

# Gut bacteria can mean life or death for birds

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In her upcoming thesis at Lund University in Sweden, biologist Elin Videvall shows that the composition of gut bacteria in birds has a major impact on whether their offspring will survive their first three months.

"My findings could be important for increasing survival rates," she says.

Microorganisms such as bacteria, viruses and fungi can cause diseases, but they can also promote health, affect growth and the ability to reproduce. Until now, there has not been a lot of research on how microorganisms interact with, and affect, [birds](#).

Elin Videvall, biologist at Lund University, is surprised by the results she achieved in her thesis, in which she studied different birds, including ostriches.

"I didn't expect such a clear link between [gut bacteria](#) and the survival of ostrich chicks. Hopefully, we can help more young birds survive by focusing on key microorganisms in the stomach," she explains.

Elin Videvall has also studied the genomes of bird malaria parasites. The studies show that the parasites can adapt their gene expression to their host bird. Thus, the parasites can change their strategy according to what suit them best.

The findings are significant as they demonstrate the importance of studying how animals react to different microorganisms.

"If we can understand the molecular response that occurs during an infection, we can better understand why some microorganisms become dangerous while others do not induce any symptoms."

Together with other researchers, she also constructed an evolutionary family tree that shows malaria parasites in humans are more related to mammalian parasites than to bird malaria.

With the help of bioinformatics and new technologies, Elin Videvall has analysed large amounts of DNA and mapped entire communities of [microorganisms](#) in birds. Her new findings will be a starting point for future research on malaria and bacteria in birds, among other things.

"I didn't think birds could survive such high levels of malaria [parasites](#) in their blood, with about 80 per cent of the [red blood cells](#) infected. But it seems that the birds' immune system really kicks in to fight off the infection – and is successful," she says.

**More information:** Evolutionary genomics of host-microbe interactions "[www.lu.se/lup/publication/dd80 ... 83-928c-c2f21b7efb64](http://www.lu.se/lup/publication/dd80...83-928c-c2f21b7efb64)

Provided by Lund University

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