

What is the life cycle of salmonella enteritidis like in the internal organs?

The Incidence of Salmonella enteritidis infection is common in hospitals for children and the elderly, and amongst immuno-suppressed individuals.

Salmonella enteritidis can be transmitted to humans through the food production chain. In China and other countries, for example, the consumption of poultry products is a high risk factor and Salmonella enteritidis infection in poultry industry has been rising dramatically in recent years. This increased prevalence of Salmonella enteritidis makes knowing more about its complex life cycle and identifying the regular distribution pattern of Salmonella enteritidis in the internal organs very important.

To learn more about the infection pattern, Dr. Cheng and his colleagues at the Sichuan Agricultural University China used a serovar specific real time PCR for the detection and quantification of Salmonella enteritidis in the internal organs of mice.

Based on their results, the copy number of Salmonella enteritidis DNA in each tissue reached a peak at 24C 36 h PI, with the liver and spleen containing high concentrations of Salmonella enteritidis, whereas the blood, heart, kidney, pancreas, and gallbladder showed low concentrations. Salmonella enteritidis populations began to decrease and were not detectable at 3 d PI, but were still present up to 12 d PI in the gallbladder, after two weeks for the liver, and after three weeks for the spleen without causing apparent symptoms.

Interestingly, the gallbladder is a site of carriage in this study, it is also the storage site for bile. This study may be the first time it has been reported that Salmonella enteritidis can persist for as long as 12 d PI in the gallbladder of mice. The gallbladder appeared to show gross lesion (such as swelling) at 20 h to 2 d PI. Importantly, there were no significant gross lesions over the 3 d~12 d PI period, although there was nearly the same number of S. enteritidis cells over the 12 d period.

Last but not least, rapid identification of Salmonella enteritidis based on a specific real-time PCR amplifying species specific DNA sequence is a wonderful tool for clinical diagnosis.

The authors believe that this study will help to increase understanding of the mechanisms of Salmonella enteritidis infection in vivo and illustrate the need for further research into how to prevent and treat Salmonella enteritidis infection, especially by developing new treatment medicines.

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