

EPA Guideline Laboratory Tested

- Bio-Aerosol Test Chambers - Aerosolized Pathogen Species
- ISOP 17025 accredited within EPA and FDA guidelines
- Test Chamber Standard Room Size 800 Cubic Feet (10'x10'x8')
- Contact time 30-60 minutes

Airborne Pathogens and HAI's

It has been estimated that airborne transmission accounts for 10% to 25% of HAIs,¹ although more recent studies have concluded that the role of airborne transmission may be underestimated due to the difficulty of culturing many airborne organisms and the complexities of assessing the role such pathogens play in the contamination of environmental surfaces and subsequent contact transmission.² Landmark studies performed by Lidwell and his colleagues^{3,4} along with many other studies^{5,6} have indicated a strong connection between contamination in the air during surgeries and SSI rates. Clinical trials carried out in Britain, Europe, and the United States have confirmed that between 80% and 90% of bacterial contaminants found in the wound after surgery come from colony forming units (cfu) present in the air of the operating theatre.⁷

99.9995% Airborne Virus Kill:

- | | |
|------------------------------|--------------------------------|
| ▪ Influenza | ▪ Coronavirus |
| ▪ Norovirus | ▪ Varicella (Chicken Pox) |
| ▪ Rubeola (includes Measles) | ▪ Hepatitis A, B, C, D, E |
| | ▪ Human Immunodeficiency (HIV) |

MS2 Bacteriophage (MS2), 15597-B1

This virus is a non-enveloped positive-stranded RNA virus of the bacteriophage family Leviviridae. Bacterial cells are the hosts for bacteriophages, and E. coli 15597 serves this purpose for MS2 bacteriophage. Its small size, icosohedral structure, and environmental resistance has made MS2 ideal for use as a surrogate virus (particularly in place of picornaviruses such as poliovirus and human norovirus) in water quality and disinfectant studies.
Permissive Host Cell System for MS2: Escherichia coli , 15597

99.99% Airborne Bacteria Kill:

- | | |
|--|-------------------------------|
| ▪ Methicillin Resistant Staphylococcus aureus (MRSA) | ▪ Streptococcus Group A and B |
| ▪ Vancomycin Resistant Enterococcus faecalis (VRE) | ▪ Pertussis (Whooping Cough) |
| ▪ Streptococcus pneumoniae | ▪ Pseudomonas aeruginosa |

Enterococcus faecalis ATCC 29212, a vancomycin-sensitive strain, has been extensively used as a representative control strain for clinical and laboratory experiments. Here we report the draft genome and annotation of this strain, containing 3,027,060 bp, with a G+C content of 37.2% in 126 contigs (≥500 bp).

Pseudomonas aeruginosa ATCC 27853 is usually used to test antimicrobial activity (6). Its genome sequencing will help us to understand the pathogenesis of this pathogen. Pseudomonas aeruginosa ATCC 27853 was obtained from the China General Microbiological Culture Collection Center (CGMCC) as CGMCC 1.2387. Pseudomonas aeruginosa is a common bacterium that can cause disease in animals and humans. It is found in soil, water, skin flora, and most man-made environments throughout the world. It is an opportunistic pathogen for both humans and plants

Staphylococcus aureus ATCC 700699 is gram-positive nonmotile coccus that grows in aerobic and anaerobic conditions, in which it forms grape-like clusters. Staphylococcus aureus is one of the major causes of community- acquired and hospital-acquired infections. It produces numerous toxins including superantigens that cause unique disease entities such as toxic-shock syndrome and staphylococcal scarlet fever. Mu50 is a MRSA strain with vancomycin resistance isolated in 1997.

Streptococcus speices ATCC 9884 -Group G B-hemolytic streptococci primary isolates obtained for testing from laboratory strains Microbiologists American type ATCC 9884. Streptococcus pneumoniae is the most common cause of pneumonia as well as a number of invasive diseases, such as meningitis and sepsis, and non-invasive mucosal diseases, such as otitis media and sinusitis. It causes severe morbidity and mortality worldwide, especially in young children and the elderly.

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99.97% Airborne Fungi Kill:

- *Candida auris*
- Aspergillosis (*niger* and *fumigatus*)

Cladosporium cladosporioides 16022 - This heavily sporulating fungi is a dematiaceous mold, meaning that it is characterized by the olive-to-black pigmentation of its conidia and hyphae. It is prevalent in indoor and outdoor environments, and is a plant pathogen that affects wheat. Frequently isolated from air, *Cladosporium* has a world-wide presence and is one of the early colonizers of humid indoor environments growing on such substrates as gypsum, paper, paint, and textiles. As a common allergen, this species has been known to induce hay fever and asthma in humans.

References:

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7. Howorth, F.H. 1985. "Prevention of airborne infection during surgery." *Lancet*. 325: 386–388.

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