Pasteurella Encyclopedia Article

Pasteurella

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Pasteurella

Pasteurella is a genus, or subdivision, of **bacteria**. The genus is in turn a member of the family Pasteurellaceae, which includes the genus Hemophilus. Members of this genus *Pasteurella* are short rod-shaped bacteria that produce the negative reaction in the Gram stain procedure, are incapable of the active type of movement called motility, and can grow both in the presence and the absence of oxygen.

Pasteurella causes diseases in humans and many species of animals. One species in particular, *Pasteurella multocida* causes disease in both humans and animals. For example, almost all pet rabbits will at one time or another acquire infections of the nose, eyes, and lungs, or develop skin sores because of a *Pasteurella multocida* infection. The bacterium also causes a severe infection in poultry, including lameness and foul cholera, and illness in cattle and swine. Another species, *Pasteurella pneumotrophica*, infects mice, rats, guinea pigs, hamsters, and other animals that are often used in laboratory studies.

The annual economic cost of the losses due to these infections are several hundred million dollars in the United States alone.

In humans, *Pasteurella multocida* can be acquired from the bite of a cat or dog. From 20% to 50% of the one to two million Americans, mostly children, who are bitten by dogs and cats each year will develop the infection. Following some swelling at the site of the bite, the bacteria can migrate. An infection becomes established in nearby joints, where it produces swelling, arthritis, and pain.

Infections respond to common **antibiotics** including **penicillin**, tetracycline, and chloramphenicol. Despite the relative ease of treatment of the infection, little is still known of the genetic basis for the ability of the bacteria to establish an infection, and of the factors that allow the bacterium to evade the defense mechanisms of the host. In the controlled conditions of the laboratory, the adherent populations known as biofilms can be formed by *Pasteurella multocida*.

The recent completion of the genetic sequence of *Pasteurella multocida* will aid in determining the genes, and so their protein products, which are critical for infection.