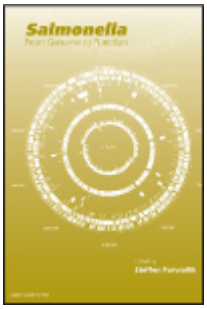
Salmonella

From Genome to Function



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Salmonellae are important pathogens, responsible for an estimated one million deaths and 100 million human infections annually. Their genomes are mosaic puzzles - results of lateral transfer events that occur within a stable genetic background. Extraordinary diversity of host ranges and pathogenicity traits between different strains are the consequence of both specific genome insertions/deletions and minute changes in genome composition. Genomic information decoded from a multitude of different *Salmonella* strains and new dramatic insights into pathogenic processes emphasize the fact that *Salmonella* research is currently at a very exciting juncture. In addition to their fascinating resilience in both the environment and eukaryotic hosts, *Salmonella* prefers tumours over any other location within the human host (by a factor of 1000 or more). This ability could propel *Salmonella* into future use as a therapeutic delivery agent to control and/or cure cancers.

In this book, internationally acclaimed experts review cutting-edge topics in *Salmonella* genomics and molecular biology, providing a timely snapshot of the current state of research. Topics include latest approaches to sub-species level classification and phage typing of *Salmonella*, comparative genomics, the search for genetic determinants for survival of the bacterium in different environments and the evolution of niche specialization by *Salmonella*. The book also explores the latest genomic information and molecular characterizations of sRNAs and complements of fimbriae, flagella and secreted virulence factors. Moreover, *S.* Typhi pathogenesis, interactions of the host with intracellular *Salmonella* and the host's anti-*Salmonella* immune response are reviewed. The current knowledge on *Salmonella* biofilm formation and a progress report on using *Salmonella* as an anti-tumour tool conclude this compendium. Essential reading for all researchers working with *Salmonella* and related organisms, and recommended reading for other scientists working on bacterial genomics, molecular biology and bacterial molecular and cellular pathogenesis.

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