

An Introduction to the Pathogenesis of Mycobacteriaceae Family

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DESCRIPTION

Mycobacteriaceae is a family of bacteria that includes the genus *Mycobacterium*, which are responsible for causing a number of diseases in humans and animals. These bacteria are characterized by their ability to form unique cell walls that are rich in mycolic acids, which contribute to their resistance to many antibiotics and disinfectants. The *Mycobacterium* genus contains over 180 species, and many of these are pathogenic. The most well-known member of this group is *Mycobacterium tuberculosis*, which causes tuberculosis, a highly infectious disease that affects the lungs. Other pathogenic species include *Mycobacterium leprae*, which causes leprosy, and *Mycobacterium bovis*, which can cause tuberculosis in cattle and other animals, as well as being a potential source of human infection. Despite their pathogenic nature, not all species of *Mycobacterium* are harmful to humans. In fact, some species are beneficial and are used in biotechnology. For example, *Mycobacterium smegmatis* is a non-pathogenic species that is used as a model organism in genetic. *Mycobacterium tuberculosis* is perhaps the most well-known member of the *Mycobacterium* genus. This bacterium is responsible for causing tuberculosis, a disease that affects around 10 million people worldwide each year. The disease is spread through the air when infected individuals cough or sneeze, and it primarily affects the lungs. However, it can also affect other parts of the body, such as the kidneys, spine, and brain. Tuberculosis is a serious disease that can be fatal if left untreated. The symptoms of the disease include coughing, chest pain, fever, and weight loss. The disease is diagnosed through a combination of medical history, physical examination, and laboratory tests. Treatment involves a combination of antibiotics that are taken for several months. *Mycobacterium leprae* is another pathogenic species that is responsible for causing leprosy, also known as Hansen's disease.

Leprosy is a chronic disease that primarily affects the skin, nerves, and mucous membranes of the upper respiratory tract. The disease is transmitted through contact with an infected individual, but it has a long incubation period, meaning that symptoms may not appear for several years after infection.

Leprosy can cause severe disfigurement and disability if left untreated. The symptoms of the disease include skin lesions, numbness, and weakness in the hands and feet. The disease is diagnosed through a combination of medical history, physical examination, and laboratory tests. Treatment involves a combination of antibiotics that are taken for several months to several years, depending on the severity of the disease. *Mycobacterium bovis* is a pathogenic species that can cause tuberculosis in cattle and other animals, as well as being a potential source of human infection. The disease can be transmitted to humans through the consumption of contaminated meat or dairy products. Symptoms of the disease in humans are similar to those of tuberculosis caused by *Mycobacterium tuberculosis*.

CONCLUSION

The pathogenic properties, some species of *Mycobacterium* are also used in biotechnology. *Mycobacterium smegmatis* is a non-pathogenic species that is commonly used as a model organism in genetic. This bacterium is easy to grow and manipulate in the laboratory, and it has a similar genetic makeup to *Mycobacterium tuberculosis*, making it a useful tool for studying the genetics of this pathogen. *Mycobacterium vaccae* is another species that is being studied for its potential immunomodulatory properties. This bacterium is found in soil and has been shown to stimulate the immune system in animal studies.

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