Research Area: The human body routinely encounters many threatening infectious agents, including Salmonella and pathogenic E. coli. Most Salmonella and E. coli infections arise from oral ingestion of tainted food or water and are a significant cause of disease and death in animals and humans worldwide. Salmonella bacteria cause typhoid fever, a frequently fatal infectious condition that is common in the developing world. It also causes gastroenteritis, a type of food poisoning characterized by abdominal pain, fever, vomiting, and diarrhoea. Salmonella species are close relatives of E. coli, which cause numerous diseases including meningitis, urinary tract infections, diarrhea and fatal kidney disease. The bacteria infect and interfere with normal function of cells in the stomach and intestine to cause disease. However, the molecular mechanism of how these pathogens adhere, enter, survive, replicate, and exit host cells is not well defined.