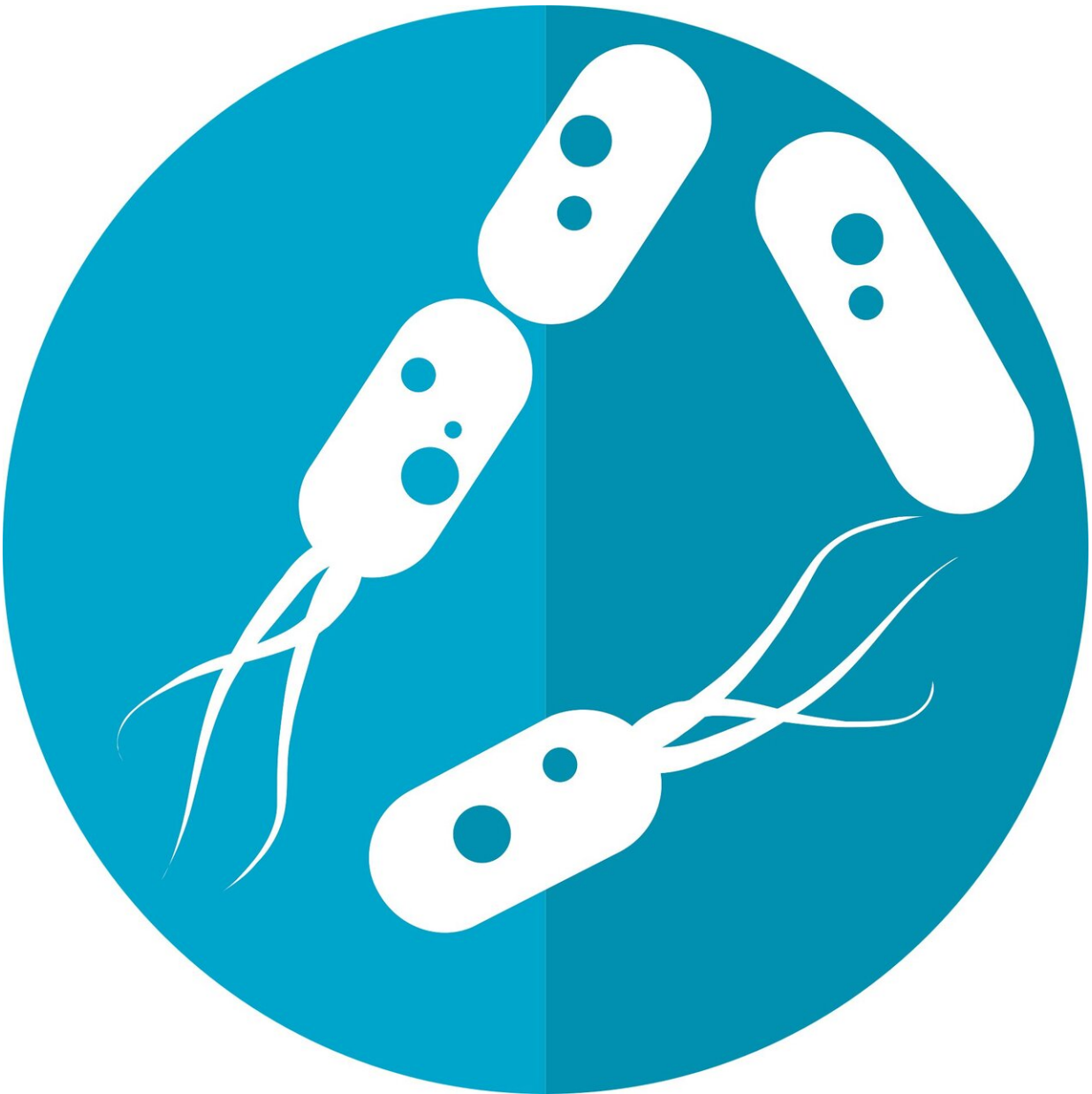


# Premature birth linked to the mother's vaginal microbiome

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Pregnant women who deliver early are more likely to have a diverse community of vaginal bacteria, finds a new study published in *Frontiers in Microbiology*. These findings also highlight specific bacteria associated with premature birth and could help identify the women most at risk of giving birth prematurely.

"We show a link between higher vaginal microbial diversity and [premature birth](#), especially in the first trimester of pregnancy," says Marina Sirota, an Assistant Professor at the Bakar Computational Health Sciences Institute at the University of California San Francisco. "In addition to confirming several bacterial species known to be associated with premature [birth](#), we have identified several new ones."

She continues, "Our results shed light on the involvement of the vaginal microbiome and specific bacteria in this process. The findings could aid future diagnostic and therapeutic strategies to help prevent or delay premature birth."

Babies born early, before 37 weeks of gestation, often suffer complicated medical problems - [preterm birth](#) is the leading cause of death in newborns. While there are many [risk factors](#), such as [maternal stress](#), maternal age and low maternal body-mass index, exactly how and why it happens is less understood.

"For most of these births, we don't know why the women end up going into labor early and unfortunately, the limited number of therapies are often not effective," explains Sirota. "New ways of identifying women at higher risk is sorely needed."

The role of the vaginal microbiome in relation to premature birth has been investigated before, but these studies have had their limitations.

Dr Idit Kosti, a postdoctoral researcher at the Sirota lab and the first author of this study, explains, "Previous investigations have only examined a small number of women and are often biased towards certain [ethnic groups](#), which makes it hard to apply their findings widely."

"We performed a meta-analysis, which is when you combine data from different studies into one dataset. This gave us a greater amount of information across a more diverse range of women, in terms of ethnicity and stage of pregnancy, than in each study alone."

By merging five different sets of data, equating to more than three thousand samples from over four hundred women, the scientists were able to identify new associations between the vaginal microbiome, specific bacteria and premature birth.

"We found that women who deliver prematurely have a significantly more diverse vaginal microbiome, especially in their first trimester, than those who deliver at full term." reports Kosti.

The researchers also identified specific microbes associated with premature birth. Some have been highlighted by previous studies, such as Lactobacillus, which is more prevalent in [women](#) who have a full-term birth, whereas others like Olsenella and Clostridium sensu scricto were newly linked to an early delivery.

Sirota and her team of researchers hope the findings from their research can be used to discover new ways of detecting mothers who are at risk.

"The methods that we have developed can be used to combine even more data together and these results can inform ways of diagnosing those

at risk, as well as potential therapies for premature birth."

**More information:** Idit Kosti et al, Meta-Analysis of Vaginal Microbiome Data Provides New Insights Into Preterm Birth, *Frontiers in Microbiology* (2020). [DOI: 10.3389/fmicb.2020.00476](https://doi.org/10.3389/fmicb.2020.00476)

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