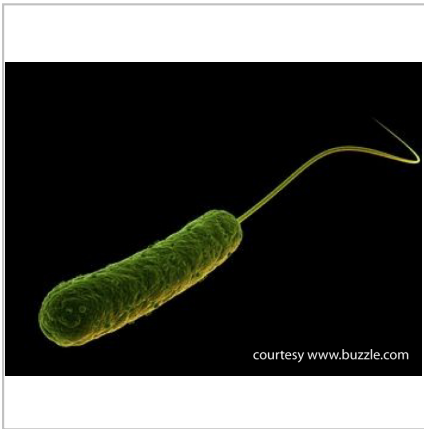


Pseudomonas aeruginosa



Artistic rendering of a *Pseudomonas aeruginosa* bacterium.

Samples

Environmental Swabs	preserved in sample buffer
Tissue Sample	preserved in sample buffer
Fluid Specimens	preserved in sample buffer
Notes: Send all samples at room temperature, preferably preserved in sample buffer (sample submission)	

Interpretation of PCR Results

Positive

(> 10 copies/ml,
> 4 copies/sample)

***Pseudomonas aeruginosa* infection / contamination**

Pseudomonas (P.) aeruginosa

Pseudomonas (P.) aeruginosa is a gram-negative, aerobic, rod-shaped bacterium. It is ubiquitous in soil and water but occurs regularly on the surfaces of plants and occasionally on the surfaces of animals.

Pseudomonas aeruginosa is metabolically extremely versatile, forms highly resistant biofilms on moist surfaces, and has become increasingly recognized as an emerging opportunistic pathogen of clinical relevance.

Several epidemiological studies track its occurrence as a nosocomial pathogen and indicate that antibiotic resistance is rapidly increasing in clinical isolates. *P. aeruginosa* is also recognized as serious contaminant of pharmaceutical products.

Clinical Signs

P. aeruginosa infections typically are contracted from heavily infested surfaces such as tubing or water tubs, and virtually any animal can contract these opportunistic infections. Depending on the site of infection, clinical symptoms typically appear as localized purulent inflammation. Secondly, these infections may become disseminated via the bloodstream, leading to symptoms of severe or fatal gram-negative septicemia such as disseminated intravascular coagulation. Cystic fibrosis patients frequently suffer from pneumonia caused by *P. aeruginosa*. Similarly, patients with burn wounds or immunocompromised individuals frequently contract localized or systemic *P. aeruginosa* infections.

Standard Diagnostic Methods

P. aeruginosa infections are usually diagnosed by isolating the organism from clinical or environmental samples by standard bacteriological culture on blood agar plates. However, like all cultures, diagnosis is slow using this method, and more rapid diagnosis is possible using PCR techniques. Alternative technologies using fluorescent and antibody detection have also been developed, but are not highly sensitive.

Our Method

The Molecular Diagnostics Laboratory at Auburn University has developed a quantitative PCR technology targeting the *oprL* gene, a peptidoglycan-associated lipoprotein present only in pathogenic *Pseudomonas* species ([Deschaght et al., 2009](#)). The PCR is designed and capable of detecting a single copy of this target gene in the PCR nucleic acid input, and differentiating the *P. aeruginosa* amplicon from all other *Pseudomonas* species.