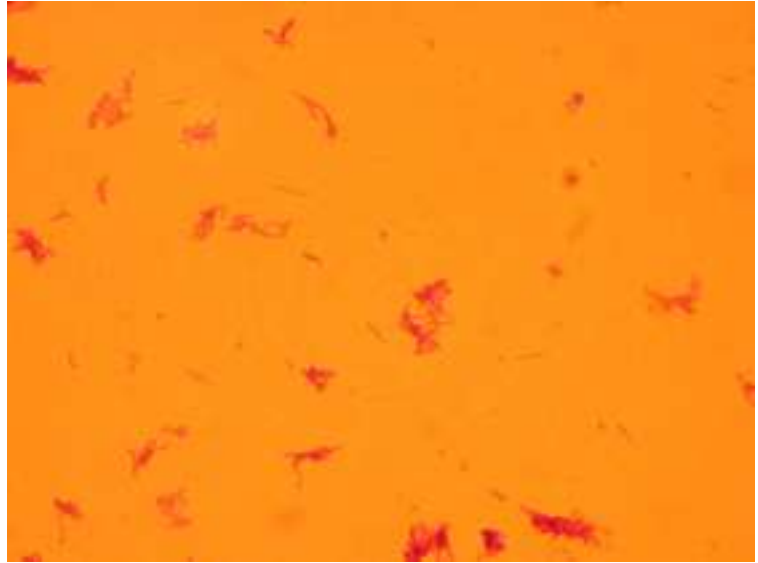


Mycobacterium species

- Gram-positive (stains poorly) slender rods, branching
- Aerobic
- Thick, hydrophobic cell wall...high lipid content
- Acid and alcohol fast
- Non Motile
- Non Spore-forming
- Catalase positive
- Optimal growth 35°C (slow to very slow growth)
- Pigmented colonies in some species



Numerous species including:

- *Mycobacterium tuberculosis*
- *Mycobacterium smegmatis* (normal flora and occasional human pathogen)
- *Mycobacterium leprae* (causes leprosy)

In addition to the species causing tuberculosis and leprosy, many harmless species of Mycobacteria degrade organic material in soil. Mycobacteria have the thickest known biological membrane, a characteristic that makes Mycobacterial infections difficult to treat. Infection requires long course of antibiotic therapy. Because of the thick cell wall, this bacterium is identified by a positive response to [acid fast staining](#). In the microbiology lab, we use the cold carbol fuchsin method to prepare the stain. In a clinical laboratory, you would use the Ziehl-Neelsen method which requires boiling phenol under a hood. While the Ziehl-Neelsen method is more effective, the cold carbol fuchsin method is a safe substitute for the educational laboratory.

Useful Links for Mycobacterium

Atypical Mycobacterial Diseases:

<http://www.emedicine.com/derm/topic930.htm>

Micrograph & overview of Mycobacterium smegmatis:

<http://anka.livstek.1th.se:2080/Msmegmatis.htm>