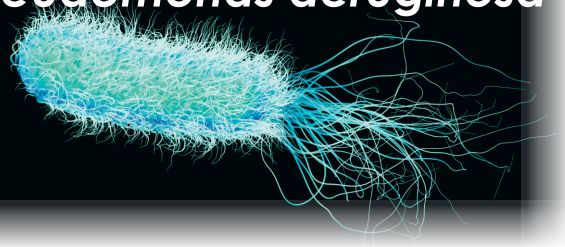




FACT SHEET

Pseudomonas aeruginosa



Description:

- *Pseudomonas aeruginosa* (*P. aeruginosa*) is a common Gram-negative, rod-shaped bacterium. It lives primarily in water, soil and vegetation.
- In 1882 Carle Gessard, a chemist and bacteriologist from Paris, France, discovered *P. aeruginosa* through an experiment that identified this microbe by its water-soluble pigments that turned a blue-green when exposed to ultra-violet light.

Interesting Facts:

- *Pseudomonas* means 'false unit', and *aeruginosa* refers to the blue-green colour of laboratory cultures of the species.
- These bacteria have good resistance to antibiotics and common disinfectants because they have an increased ability to remove antibiotics from the inside of the cell.
- Grown in the laboratory on agar plates *P. aeruginosa* has a distinctive smell, some say like corn tortillas, grapes, or the traditional British sweet, Pear Drops.
- *P. aeruginosa* grows well in culture at 37°C but can also tolerate temperatures up to 42°C.
- The organism can be found in the environment, particularly in soil, coastal areas and plant/animal tissues but can easily withstand a variety of different environmental stresses.
- *P. aeruginosa* is commonly associated with biofilm formation.

Infection:

- *P. aeruginosa* usually affects immunocompromised people. Most healthy people would not get sick from coming into contact with this organism.
- Common *P. aeruginosa* infections include:
 - Folliculitis – (pustular rash of hair follicles on the skin) – occurs within 8hrs - 5days after the event and usually resolves within 5 days - most common in heated spa-pools.
 - Otitis externa (swimmers ear) – most common for swimming pools.
 - Urinary & respiratory tracts, wounds & cornea.
- *P. aeruginosa* is an opportunistic pathogen, to initiate the infection there must be a break in the first-line defences of the body. For example, this could be due to trauma, surgery, cancer, serious burns, defects from cystic fibrosis, AIDS or other immunocompromising states.
- 5-10% of healthy individuals have *P. aeruginosa* living inside of them at any time.

In the Lab / at Wickham Laboratories Ltd

- Media such as *Pseudomonas* agar base (PAB) with an additional supplement are used to examine for the presence/absence of *P. aeruginosa*. Small round translucent colonies that turn the PAB agar bright green colour is indicated as a positive result. This is then confirmed using identification techniques such as MALDI-ToF (Matrix Assisted Laser Desorption Ionization-Time of Flight).
- The presence / absence of *P. aeruginosa* is one of the standard Quality Control (QC) tests required in the British, European, Japanese and US Pharmacopoeias for Topical Products (i.e. applied to Oromucosal, Gingival, Cutaneous, Nasal, Auricular and Vaginal surfaces) and Inhalation Products (Ph. Eur. 2.6.13, USP <62>, JP 4.05).
- It is one of the microorganisms required in both the USP Antimicrobial Effectiveness Test and the Preservative Efficacy testing of all products (Ph Eur. 5.1.3, USP <51>).
- It is one of the gallery of microorganisms used in growth promotion tests of media for Microbiological Quality of Non-sterile products (Ph. Eur. 2.6.12 & 2.6.13, USP <61> & <62>, JP 4.05) and Sterile products (Ph. Eur. 2.6.1, USP <71>, JP 4.06).
- It can be used as a challenge microorganism for Zone of Inhibition testing and Log Reduction testing.

