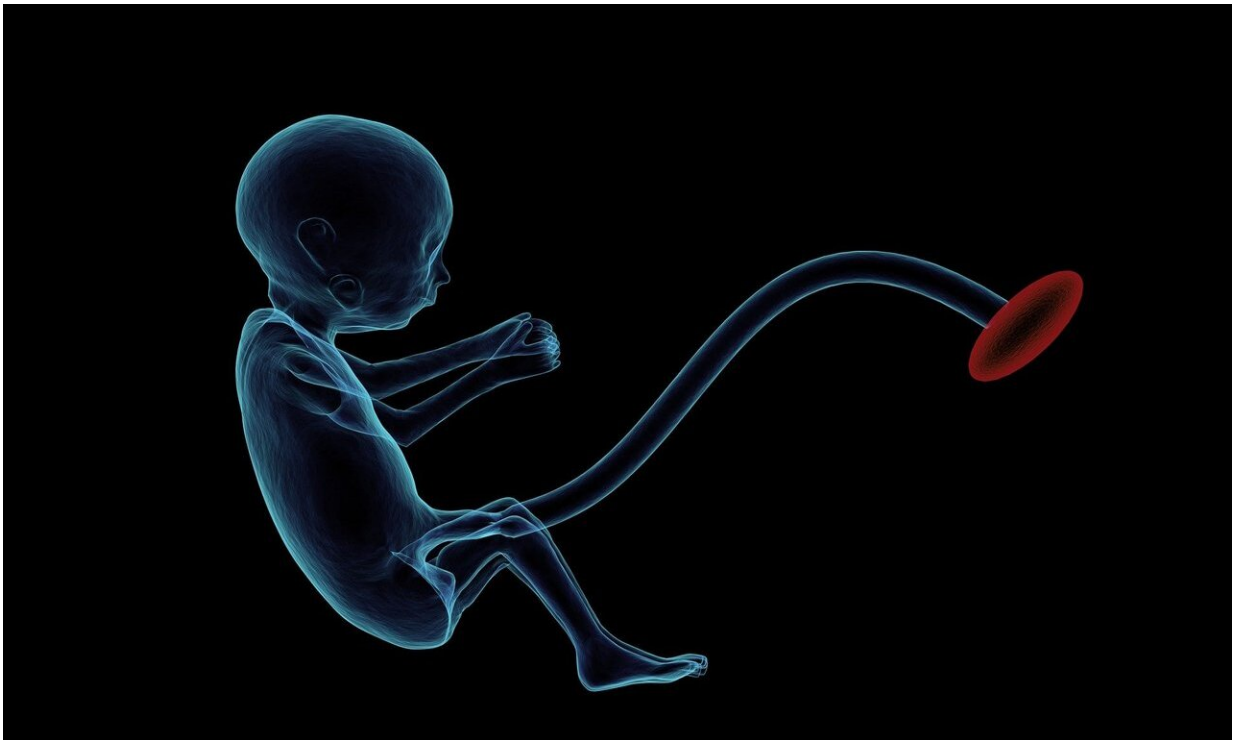


Study shows placenta truly is a bacteria-free zone

August 1 2019, by Bob Yirka



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A team of researchers at the University of Cambridge has found evidence indicating that the human placenta is a sterile environment. In their paper published in the journal *Nature*, the group describes their study of the placental environment and what they found. In an accompanying News and Views [piece](#), Nicola Segata, with Università

degli Studi di Trento, suggests that the findings by the team indicate that the placenta is unlikely to be the main source of the infant microbiota.

For many years there was a widely held consensus in the [medical community](#) that the womb and placenta were sterile environments. But then, back in 2014, a team of researchers found evidence of low levels of [bacteria](#) existing in the placenta. Since that time, several other studies have appeared to confirm those findings. But now, the team at Cambridge has found that there is no biome in the placenta. They suggest that the study in 2014 was flawed—and further suggest the earlier findings were the result of studying contaminated tissue.

In this new effort, the researchers obtained [placenta](#) tissue samples from 578 different women. They then carried out DNA studies on all of the samples using multiple techniques to avoid false-positives. One of those methods was extracting samples twice from each [tissue culture](#) using two different DNA extraction kits. Another was using multiple molecular methods to detect bacterial DNA in the samples they studied. They also tainted some of the samples with a type of bacteria not found in humans before the tests were taken as a control mechanism.

The researchers report that they found no evidence of a placental biome. They did, however, find bacteria in the samples they studied, but were able to trace them back to outside contaminants—finding the same strain of *E. Coli* in hundreds of samples, for example, which would be nearly impossible. They point out that the bacteria must have come from contaminated test kits. They also found DNA from bacteria normally found in the vagina, which coincided with findings by the 2014 team. But when the new team compared the quantity of the bacteria in samples from women who had given birth vaginally rather than undergoing a c-section, they found higher amounts—suggesting the placentas had been contaminated during birth.

More information: Marcus C. de Goffau et al. Human placenta has no microbiome but can contain potential pathogens, *Nature* (2019). [DOI: 10.1038/s41586-019-1451-5](https://doi.org/10.1038/s41586-019-1451-5)

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