UNIVERSITY OF South Carolina

Salmonella enterica serovar Typhimurium

General Information

Salmonella enterica serovar Typhimurium is a pathogenic Gram-negative rod-shaped motile bacterium. *S. enterica* is a member of the *Enterobacteriaceae* family, and the Typhimurium serotype is one of the most common causes of "food poisoning" in humans.

Host Range

Humans, other mammals, birds; broad host range

Incubation Period

12-72 hrs. with illness lasting 4-7 days.

Survival Outside Host

Salmonella typhimurium can survive for extended periods of time outside a host; 48 days in feces, 152 days in water, 231 days in soil, weeks to months in food products.

Laboratory Hazards

Ingestion and parenteral inoculations are the primary laboratory hazards; unknown if it's transmitted by aerosols.

Symptoms of Exposure

Food poisoning symptoms: vomiting, diarrhea, nausea, fever, abdominal cramps

Lab Acquired Infections (LAIs)

Outbreak of *Salmonella* typhimurium linked to labs in 2011 (109 people in 38 states, 1 death), 2014 (41 people in several states, no deaths), and 2017 (24 people in 16 states, no deaths) in the US.

Personal Protective Equipment

Disinfection & Inactivation

1-20% bleach, 70% ethanol, 3-6% hydrogen peroxide, iodines, phenolics. Inactivated by moist heat (121°C) for at least 15 minutes; dry heat (170°C) for at least 1 hour. Has the potential to grow biofilms, decreasing the efficacy of disinfectants.

Waste Management

Refer to USC's Biological and Infectious Waste Management Plan.

Lab Containment

Biosafety Level 2 (BSL-2) for activities with materials and cultures known or reasonably expected to contain *Salmonella* Typhimurium.

Animal Containment

Animal Biosafety Level 2 (ABSL-2) for activities with experimentally infected animals.

Medical Surveillance/Treatment

Surveillance: Bacterial culture after isolation from source; serotyping to identify serotype
Prophylaxis: Antibiotics cam be used as prophylaxis for vulnerable individuals (young, immunocompromised)
Vaccines: None available
Treatment: Antibiotics are usually not given for gastroenteritis; treatment mainly fluids and control of nausea and vomiting

Spill Procedures

See USC Biological Spill Procedures

Exposure Procedures

See USC Protocol for Post Exposure Evaluation and Follow-up Use of sharps should be strictly limited.

References

Biosafety In Microbiological and Biomedical Laboratories (BMBL) 6th Ed., Centers for Disease Control and Prevention, National Institutes of Health

Public Health Agency of Canada (2011) Pathogen Safety Data Sheets: Infectious Substances – Salmonella enterica spp. Pathogen Regulation Directorate, Public Health Agency of Canada

CDC Human Salmonella Typhimurium Infections Linked to Exposure to Clinical and Teaching Microbiology Laboratories. https://www.cdc.gov/salmonella/typhimurium-07-17/index.html

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