

# Vaginal microbiota during pregnancy: Pathways of risk of preterm delivery in the absence of intrauterine infection?

We read with interest the excellent publication by DiGiulio et al. (1), which offers some fascinating insight into the composition and stability of the vaginal bacterial microbiome during pregnancy. Our initial impression, which we suspect would be shared by most readers, is that the study provides evidence supporting the concept that abnormal vaginal microbiota, and in particular the presence of *Gardnerella vaginalis* and *Ureaplasma* species, leads to increased risk of intrauterine-infection-driven preterm birth, consistent with the well-documented ascending infection pathway (2). However, what we were not aware of until we read the *Supporting Information* of ref. 1, was that none of the preterm deliveries actually had chorioamnionitis (and hence were very unlikely to be complicated by bacterial infection), and in fact most of them (10 of 15) were not delivered preterm following spontaneous delivery. These facts throw considerable doubt on

the interpretation of this aspect of the study. This uncertainty is further compounded by the lack of data provided on the intraamniotic infection status of the preterm deliveries or the reasons for delivery in the absence of spontaneous preterm labor.

Instead of providing evidence on microbial risk factors for intrauterine-infection-driven preterm labor, DiGiulio et al.'s (1) study seems to indicate that the presence of certain bacterial communities in the vagina during pregnancy is associated with increased risk of noninfectious but inflammation-related preterm birth and iatrogenic preterm delivery. We wonder whether DiGiulio et al. could clarify their interpretation of the clinical implications of their findings with respect to vaginal microbiota during pregnancy and pathways toward preterm birth in the absence of intra-amniotic infection. Providing additional obstetric information on the preterm deliveries included in their study (including

infection status and indications for delivery) would also be helpful.

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**1** DiGiulio DB, et al. (2015) Temporal and spatial variation of the human microbiota during pregnancy. *Proc Natl Acad Sci USA* 112(35):11060–11065.

**2** Romero R, et al. (2014) A novel molecular microbiologic technique for the rapid diagnosis of microbial invasion of the amniotic cavity and intra-amniotic infection in preterm labor with intact membranes. *Am J Reprod Immunol* 71(4):330–358.

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The authors declare no conflict of interest.

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