

Chapter 22

Part 2

Flagellates

Protists that move with flagella

Dinoflagellates

Unicellular, prototroph

Have 2 flagella

Found in Fresh and salt water

Protective coat of cellulose

Unusual shape

One flagella circles body and one is perpendicular

Spin like tops

Some cause red tide

Asexual reproduction



dino.jpg (484×358)



Harmful Algae - Red Tide



Zoomastigotes

Unicellular, heterotroph

At least one Flagella

Some have thousands

Some live in the guts of termites where they provide enzymes to digest wood

Some cause African sleeping Sickness

WHO - Trypanosomiasis, Human African (sleeping sickness)



Euglenoids

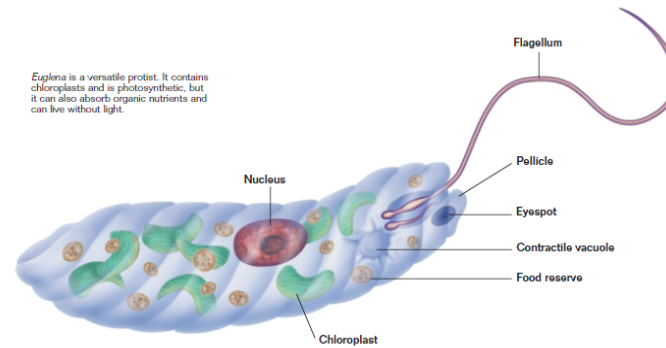
Fresh water

Two flagella

One third are photosynthetic

Some ingest food-heterotroph

eyespot



Ciliates

Most complex and unusual

So different some think they need their own kingdom

All have large rows of cilia

Complex unicellular heterotroph

Flexible body

Form vacuoles to ingest food and regulating water balance

Most have two nuclei

Micronuclei- normal chromosomes that divide by mitosis

Macronuclei- some pieces of the DNA from the micronuclei

Asexual-mitosis

Cells divide for 700 generations and then die if there has been no sexual reproduction
(conjugation)

Data Lab

Protistan Molds

Heterotrophs

Some mobility.

One thought to be fungi because they look like them

Cell walls made of carbs like protists

Asexual reproduction

Cellular slime molds

Resemble amoebas

Individually they move in the soil and ingest

Bacteria
slug

During stress they gather together and make colonies called

Each slug has a base, stalk, and swollen tip.

There are spores in the tip that are released and become new slime molds

Plasmodial slime molds

Groups of organism stream along as plasmodium (a mass of cytoplasm)

Looks like oozing slime

They engulf bacteria as they move

Have many nuclei

If it starts to dry up it divides into many molds

Each mound then produces a haploid spore which
are highly resistant to environmental conditions



Introduction to the -Slime Molds-



Oomycetes

Water molds

White rust

mildew

Alone of these was responsible .

for the Irish potato famine



Water mold that triggered potato famine related to malaria



Beneficial Protists

Many live in the digestive tract of humans and animals humans eat

Cattle could not digest grass if they did not have protists

Protists make up most of the plankton in the marine food chain

Single largest group of photosynthesizers

We all breathe the oxygen they produce

33.4 million people living with HIV

2.7 million die every year died in 2008

214 million people have malaria in 2010

660,000 deaths in 2010 mostly children.

Symptoms are chills, fever, sweating, confusion, and great thirst

Victims die of anemia, kidney failure, or brain damage

Malaria is caused by several species of plasmodium

And it is carried by certain mosquitoes like the *Anopheles* only the female

On tropical Africa one person can receive more than 300 bites by infected mosquitoes each year

Cycle

First the infected mosquitoes bites the person and injects its saliva into the person

The saliva does two things

It contains a chemical that prevents the blood from clotting

It also injects about 1,000 protists into the person

The sporozoites then divide rapidly and produce millions of cells called merozoites (these are produced in the liver)

The merozoites then infect red blood cells and after 48 the RBC ruptures releasing more merozoites and toxins

This begins that fever and chills

The cycle keeps repeating killing more RBCs

In the third stage some merozoites develop into gametes

These are when it is taken in by the mosquitoes

They then form a zygote and more sporozoites are made in the salivary glands of the mosquito

Plasmodium falciparum is 95% more likely to kill than other strains
Because it has only been seen in human population for 10,000 years,
It is considered a new strain

Malaria can occur anywhere summer temps are above 61 degree Fahrenheit.

Global warming has extended those areas so the reach of malaria has increased.

Although malaria is limited now because of efforts to control it

Quinine was discovered in the middle of the 1600s from the bark of a tree found in South America

This is a treatment for malaria as well as derivatives of it

Malaria can also be reduced by controlling mosquitoes like with DDT

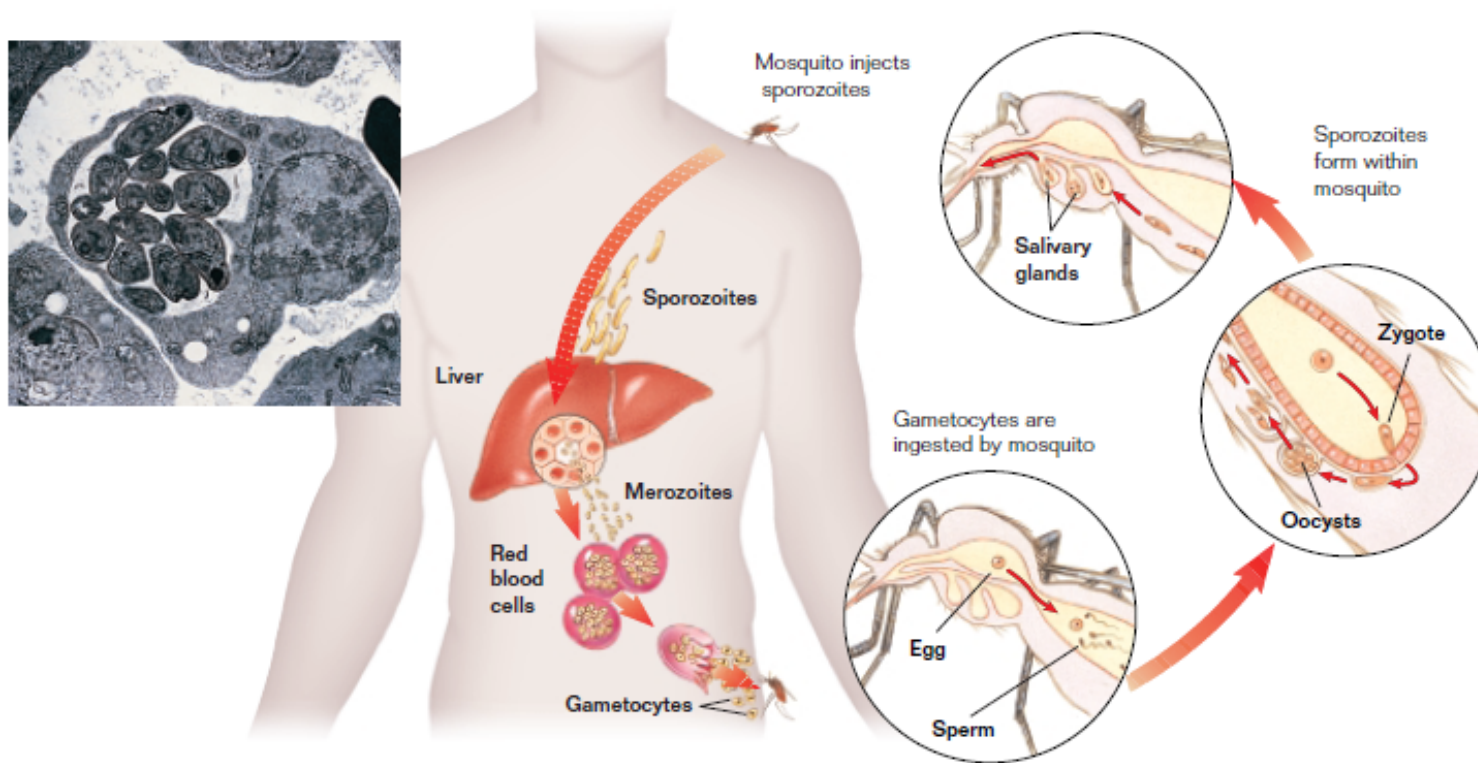
Malaria is becoming harder to treat because the protists are becoming resistant to the drugs

Scientists are trying to make a vaccine

part of the problems are that they are in several stages when in the body
also the immune system cannot find them in the liver and the RBCs

Also people with sickle-cell are immune because the protists cannot survive in the sickle-celled RBCs





Disease	Host	Organism
Amoebic dysentery	Humans	<i>Entamoeba</i>
Malaria	Humans	<i>Plasmodium</i>
Toxoplasmosis	Humans, cats	<i>Toxoplasma</i>
Giardiasis	Humans	<i>Giardia</i>
Sleeping sickness	Humans, tsetse flies	<i>Trypanosoma</i>
Leishmaniasis	Humans, sand flies	<i>Leishmania</i>
Late blight	Potatoes	<i>Phytophthora</i>