

Probiotics reduce piglet pathogens

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November 17, 2013 – Piglets fed probiotic *Enterococcus faecium* showed reduced numbers of potentially pathogenic *Escherichia coli* strains in their intestines, according to a team of German researchers. The research is important, because in 2006 the European Union prohibited the feeding of antibiotics to livestock as growth promoters. Therefore, the research team sought to investigate whether probiotics could substitute for antibiotics, by reducing pathogen populations in the intestines, says first author Carmen Bednorz of Freie Universitat Berlin, Germany. The study was published ahead of print in the journal *Applied and Environmental Microbiology*.

"We found a clear reduction of *E. coli* strains possessing typical genes for extra-intestinal pathogenic *E. coli* (ExPEC)," says Bednorz. The reduction was particularly noticeable in strains that adhere to the [intestinal mucosa](#) (and less so in the feces), which was "very interesting," she says, because "ExPEC typically harbor a lot of adhesion genes that promote colonization of the mucosa."

Antimicrobials are thought to promote growth in industrially grown livestock because without them, the rationale goes, in such close quarters, a surfeit of pathogens would slow growth. "Our data suggest that the feeding of probiotics could substitute for antimicrobials as growth promoters," says Bednorz. "This could help to reduce the burden of antimicrobial resistance," she adds.

In previous studies, the working groups from the Institute of Microbiology and Epizootics at Freie Universitat Berlin found that

feeding *E. faecium* probiotic did not change the general swine intestinal microbiota, but reduced infections by *Chlamydia* spp. and pathogenic *E. coli*, according to the report.

In the study, Bednorz and her collaborators compared piglets fed with *E. faecium* to those in a control group. They collected more than 1,400 samples of *E. coli* from piglets of different ages, and from different parts of the intestine.

While a number of [strains](#) of *E. coli* are pathogenic, non-pathogenic *E. coli* "contributes to the maintenance of the microbial gut balance," according to the report. These were relatively unaffected by the feeding of *E. faecium*, which "did not influence the overall intestinal *E. coli* diversity, corroborating previous data," according to the report. Thus, the researchers conclude, the results suggest that *E. faecium* inhibits pathogenic *E. coli* from becoming attached to the intestinal mucosa.

More information: [www.asm.org/images/Communicati ...
113probioticpigs.pdf](http://www.asm.org/images/Communicati...113probioticpigs.pdf)

Provided by American Society for Microbiology

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