

Gliding Bacteria Encyclopedia Article

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Contents

Gliding Bacteria Encyclopedia Article.....	1
Contents.....	2
Gliding Bacteria.....	3

Gliding Bacteria

Gliding **bacteria** is a term that refers to any bacteria that exhibit a gliding or creeping type of movement (also known as motility) when in contact with a solid surface.

There are hundred of types of gliding bacteria. Most are beneficial or benign to humans and animals. Some strains, such as the myxobacteria, produce **antibiotics** and compounds that act on tumors. In addition, some strains of gliding bacteria can degrade compounds, and so have potential in the biodegradation of pollutants. However, some strains are a major health concern. For example, gliding bacteria that live in human saliva can cause gum disease, and can be life-threatening if they enter the bloodstream. Other types of gliding bacteria cause disease in animals and fish.

The gliding motility of myxobacteria is only one of several forms the organism can adopt. Another form consists of a stalk with fruiting bodies positioned at one end. When exhibiting gliding motility, a single cell can be in motion or a population of cells can move in concert with one another. The latter type of gliding seems to require the group of cells. If a cell moves out in front of the others, the lead cell will soon stop. The nature of the communal movement is unknown.

The gliding motility of bacteria such as those in the myxobacteria, the green nonsulfur group of bacteria (such as *Chloroflexus auranticus*) and the nonphotosynthetic gliding bacteria (such as *Herpetosiphon*) has long been a fascination to bacteriologists. The bacteria glide smoothly with no evidence of cellular involvement in the movement. In fact, the gliding motion may be the result of what have been termed "slime fibrils," a complex of proteins, which are attached to the bacterium at one end and to the solid surface at the other end. The exact mechanism of action of the slime fibrils is still unresolved. If the fibrils have to move to propel a bacterium along, the nature of this movement and how the movement is powered remain unknown.

Some gliding bacteria are known to exhibit a chemotactic response, that is, a concerted movement either in the direction of an attractant or concerted movement away from a repellent. The chemical sensing system must be coordinated with the gliding mechanism. Again, the nature of this coordination is unresolved.