

## Actinomyces Israelii

*Actinomyces israelii* is a species of bacteria of the *Actinomyces* genus, which are slow-growing, gram-positive bacilli known for its branching at acute angles and filamentous growth. It is found along the entire digestive tract, from the oral cavity to the bowel as normal flora. *Actinomyces israelii* infections are associated with dental work or oral trauma that allows inoculation of the oral bacteria below the epithelium, which contains a lower oxygen content and is more favorable to the bacteria's preferred method of anaerobic growth. If untreated, this can result in a facial abscess. This bacterium is known to cause draining sinus tracts from the nidus of infection, which contain characteristic yellow clumps of bacterial colonies that resemble sulfur granules. *Actinomyces israelii* is also associated with genitourinary infections, especially in patients with IUDs in place. It is responsive to high-dose penicillin.



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### Characteristics

#### Gram-Positive

[Graham-cracker Positive-angel](#)

This bacteria stains gram-positive, which indicates a thick peptidoglycan cell wall to uptake the Gram stain.

#### Bacillus

[Rod](#)

Actinomyces are described as a bacillus, or rod-shaped organisms.

#### Anaerobe

[Ant-robe](#)

Actinomyces are anaerobic bacteria, meaning that it does not require oxygen for growth.

#### Branching

[Branches](#)

This bacteria is known for its branching, filamentous growth which distinguishes it from other gram-positive bacteria. This branching can be mistaken to be a branching fungal hyphae.

#### Oral Flora

[Oral Flowers](#)

This bacteria is normal flora in the oral cavity, as well as the entire length of the digestive tract.

#### Dental Work

[Drilling teeth](#)

This bacteria is commonly associated with infection during dental work, due to trauma to the oral cavity. This allows penetration of the bacteria beyond the epithelium.

#### Oral Trauma

[Drilling teeth](#)

Any type of oral trauma, which is common in dental work or physical altercations, can result in the inoculation of the bacteria beyond the epithelium.

## Associated with IUDs

### IUD

Infections that occur in the pelvic region are commonly associated with IUDs.

## Signs and Symptoms

### GU Infections

#### Uterus

This bacteria is associated with infections that spread to the genitourinary tract.

### Draining Sinus Tract

#### Long Tracts

This bacteria can cause draining sinus tracts of pus from the source of infection.

### Facial Abscess

#### Abscess-guy in face

Actinomyces infections, if untreated, can cause facial abscesses due to its slow-growing and indolent course.

### Yellow Sulfur Granules

#### Yellow Granules

This bacteria tends to clump into yellow colonies that resemble sulfur granules. This can be found in the pus or draining sinus tracts.

## Treatment

### Penicillin

#### Penic-villain

This bacteria is responsive to high-dose oral penicillin over a long course of treatment.