May 2020

EPA Guideline Laboratory Validated

- 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 complexi-ties 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]

Airborne Virus Norovirus Kill rate 99.9995%:

CORONAVIRUS OUTBREAK COVID-19 ALERT

No products exist that can claim to kill the SARS-CoV-2 (COVID-19) virus. This virus is not available to test at this time so the EPA enacted a 'hierarchy-based' policy. If a company's product has been found to be effective against harder-to-kill viruses, such as Norovirus it is likely to kill SARS-CoV-2 (COVID-19). A product that is likely to provide the greatest protection to you from COVID-19 will have claims against at least one non-enveloped virus such as Norovirus. This theory is the basis by which the EPA has activated its Emerging Viral Pathogens Guidance for Antimicrobial Pesticides. The EPA recently stated It is best to use products that qualified for the Emerging Viral Pathogens claim, those proven to eliminate harder to kill viruses such as Norovirus, a small non-eveloped virus scientifically proven to be one of the most difficult visus to kill. Our 99.9995% Norovirus kill rate validates our conclusion to fully expect that SAM will have similar efficacy against the easier to kill additional virus listed.

- Coronavirus
- Influenza
- Rubeola (includes Measles)
- Varicella (Chicken Pox)
- 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

Airborne Bacteria Kill rate 99.99%:

- (MRSA) Methicillin Resistant Staphylococcus aureus
- Streptoccus Species
- Enterococcus faecalis
- 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.

Strepoccous speices ATCC 9884 -Group G B-hemoy;ic streptococci primamary 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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Airborne Mold Kill rate 99.9%:

- Cladosporium

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, Cladiosporium 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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4. *Lidwell, O.M. 1983. "Sepsis after total hip or knee joint replacement in relation to airborne contamination." Phil Trans R Soc B 302:583–592.*
5. *Memarzadeh, F., and A.P. Manning. 2002. "Comparison of operat-ing room ventilation systems in the protection of the surgical site." ASHRAE Transactions 108:3–15.*
6. *Simsek Yavuz, S., et al. 2006. "Analysis of risk factors for sternal sur-gical site infection: emphasizing the appropriate ventilation of the operating theaters." Infect Control Hosp Epidemiol 27:958–63.*
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