



Enterobacter (Klebsiella) aerogenes

General Information

Enterobacter aerogenes is an anaerobic gram-negative bacillus belonging to the Enterobacteriaceae family. *E. aerogenes* can acquire antibiotic and antibiotic resistance mechanisms. *E. aerogenes* is an opportunistic pathogen that has been associated with nosocomial outbreaks.

Host Range

Plants, humans, and animals

Incubation Period

Unknown

Survival Outside Host

Many species of the family Enterobacteriaceae survive readily in nature requiring only water and a minimal energy source.

Laboratory Hazards

Direct or indirect mucous membrane exposure, inhalation, ingestion, aerosols. Enterobacteriaceae can spread through the fecal-oral route.

Symptoms of Exposure

Enterobacter aerogenes causes wound, respiratory, and urinary tract infections. *E. aerogenes* can lead to septic shock in infected patients, thus leading to a higher mortality rate.

Lab Acquired Infections (LAIs)

One reported case of symptomatic laboratory acquired infection with *E. aerogenes*.

Personal Protective Equipment



Disinfection & Inactivation

Susceptible to 70-80% ethanol, 1% sodium hypochlorite, glutaraldehyde, formaldehyde, iodine, hydrogen peroxide, peracetic acid, and quaternary ammonium compounds. *E. aerogenes* can be inactivated by moist

heat (121 °C for 15 min- 30 min) and dry heat (160-170 °C for 1-2 hours).

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 *E. aerogenes*.

Animal Containment

[Animal Biosafety Level 2 \(ABSL-2\)](#) for activities with experimentally infected animals.

Medical Surveillance/Treatment

Surveillance: Monitor for symptoms. *Enterobacter* species can be isolated by plating into MacConkey agar, eosin methylene blue agar, or blood agar. PCR assays can be used for detection and identification of *Enterobacter* spp.

Prophylaxis: None

Vaccines: None

Treatment: Administer appropriate antibiotics accounting for local antimicrobial susceptibility patterns

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. A biosafety cabinet should be used when there is a potential to create aerosols or droplets.

References

Public Health Agency of Canada. Pathogen Safety Data Sheets: Infectious Substances – *Enterobacter* spp

Davin-Regli, J.-P. Lavigne and J.-M. Pagès, "Enterobacter spp.: Update on Taxonomy, Clinical Aspects, and Emerging Antimicrobial Resistance," *Clinical Microbiology Reviews*, vol. 32, no. 4, pp. e00002-19, 2019.

Wooley and K. Byers, "Chapter 4: Laboratory Associated Infections," in *Biological Safety Principles and Practices*, Washington DC, ASM Press, 2017, p. 64.