

# Mastigophora Encyclopedia Article

## Mastigophora

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# Contents

<a href="#">Mastigophora Encyclopedia Article.....</a>	<a href="#">1</a>
<a href="#">Contents.....</a>	<a href="#">2</a>
<a href="#">Mastigophora.....</a>	<a href="#">3</a>

# Mastigophora

Mastigophora is a division of single-celled protozoans. There are approximately 1,500 species of Mastigophora. Their habitat includes fresh and marine waters. Most of these species are capable of self-propelled movement through the motion of one or several flagella. The possession of flagella is a hallmark of the Mastigophora.

In addition to their flagella, some mastigophora are able to extend their interior contents (that is known as **cytoplasm**) outward in an arm-like protrusion. These protrusions, which are called pseudopodia, are temporary structures that serve to entrap and direct food into the microorganism. The cytoplasmic extensions are flexible and capable of collapsing back to form the bulk of the wall that bounds the microorganism.

Mastigophora replicate typically by the internal duplication of their contents flowed by a splitting of the microbes to form two daughter cells. This process, which is called binary fission, is analogous to the division process in **bacteria**. In addition to replicating by binary fission, some mastigophora can reproduce sexually, by the combining of genetic material from two mastigophora. This process is referred to as syngamy.

The mastigophora are noteworthy mainly because of the presence in the division of several disease-causing species. Some mastigophora are **parasites**, which depend on the infection of a host for the completion of their life cycle. These parasites cause disease in humans and other animals. One example is the Trypanosomes, which cause African **sleeping sickness** and Chaga's disease. Another example is *Giardia lamblia*. This microorganism is the agent that causes an intestinal malady called giardiasis. The condition has also been popularly dubbed "beaver fever," reflecting its presence in the natural habitat, where it is a resident of the intestinal tract of warm-blooded animals.

*Giardia lamblia* is an important contaminant of drinking water. The microorganism is resistant to the disinfectant action of chlorine, which is the most common chemical for the treatment of drinking water. In addition, a dormant form of the microorganism called a cyst is small enough that it can elude the filtration step in water treatment plants. The microbe is increasingly becoming a concern in drinking waters all over the world, even in industrialized countries with state of the art water treatment infrastructure.