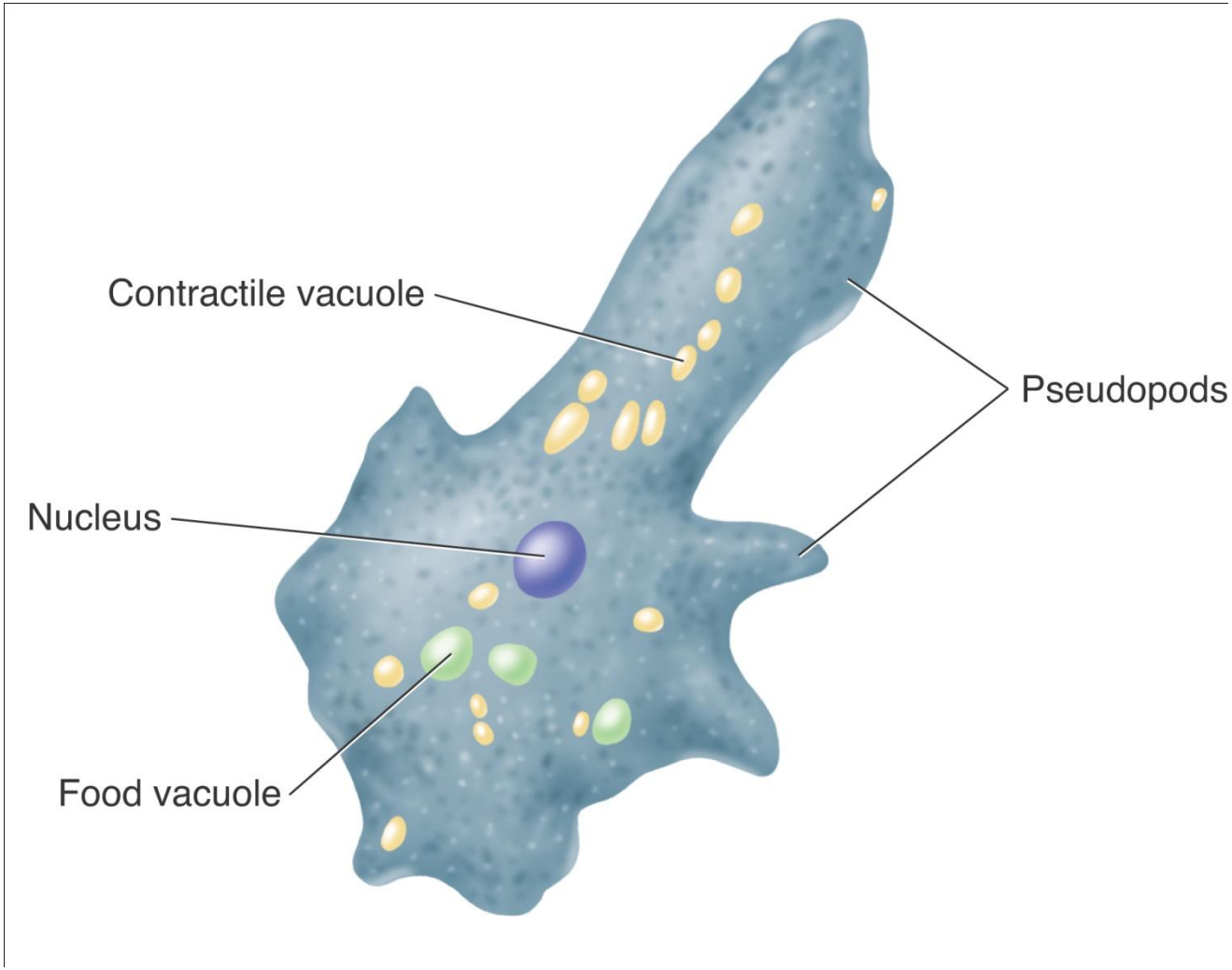
20–2 Animal-like Protists: Protozoans



20–2 Animal-like Protists: Protozoans

There are four phyla of animal-like protists:

- zooflagellates
- sarcodines
- ciliates
- Sporozoans

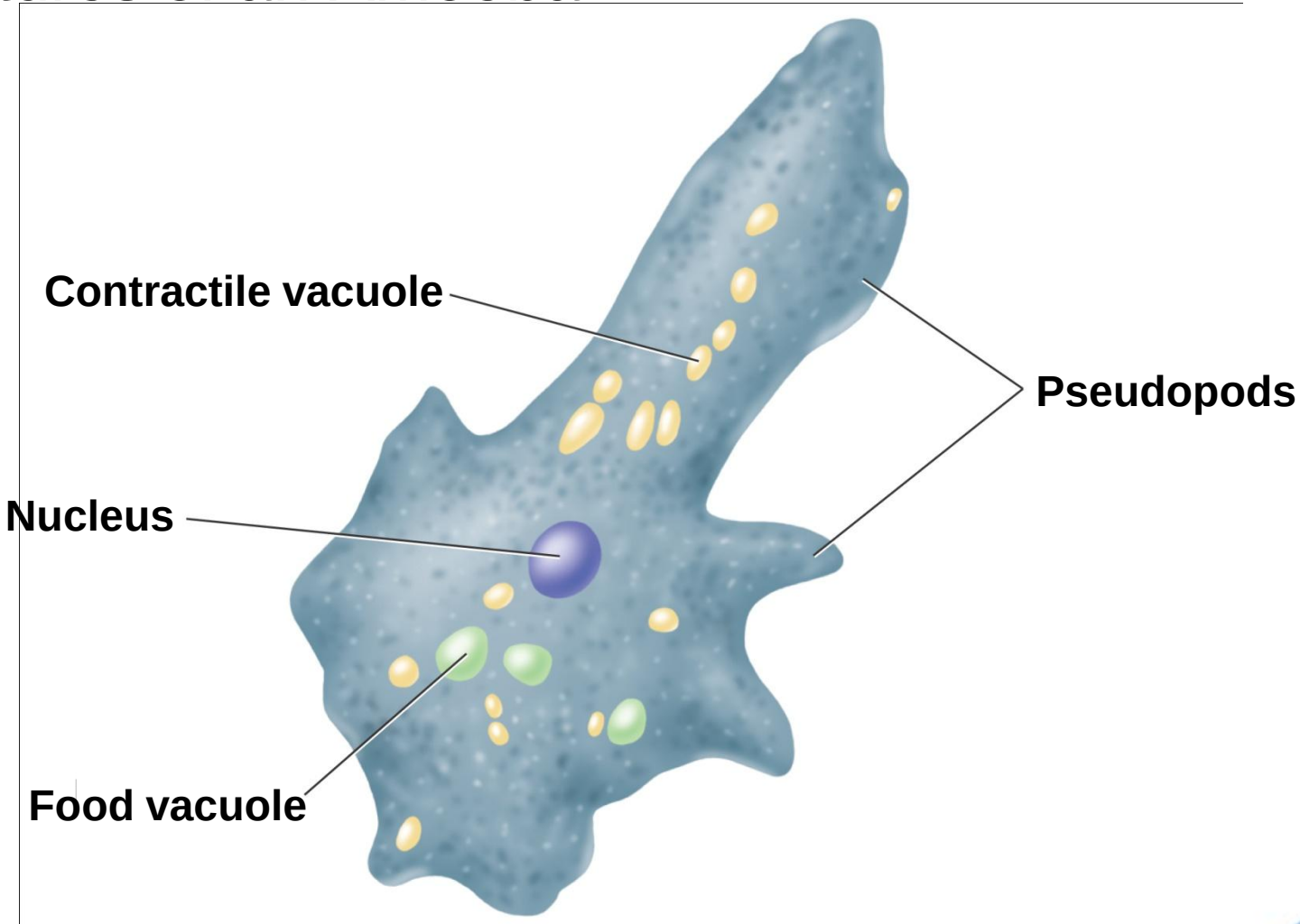
classified by their means of movement.

Animal-like protists that swim using flagella are called zooflagellates.

Sarcodines are animal-like protists that have pseudopods.

temporary cytoplasmic projections used for feeding or movement.

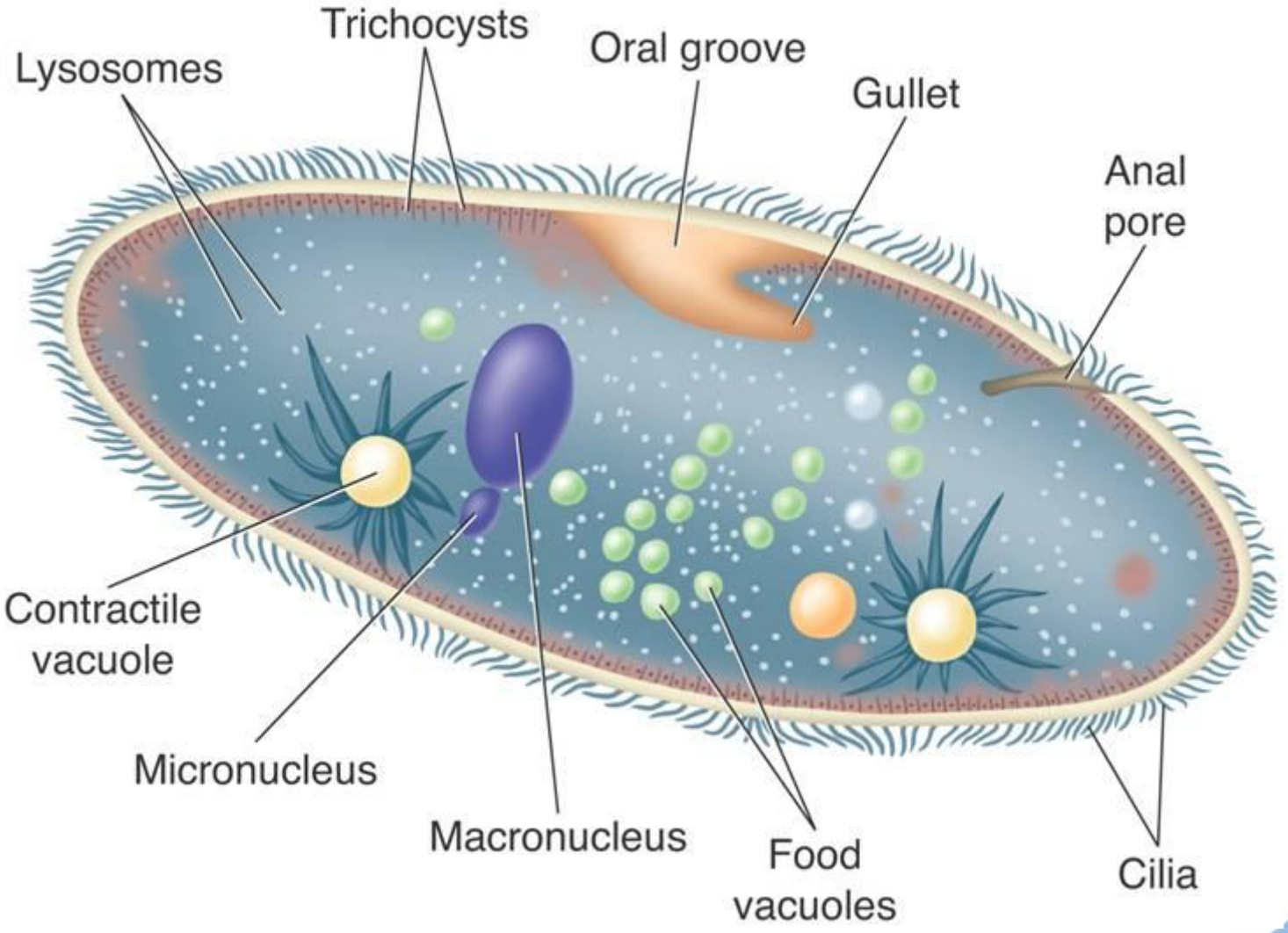
Structures of an Amoeba



Ciliates use cilia for feeding and movement.

short hairlike projections.

Structures of a Paramecium

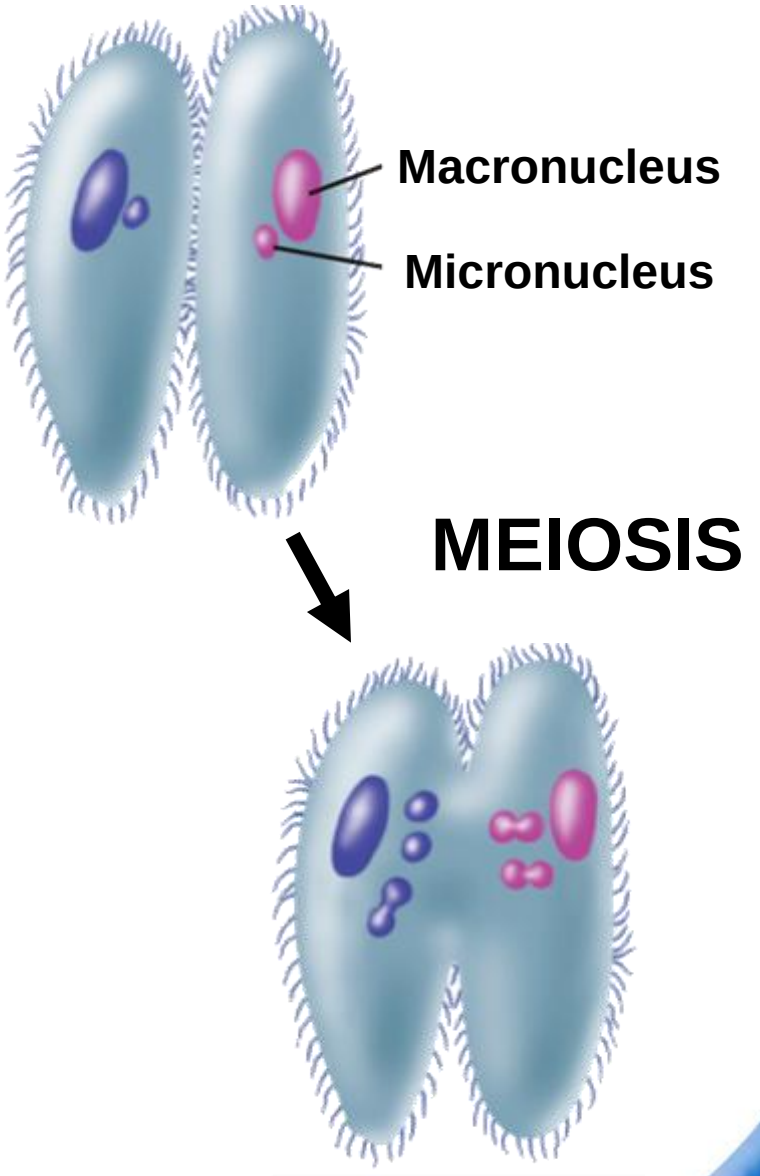


Conjugation

paramecia attach themselves to each other.

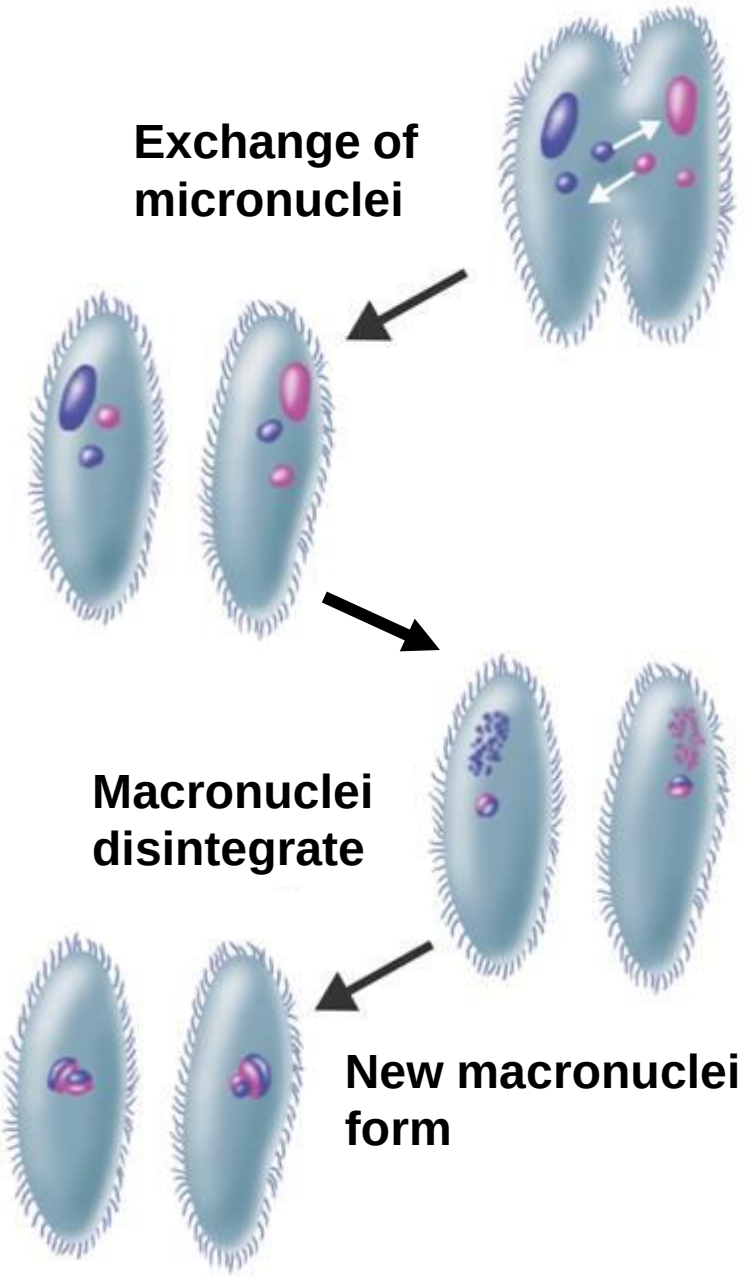
Meiosis produces four haploid micronuclei, three of which disintegrate.

The remaining micronucleus in each cell divides again.



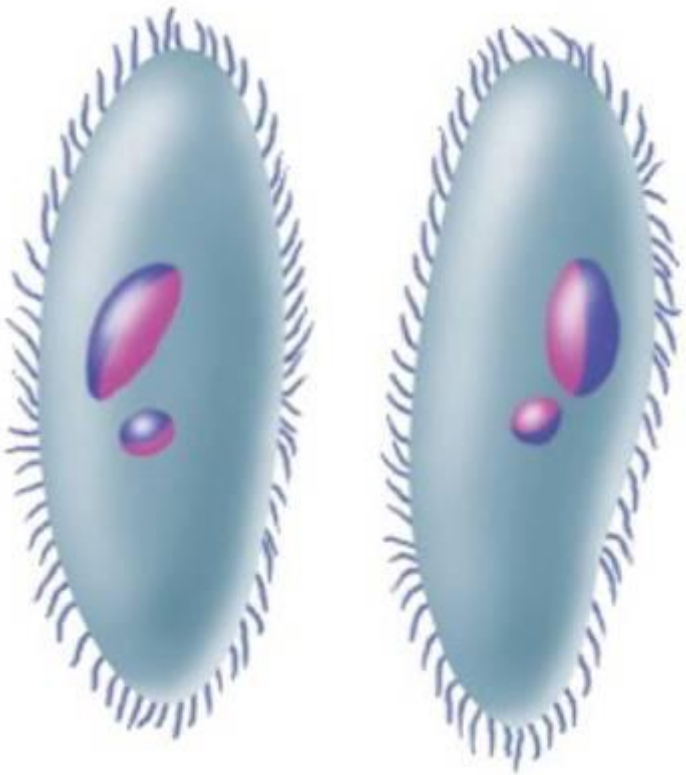
The two cells exchange one micronucleus from each pair.

The macronuclei disintegrate, and each cell forms a new macronucleus from its micronucleus.



Conjugation is not a form of reproduction. In large populations, conjugation helps produce and maintain genetic diversity.

Genetically identical paramecia form



Sporozoans do not move on their own—they are parasitic.

Sporozoans are parasites of a wide variety of organisms, including worms, fish, birds, and humans.

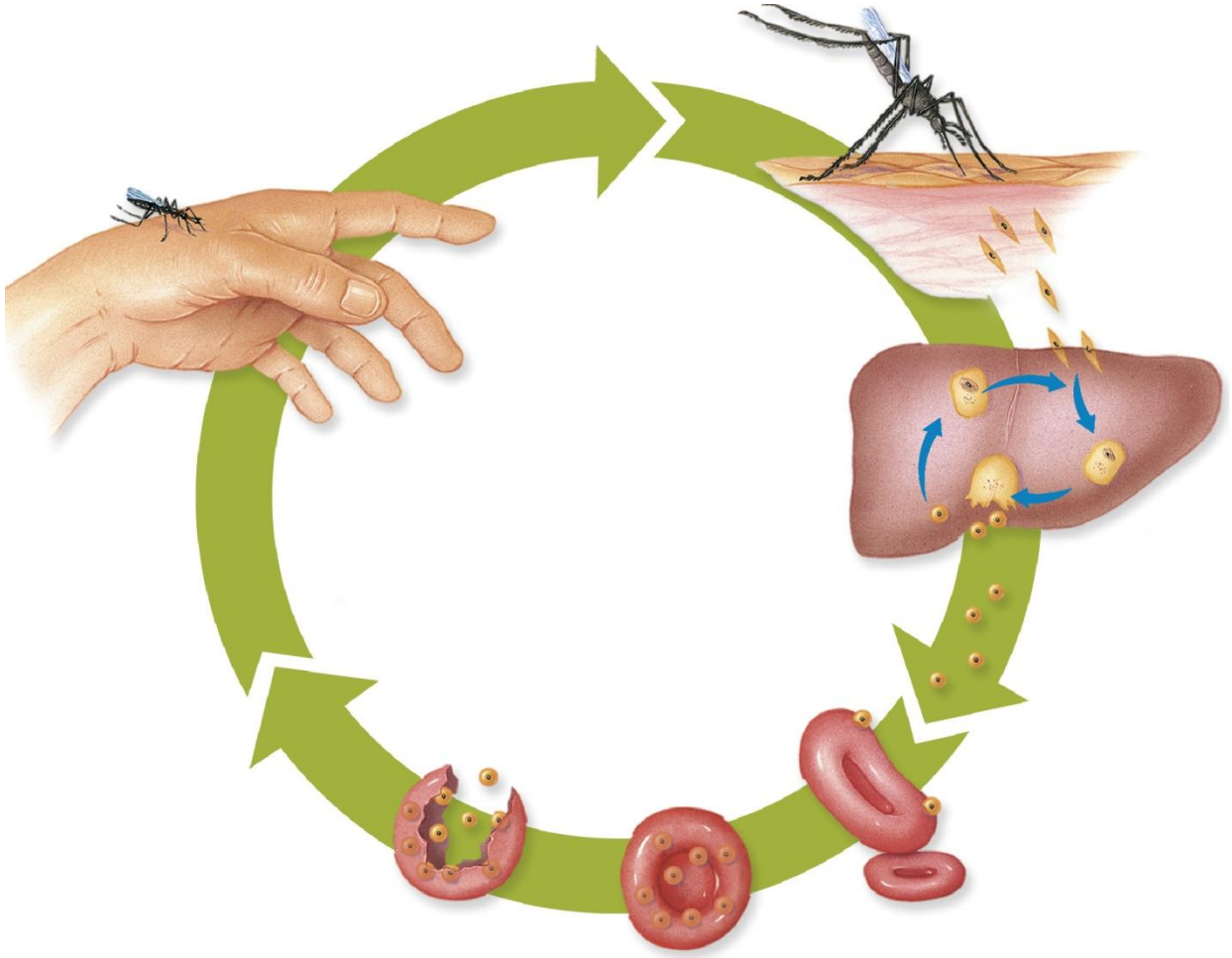
Some animal-like protists cause serious diseases, including malaria and African sleeping sickness.

Malaria

Malaria is one of the world's most serious infectious diseases, killing as many as 2 million people each year.

The sporozoan *Plasmodium*, which causes malaria, is carried by the female *Anopheles* mosquito.

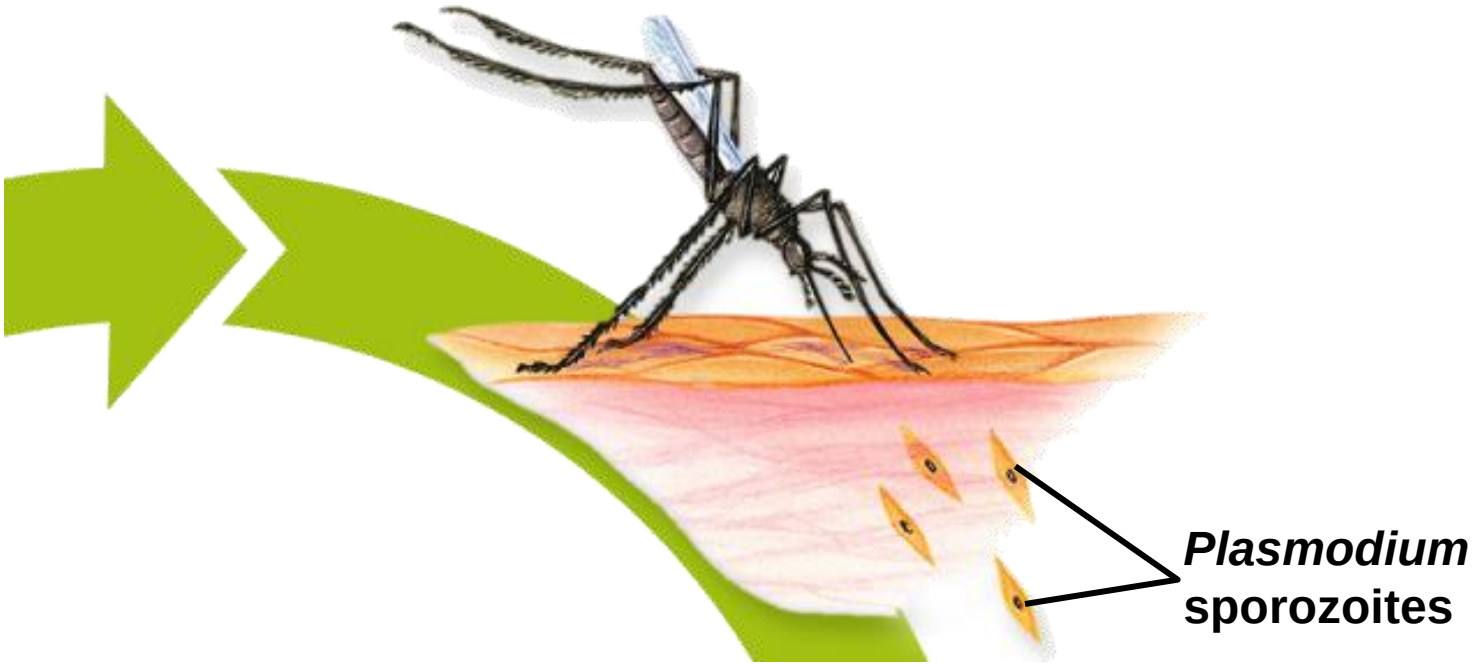
Malarial Infection



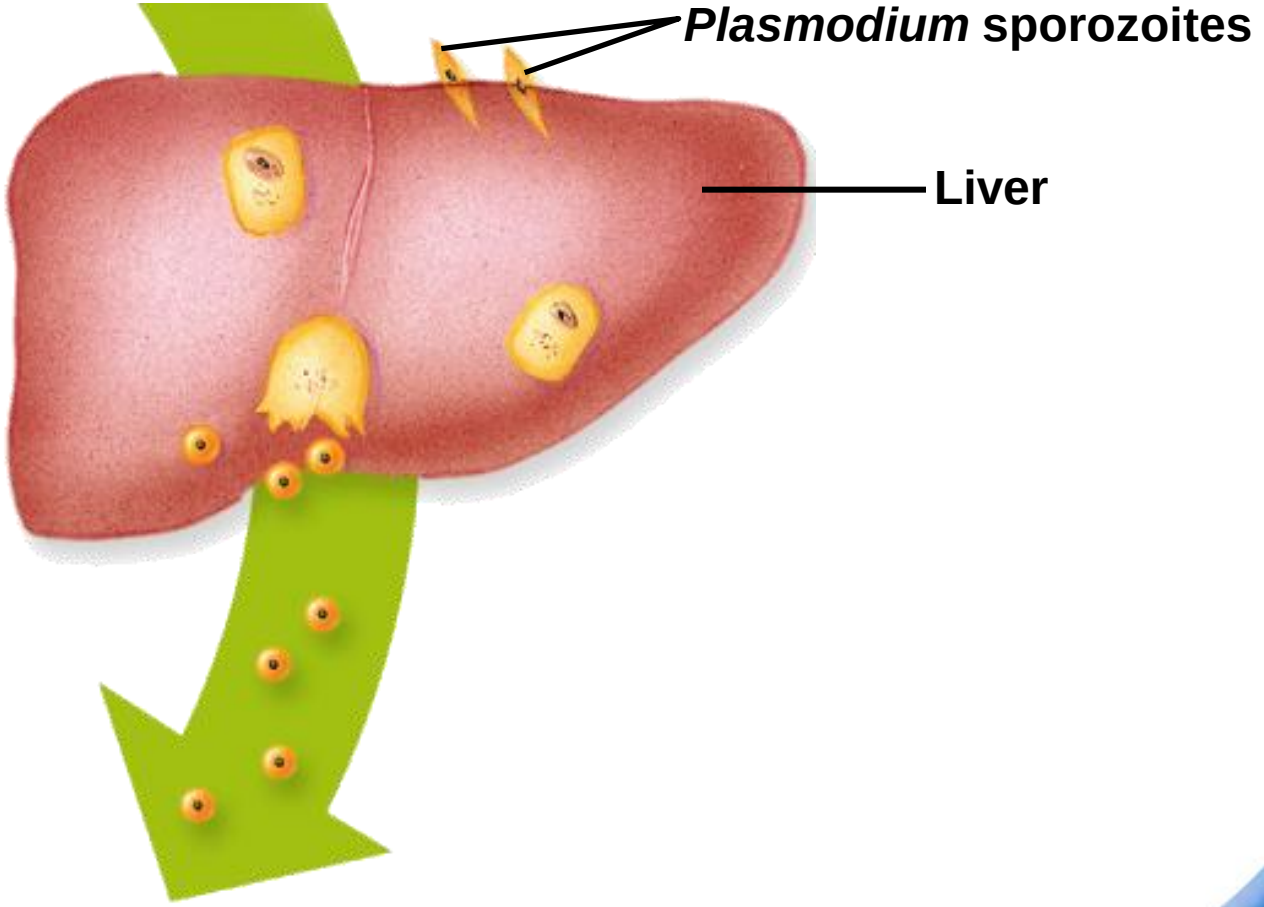
A female *Anopheles* mosquito bites a human infected with malaria and picks up *Plasmodium* gamete cells.

The sexual phase of the *Plasmodium* life cycle takes place inside the mosquito.

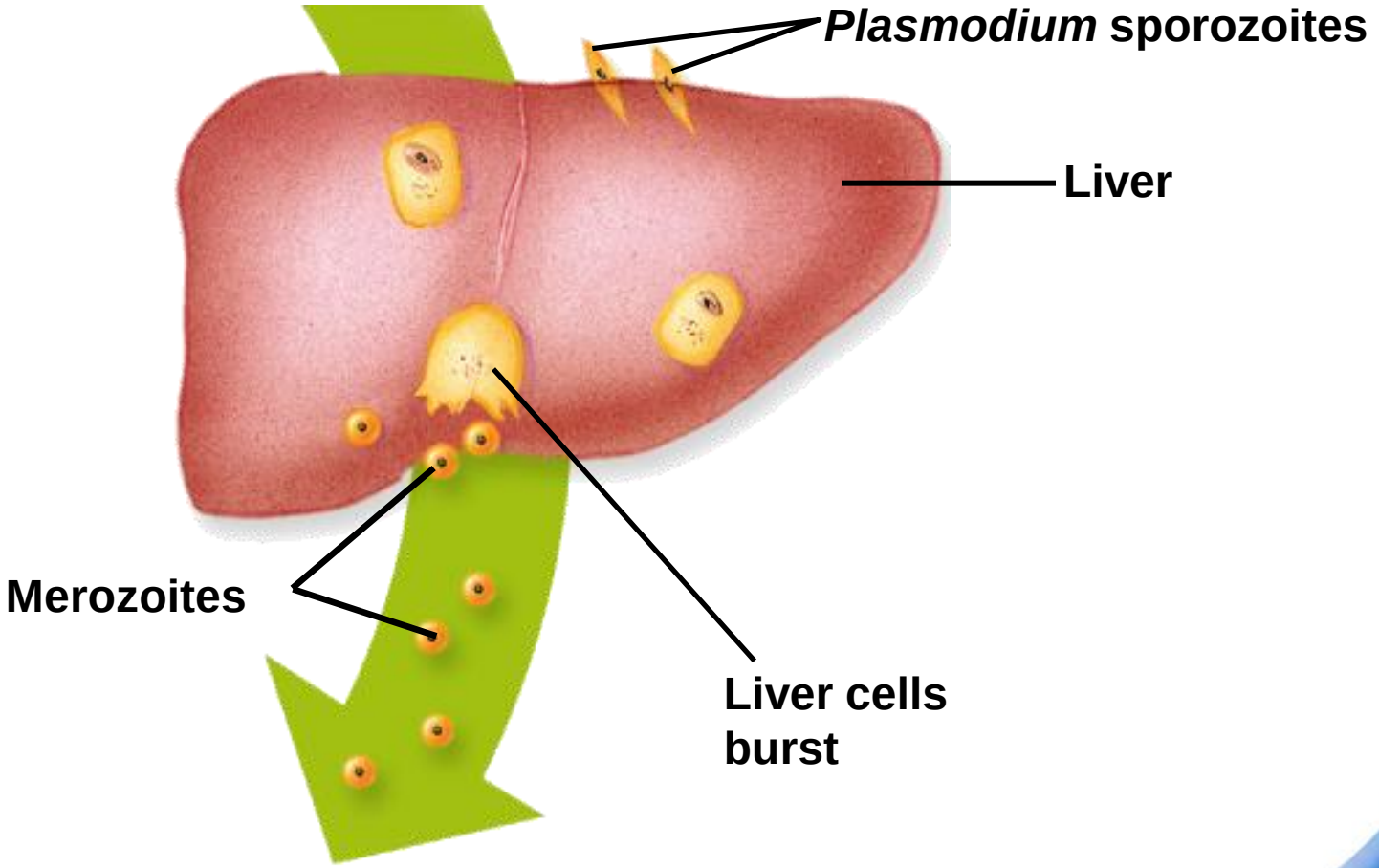
Infected mosquito bites another human, injecting saliva that contains *Plasmodium* sporozoites.



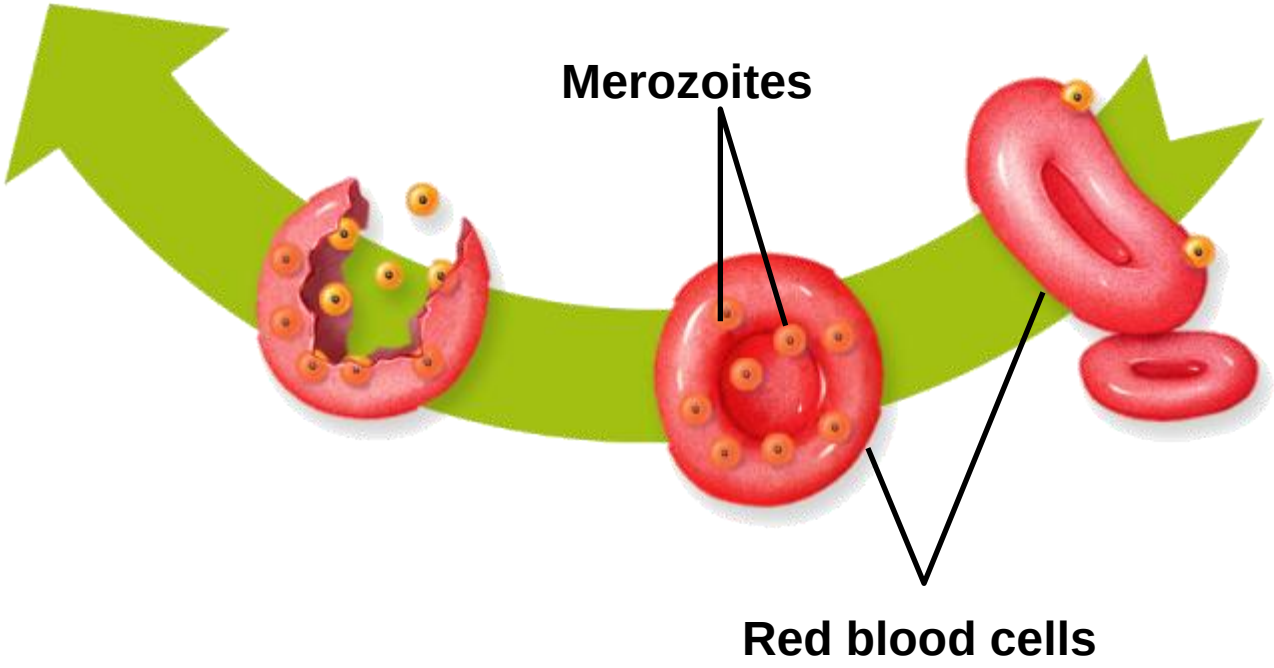
Sporozoites infect liver cells and multiply asexually.



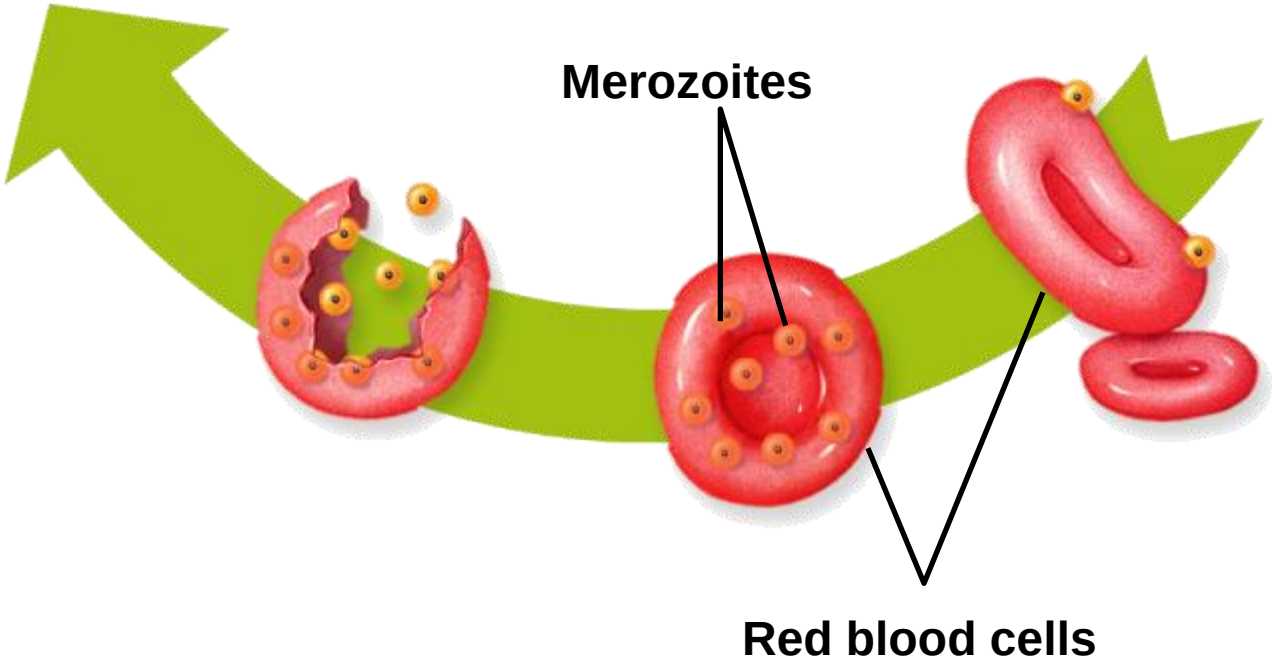
Infected liver cells burst, releasing *Plasmodium* cells called merozoites that infect red blood cells.



Merozoites reproduce asexually inside red blood cells.



Infected red blood cells burst, releasing merozoites that infect other red blood cells. Some cells release gametes that can infect mosquitoes.



Other Diseases Caused by Protists

African sleeping sickness

Amebic dysentery

Giardia

Ecology of Animal-like Protists

Many animal-like protists are essential to the living world.

- Some live symbiotically within other organisms.
- Some recycle nutrients from dead organic matter.
- Some live in water, where they are eaten by tiny animals, which in turn serve as food for larger animals.

Some animal-like protists are beneficial to other organisms.

The protist *Trichonympha* lives within the digestive systems of termites.

It breaks down cellulose, allowing termites to digest wood.

END OF SECTION