

In-Home Actinomycetes Testing for Those Suffering With CIRS

What Are Actinomycetes?

According to a research study conducted by Park et al, the most frequent species of bacteria found in buildings damaged by water are actinomycetes (which includes actinomycetes and mycobacteria); this is the type of bacteria that produces biotoxins similar to mycotoxins from mold.

How Do Actinomycetes Impact Me?

- Associated with adverse health effects among occupants of water-damaged buildings.
- Known as an etiologic agent of hypersensitivity pneumonitis, or HP (This includes farmer's lung disease).
- Thermophilic actinomycetes and mycobacteria are associated with decreased lung function, respiratory, or systemic symptoms reflecting granulomatous disease or asthma.
- These Gram-positive bacteria normally colonize the human mouth, digestive, and genital tracts.
- Men are more frequently affected than women.

Mouth:

A. georgiae
A. gerencseriae
A. graevenitzi
A. israelii
A. meyeri
A. naeslundii
A. odontolyticus
A. oris

Pharynx:

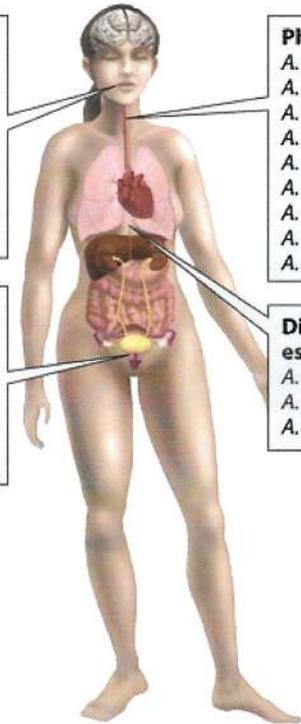
A. cardiffensis
A. georgiae
A. gerencseriae
A. israelii
A. massiliensis
A. meyeri
A. naeslundii
A. odontolyticus
A. radidentis

Genitourinary tract:

A. meyeri
A. neuii
A. radingae
A. turicensis
A. urogenitalis

Distal esophagus:

A. graevenitzi
A. meyeri
A. odontolyticus

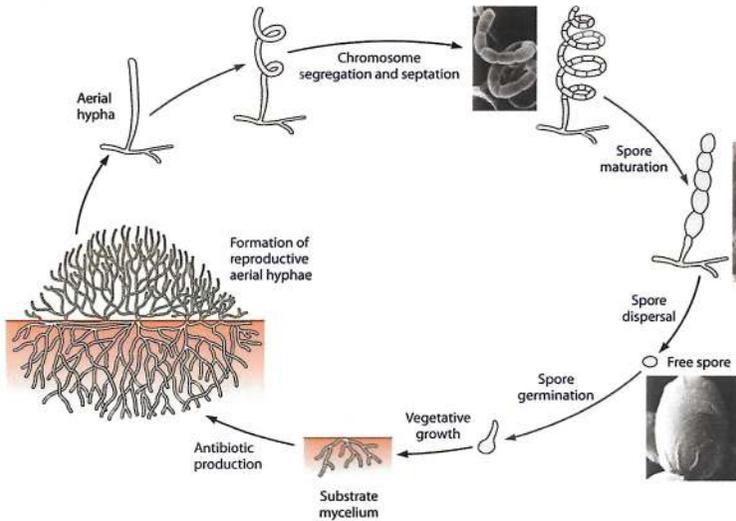


Health outcomes	Microbial measurements, odds ratio (95% confidence interval)	
	Total culturable bacteria	Endotoxin
Two or more GD-like symptoms in the last 4 weeks	0.8 (0.65–1.01)*	0.8 (0.67–0.98)**
Shortness of breath on exertion	0.9 (0.78–1.03)	0.9 (0.79–1.04)
Fever and chills	0.9 (0.72–1.19)	0.8 (0.64–1.12)
Flu-like achiness	0.9 (0.78–1.02)	0.9 (0.76–0.99)**
Epidemiologically defined ^b asthma	0.8 (0.71–1.00)**	0.8 (0.67–0.96)**
Wheeze in the last 4 weeks	0.9 (0.81–1.07)	0.9 (0.76–1.01)*
Shortness of breath in the last 4 weeks	0.9 (0.77–1.03)	0.9 (0.80–1.05)
Chest tightness in the last 4 weeks	1.0 (0.81–1.13)	0.9 (0.72–1.01)*
Attack of cough	1.0 (0.87–1.13)	0.9 (0.79–1.03)
Epidemiologically defined asthma ^b or airway hyper-responsiveness ^c	0.8 (0.72–0.96)**	0.8 (0.72–0.95)**

Symptoms

- Fever and chills
- Shortness of breath on exertion
- Flu-like achiness
- Wheezing
- Chest tightness
- Coughing attacks

How's it tested?



- Based in next-generation DNA sequencing
- Based on the microbial identification of all bacteria in the sample
- Developed to identify 40 main species of Actinomycetes in Building-related Diseases
- Species included in score have been reported in multiple studies linked to BRI
- Quantitative detection of actinomycetes content & a bacterial panel using Next-Gen sequencing

Color-coded interpretation	
If 9 or below	Indicative of a Healthy Building
If between 10 to 15	Further investigation needed (For CIRS Patient only)
If greater than 15	Suggestive of Building Related Illness.

Table 1

Summary of total bacteria's species

Bacteria	Types	
Totals	1,211	Box 1
Pathogen	88	

Actinomycetales	Types	
Totals	256	Box 2
Pathogenic	22	

Selected actinomycetales found in water damaged buildings

Mycobacteria	Types	
Totals	7	
Pathogenic	3	

Streptomyces	Types	
Totals	7	Box 3
Pathogenic	0	

Non Actinomycetales	Types	
Totals	955	Box 4
Pathogenic	66	

In the figure to the left, an actinomycetes panel was run where a score is given to the sample areas based on four different categories. Each score is indicative of a different living condition, much like with the ERMI and HERTSMI-2 tests.