



Proteus vulgaris

General Information

Proteus vulgaris is a Gram-negative, motile, and rod-shaped bacterium that belongs to the Enterobacteriaceae family. It is an opportunistic human pathogen that can be found in soil, water, and fecal matter. *P. vulgaris* is known for causing wound and urinary tract infections.

Host Range

Humans

Incubation Period

Unknown

Survival Outside Host

1-2 days on inanimate surfaces. Can survive well in soil, water, and sewage.

Laboratory Hazards

Parenteral inoculation, ingestion

Symptoms of Exposure

Septicemia: fever, fast heart rate, difficulty breathing, mental confusion

Wound infection: pain, swelling, redness, fever, pus and or foul odor coming from wound.

Lab Acquired Infections (LAIs)

None reported

Personal Protective Equipment



Disinfection & Inactivation

Susceptible to many disinfectants including 10% bleach and 70% ethanol. Can be inactivated by autoclaving (121°C for at least 15 min).

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 *P. vulgaris*.

Animal Containment

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

Medical Surveillance/Treatment

Surveillance: Monitor for symptoms; culture from urine and blood samples.

Prophylaxis: none

Vaccines: none

Treatment: *P. vulgaris* are naturally resistant to polymyxins (colistin), nitrofurans, tigecycline and tetracycline. *P. vulgaris* are sensitive to antibiotics like ampicillin and ciprofloxacin.

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. All procedures with the potential for creating aerosols and droplets should be performed in a biosafety cabinet.

References

- Public Health Agency of Canada. *Proteus* spp. <https://www.canada.ca/en/public-health/services/laboratory-biosafety-biosecurity/pathogen-safety-data-sheets-risk-assessment/proteus.html>
- Hartman Science Center <https://www.hartmann-science-center.com/en/hygiene-knowledge/pathogens-a-z/pathogens-16/proteus-vulgaris>
- D. Girlich, et. al. Genetics of Acquired Antibiotic Resistance Genes in *Proteus* spp. *Front. Microbiol.* 21 Feb 2020