Francisella tularensis

Colony Morphology

- Aerobic, fastidious, requires cysteine for growth
- Grows poorly on Blood Agar (BA)
- Chocolate Agar (CA): tiny, grey-white, opaque colonies, 1-2 mm ≥48hr
- Cysteine Heart Agar (CHA): greenish-blue colonies, 2-4 mm ≥48h
- Colonies are butyrous and smooth

Gram Stain

- Tiny, 0.2–0.7 μm pleomorphic, poorly stained gram-negative coccobacilli
- Mostly single cells

Biochemical/Test Reactions

- Oxidase: Negative
- Catalase: Weak positive
- Urease: Negative

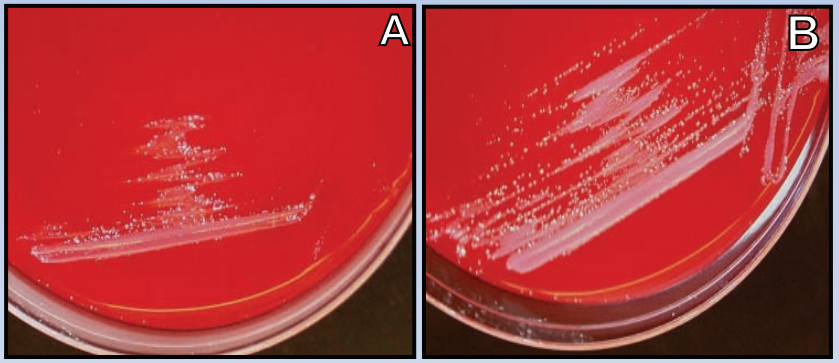
Additional Information

- Can be misidentified as: *Haemophilus influenzae, Actinobacillus* spp. by automated ID systems
- Infective Dose: 10 colony forming units
- Biosafety Level 3 agent (once *Francisella tularensis* is suspected, work should only be done in a certified Class II Biosafety Cabinet)
- Transmission: Inhalation, insect bite, contact with tissues or bodily fluids of infected animals
- Contagious: No

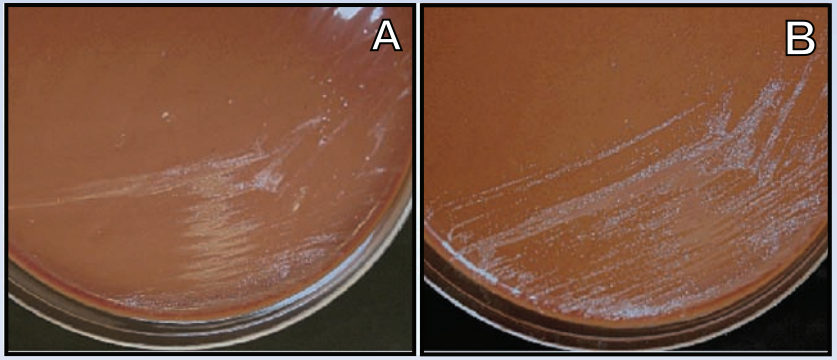
Acceptable Specimen Types

- Tissue biopsy
- Whole blood: 5-10 ml blood in EDTA, and/or Inoculated blood culture bottle
- Swab of lesion in transport media

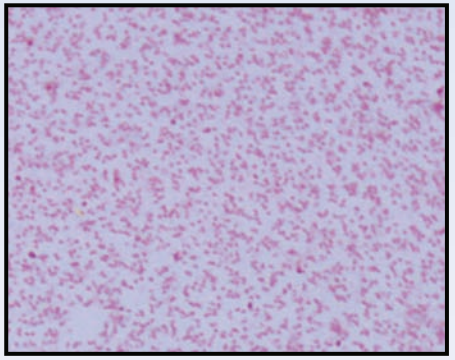
Tularemia is a commonly acquired laboratory infection; all work on suspect *F. tularensis* cultures should be performed at minimum under BSL2 conditions with BSL3 practices.



Growth on BA (A) 48 h, (B) 72 h



Growth on CA (A) 48 h, (B) 72 h



Gram stain

Sentinel Laboratory Rule-Out of *Francisella tularensis*

Little to no growth on BA >48 h

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Small, grey-white opaque colonies on CA after ≥48 h at 35/37°C

↓

Tiny, pleomorphic, faintly stained, gram-negative coccobacilli (red, round, and random)

↓

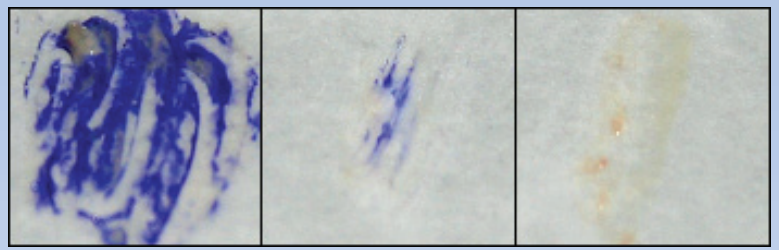
Perform all additional work in a certified Class II Biosafety Cabinet

*Oxidase: Negative
*Catalase: Weak positive
*Urease: Negative

*Oxidase, Catalase, and Urease: Appearances of test results are not agent-specific. Photos represent typical reactions

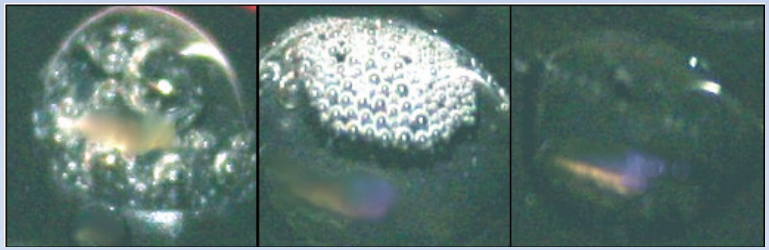
No	Yes
↓	↓
Continue laboratory identification procedures	Immediately notify and call the HI State BT Response Lab @ 368-3373 or pager # 251-4014.

Oxidase



Positive | Weak Positive | Negative

Catalase



Positive | Weak Positive | Negative

Urease

Negative | Positive