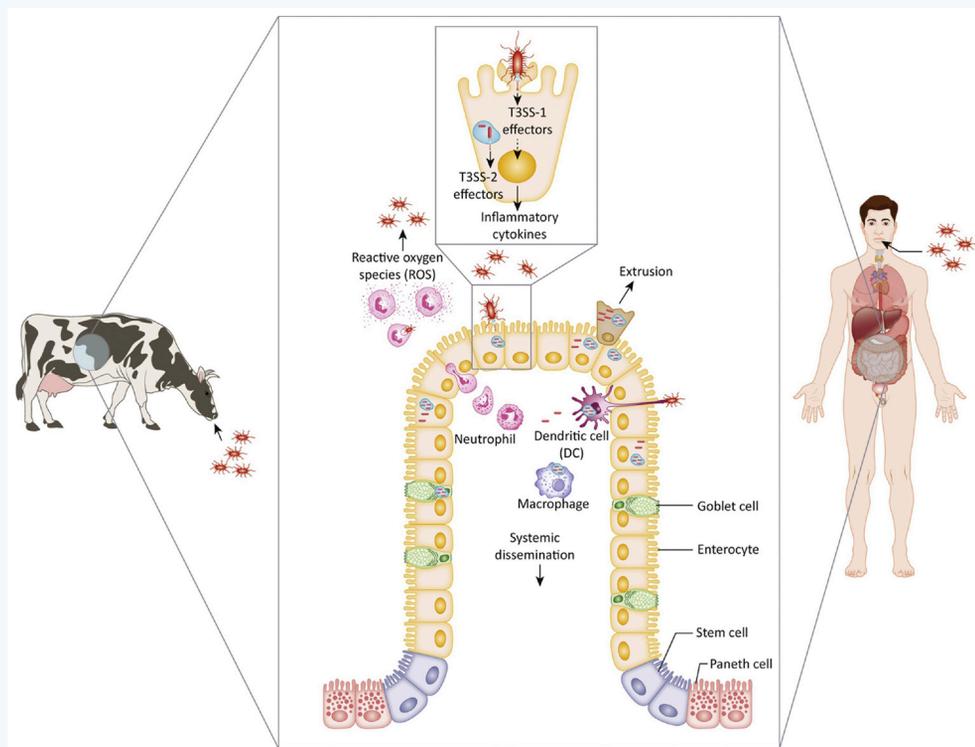


Salmonella enterica

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Trends in Microbiology

KEY FACTS:

Salmonella enterica is a rod-shaped, Gram-negative facultative intracellular pathogen.

The genus *Salmonella* was named after Daniel Salmon, an American veterinary pathologist. Together with Theobald Smith, his research assistant, they isolated *Hog-choleraebacillus* (now known as *S. enterica* serovar Choleraesuis) from pigs with swine fever in 1884.

The 4–5 Mb genome consists of a single circular chromosome plus a virulence plasmid (pSLT, present in *S. enterica* subspecies I only).

Virulence determinants include flagella, fimbriae, type III secretion systems (T3SSs), toxins, two-component regulatory systems, and Vi capsular antigen (*S. Typhi* and *S. Paratyphi* only).

DISEASE FACTS:

Salmonella is transmitted by ingestion of contaminated food or water or by direct contact with infected individuals or animals.

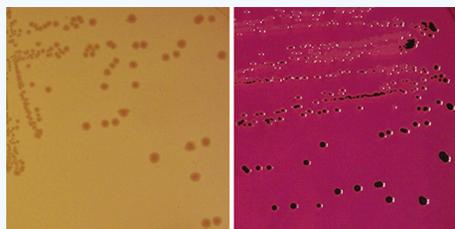
Salmonella enterica is a zoonotic pathogen of substantial concern to global human and animal health. It is a leading cause of morbidity and mortality in people worldwide. *S. enterica* can successfully colonize animals, humans, and plants, and is also found in the environment. Some serovars have a broad host range (*S. Typhimurium* and *S. Enteritidis*), others are host-adapted (*S. Typhi* and *S. Paratyphi A* and *C*). Following ingestion, *S. enterica* invades the intestinal epithelium in the ileum and colon, either to cause a neutrophilic gastroenteritis or disseminate to systemic sites and cause sepsis. It thrives in the intracellular niche, allowing intrinsic antimicrobial resistance and chronic colonization in rare cases. Here, we describe the phylogeny, disease features, and key molecular mechanisms underlying the pathogenesis of salmonellosis.

Enteric salmonellosis is usually self-limiting and is characterized by fever, abdominal pain, vomiting, and diarrhea. Children under the age of 5 years, the elderly, and immunosuppressed adults are at risk of systemic dissemination of the pathogen and require antimicrobial therapy to treat the infection.

Symptoms of typhoid fever are fever, headache, lethargy, and anorexia, with only one-third of individuals experiencing intestinal symptoms. Antimicrobial therapy is required for successful resolution of infection.

An invasive nontyphoidal form of disease (iNTS) has emerged in sub-Saharan Africa and in immunocompromised individuals.

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Lactose nonfermenting smooth colonies on MacConkey agar

Black colonies on XLT-4 agar due to hydrogen sulfide production

Trends in Microbiology

TAXONOMY AND CLASSIFICATION:

KINGDOM: Bacteria

PHYLUM: Proteobacteria

CLASS: Gammaproteobacteria

ORDER: Enterobacteriales

FAMILY: Enterobacteriaceae

GENUS: *Salmonella*

SPECIES: *Salmonella enterica*

SUBSPECIES: *S. enterica* subsp. *enterica* (I), *S. enterica* subsp. *salamae* (II), *S. enterica* subsp. *arizonae* (IIIa), *S. enterica* subsp. *diarizonae* (IIIb), *S. enterica* subsp. *houtenae* (IV), *S. enterica* subsp. *indica* (VI)

Serotypes: ~2600



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