LAB 7
PATHOGENIC PROTOZOA AND BACTERIA

Objectives:

· To become familiar with the characteristics of some pathogenic protozoa and bacteria.
· To identify these pathogens based on visual inspection of prepared slides.

Materials and Methods:

Recall from lecture than protozoa are **eukaryotes** (they have a nucleus and organelles). Bacteria are **prokaryotes**, lacking a nucleus and organelles. Bacteria are also much smaller than protozoa!

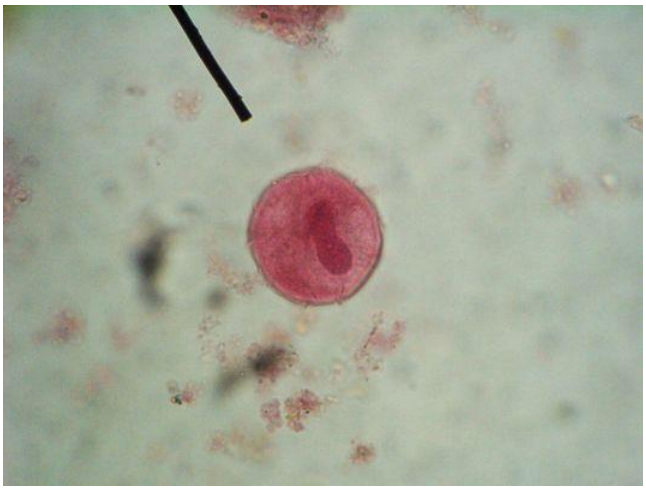
Examine the prepared slides of the following pathogenic protozoa and bacteria.

PATHOGENIC PROTOZOA:

Entamoeba histolytica

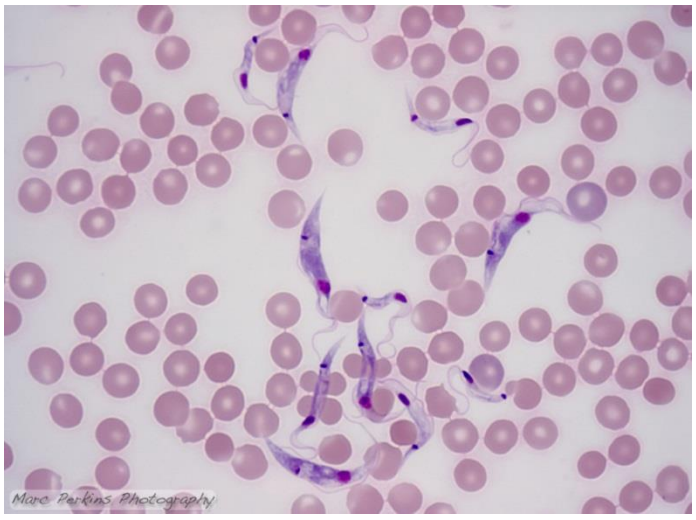
A cyst (dormant, protective structure) of the protozoan ***Entamoeba histolytica*** in a fecal smear. This protozoan lives within the gastrointestinal tract of animals and can cause **amoebiasis**, or **amoebic dysentery** (diarrhea with blood) in people. The cysts are accidentally consumed in contaminated water or food, and then "hatch" within the gut and reproduce.

Balantidium coli



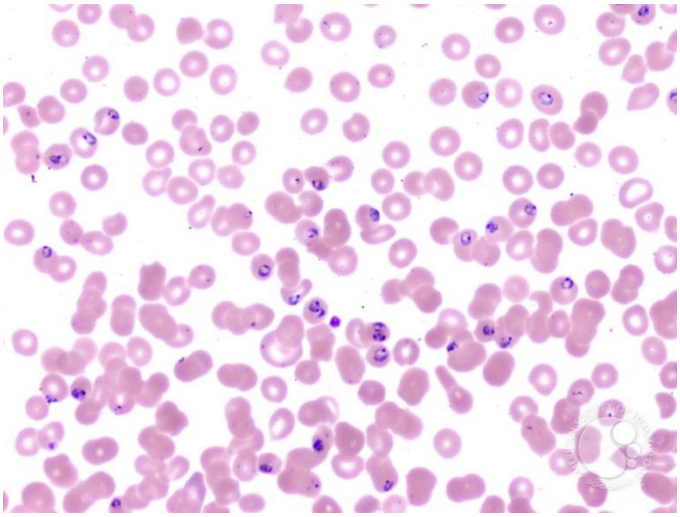
Active protozoan ***Balantidium coli*** (left) and its dormant cyst in a fecal smear (right). This protozoan lives within the gastrointestinal tract of animals and can cause **balantidiosis**, or **balantidial dysentery** (diarrhea with blood) in people. The cysts are accidentally consumed in contaminated water or food, and then "hatch" in the gut and reproduce.

Trypanosoma



The protozoan ***Trypanosoma*** in a blood smear. This protozoan lives within the bloodstream of infected animals and can cause **trypanosomiasis** (**Sleeping Sickness** in Africa, and **Chagas' Disease** in the Americas) in people. The parasite is spread by an insect bite (**tsetse flies** in Africa, and **kissing bugs** in the Americas).

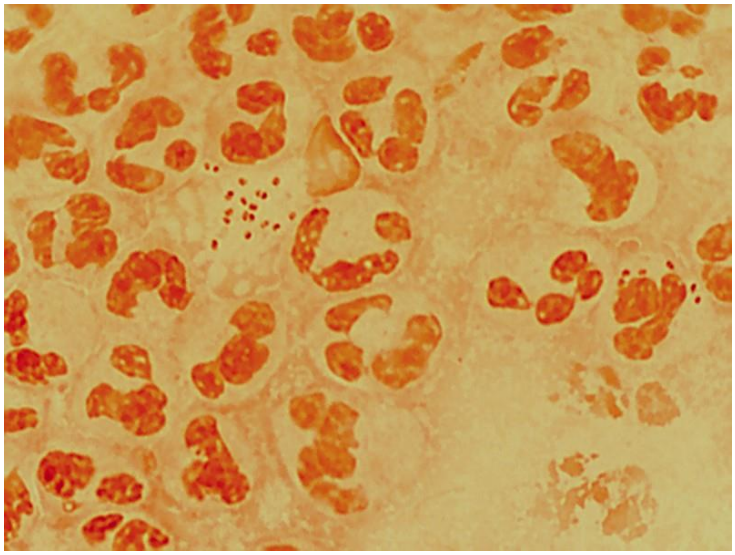
Plasmodium



The protozoan ***Plasmodium*** in a blood smear. This protozoan lives within the bloodstream of infected animals and can cause **malaria** in people. The parasite is spread by the bite of the ***Anopheles*** **mosquito**.

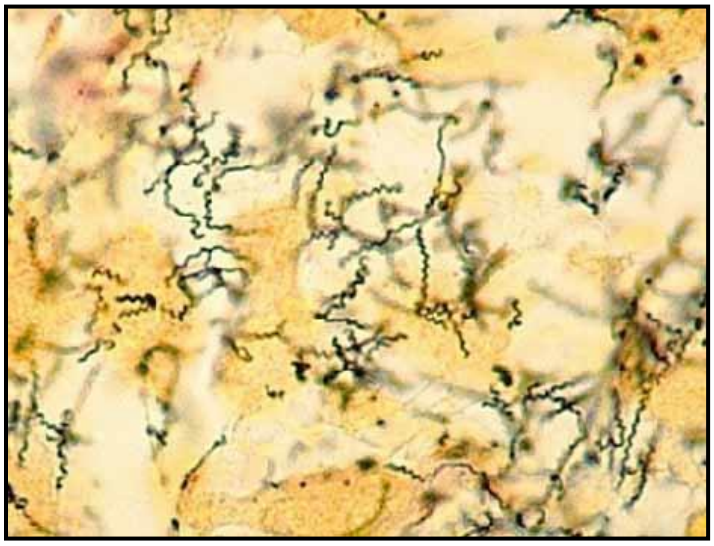
PATHOGENIC BACTERIA:

Neisseria gonorrhoeae



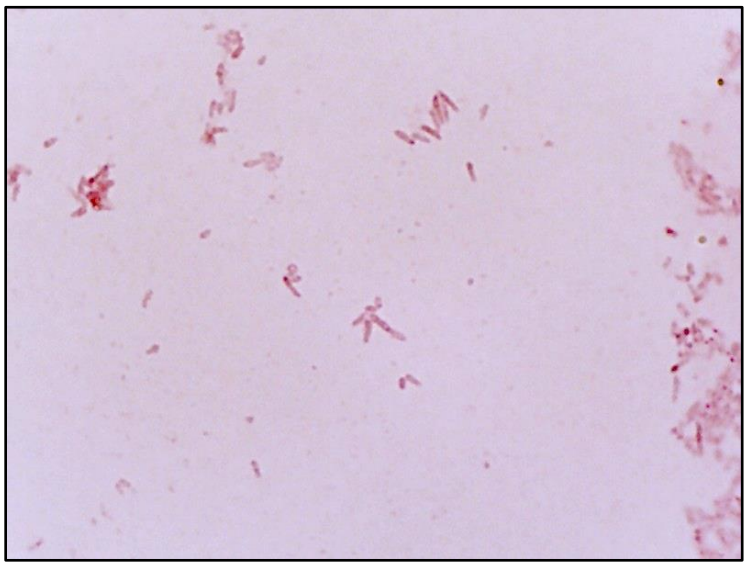
Neisseria gonorrhoeae (small, Gram-negative diplococci) bacteria in a pus smear. These bacteria cause the sexually-transmitted disease **gonorrhea**. The large cells with lobed nuclei are white blood cells.

Treponema pallidum



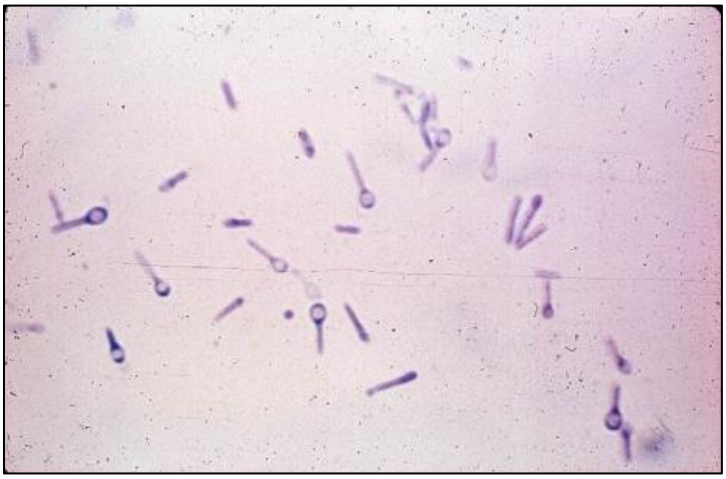
Treponema pallidum (spiral-shaped) bacteria in a smear. These bacteria cause the sexually-transmitted disease **syphilis**.

Corynebacterium diphtheria



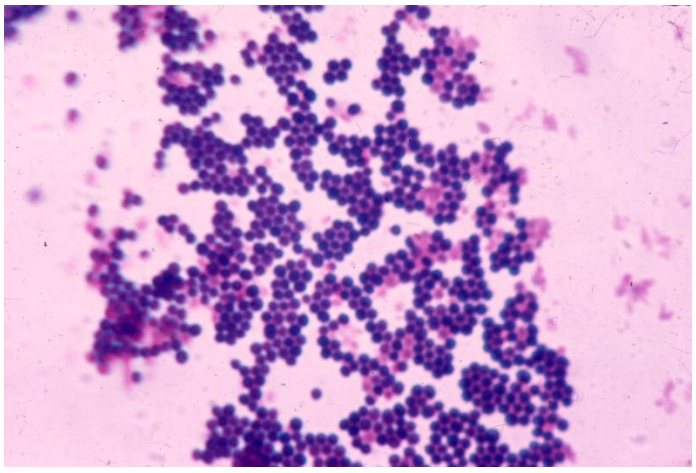
Corynebacterium diphtheriae (Gram-positive bacilli in "Japanese kanji characters"). These bacteria cause the respiratory disease **diphtheria**.

Clostridium



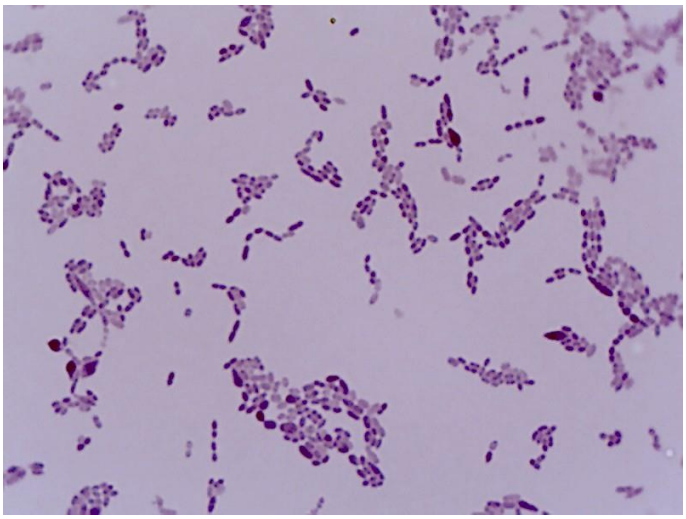
Clostridium (Gram-positive bacilli with endospores) bacteria**.** These bacteria cause diseases such as **tetanus**, **botulism**, **gas gangrene**, and "**Cdiff**." The round, hollow structures are endospores.

Staphylococcus aureus



Staphylococcus aureus (small, Gram-positive staphylococci, or cocci in clusters). These bacteria cause diseases such as **MRSA**, **toxic shock syndrome**, and **abscesses**.

Streptococcus



Streptococci (small, Gram-positive streptococci, or cocci in chains). These bacteria cause diseases such **as pneumonia**, **"strep throat"** (**pharyngitis**), and **dental caries.**