Bacteria-induced egg hatching differs for Trichuris muris and Trichuris suis

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Eggs of the porcine whipworm Trichuris suis are currently explored in human clinical trials as a treatment of immune-mediated diseases. In this context, only the infective, embryonated eggs, constitute the Active Pharmaceutical Ingredient (API). The rodent whipworm, Trichuris muris is commonly used as a laboratory model to study Trichuris biology. The embryonated eggs (containing a fully developed larva) are biologically active and will invade the large intestinal mucosa of the host. This study aims to assess the in vitro hatching of T. muris and T. suis eggs in various bacterial cultures as a measure for their biological activity.; Eggs of T. muris and T. suis were incubated with Escherichia coli strain (BL-21) at three concentrations in a slightly modified in vitro egg hatching assay previously developed for T. muris. Additionally, E. coli strains (M15, SG13009, PMC103, JM109, TUNER, DH5alpha, TOP10) and five Gram-positive bacteria (Enterococcus caccae, Streptococcus hyointestinalis, Lactobacillus amylovorus, L. murinus, and L. reuteri) were tested as a hatching stimulus for T. muris and T. suis eggs.; Whereas T. muris eggs hatched, T. suis did not, even when exposed to different concentrations and strains of E. coli after 4 and 24-hour incubation. When incubated with Gram-positive bacteria, only T. muris eggs showed noticeable hatching after 20ăh, although with high variability.; The observed difference in hatching of T. muris and T. suis eggs incubated with selected bacteria, indicate significant biological differences which may reflect specific adaptation to different host-specific gut microbiota.
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