

# Exploring the Invasive Potency of Salmonella Typhimurium ST313 in Animal Infection Models

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The enigmatic virulence of invasive Salmonella Typhimurium ST313 strains in various animal infection models. Often associated with severe septicemia in infants within sub-Saharan Africa, the ST313 strains have shown distinct genetic and phenotypic differences from gastroenteritis-related ST19 strains, leading to conflicting interpretations of their in vivo virulence. However, a remarkable finding emerged: BALB/c mice infected with ST313 exhibited substantially higher bacterial counts in their blood at 24 hours compared to ST19-infected mice, suggesting a potential difference in invasiveness between these strains. The researchers also explored dissemination patterns, tracking bacterial burden in organs over time post-infection. Notably, when Indian rhesus macaques were infected with ST19 and ST313 strains, the outcomes unveiled intriguing insights. ST19-infected monkeys displayed moderate-to-severe diarrhea, while their ST313-infected counterparts showed little to no diarrhea. This aligns with clinical observations indicating that ST313 strains do not typically induce diarrhea in infected individuals. The corroborative non-human primate results validate clinical observations, suggesting that ST313 strains generally evade causing diarrhea. This study not only bridges the gap in understanding the varied virulence of ST313 but also underscores the importance of animal models in deciphering the complexities of bacterial infections. As the landscape of bacterial pathogens continues to evolve, such studies provide crucial insights into the intricate mechanisms underlying infection dynamics and offer valuable knowledge for the development of effective prevention and treatment strategies.

**Keywords:** Invasive potency, Salmonella Typhimurium ST313, animal infection models.