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1: [Hua Xi Yi Ke Da Xue Xue Bao](#). 2000 Mar;31(1):46-8.[Links](#)

[Observation of the modulatinyn effect of histamine on intestinal barrier function]

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The model of CaCo2 cell monolayer system has been generally accepted as a standard method for in vitro study of the relationship between the epithelium and microbial invasion. In this study, we set up the model with a simplified method and used it to observe if histamine, which is an important inflammatory factor in gastroenteric tract, can offer some barrier protection from E. coli invasion. After two weeks' routine incubation, the established CaCo2 cells monolayer systems were co-cultured with 1×10^{-8} mmol/L, 1×10^{-7} mmol/L and 1×10^{-6} mmol/L histamine DMEM for 2 hours, and with frank DMEM as control for the same length of the time. For observation on time course effect of histamine, the co-cultures with 1×10^{-6} mmol/L histamine DMEM were kept up for 0.5, 1.0, 2.0, 4.0 and 18.0 hours. Bacterial invasion ws assessed by quantitating the number of E. coli within the coultered epithelial cells. The results showed that histamine significantly inhibited the invasion of E. coli to epithelial cells($P < 0.05$). The colony counts in co-cultures with 1×10^{-7} mmol/L and 1×10^{-8} mmol/L histamine DMEM were 52.5, 30.3 and 91.3 respectively, compared with 563 in control group. In the study of the time course effect of histamine, the colony conuts of co-culture with histamine DMEM for 0.5, 1.0, 2.0, 4.0 and 18.0 hours were 135.5, 64.0, 29.5, 36.0 and 22.5 respectively. It was concluded that histamine can enhance the protective barrier function of intestinal epithelium against E. coli invasion.

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