

Foundation Block

Introduction to Parasitology

DEFINITIONS

- **Infection:**
 - The entry , development and multiplication of an infectious agent in the body of humans or animals. The result may be:
 - **inapparent (asymptomatic) infection, or**
 - **manifest (symptomatic) infection..**

OBJECTIVES

By the end of this lecture the student should be able to:

- 1. Define common terms describing host-parasite relationship.**
- 2. Outline the broad classification of parasites.**
- 3. Name examples of protozoan parasites.**
- 4. Describe the life-cycle of *Giardia lamblia* as an example of intestinal protozoa.**
- 5. Describe the main stages of the life-cycle of *Plasmodium* as an example of blood and tissue protozoa.**

DEFINITIONS

- **Host:**
 - A person or other living animal which harbours an infectious agent under natural conditions .
- **Definitive host:**
 - (primary host) a host in which the parasite passes its sexual stage.
- **Intermediate host:**
 - (secondary host) a host in which the parasite passes its larval or asexual stages.

DEFINITIONS

- **carrier:**
 - A person or animal that harbours a specific infectious agent in the absence of discernible clinical disease and serves as a potential source of infection
- **pathogenesis:**
 - Production and development of disease.
- **pathogenicity:**
 - Capability of an infectious agent to cause disease in a susceptible host.

DEFINITIONS

- **Parasitism:**

- A relationship in which an organism (the parasite) benefits from the association with another organism (the host) whereas the host is harmed in some way.

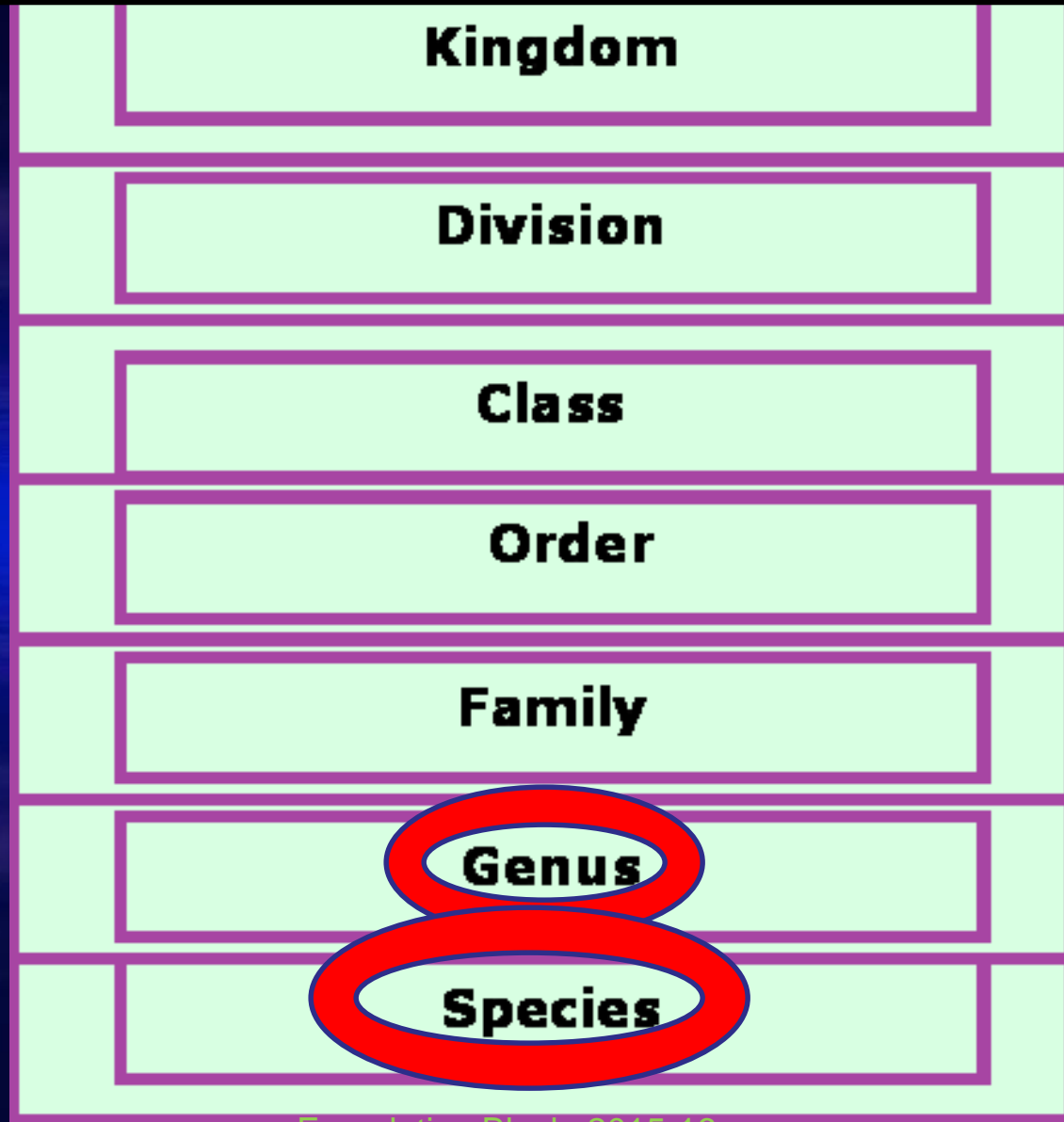
- **commensalism:**

- Kind of relationship in which one organism, the commensal, is benefited whereas the other organism, the host, is neither harmed or helped by the association.

DEFINITIONS

- **ectoparasite:** parasite that lives on the outer surface of its host.
- **endoparasite:** Parasite that lives inside its host.
- **zoonosis:** Disease of animals that is transmissible to humans .

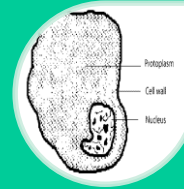
Scientific names of parasites follow Zoological Classification



CLASSIFICATION OF PARASITES

| PROTOZOA | HELMINTHS |
|--|---|
| <p>Unicellular Single cell for all functions</p> | <p>Multicellular Specialized cells</p> |
| <p>1:Amoebae: move by pseudopodia. 2:Flagellates: move by flagella. 3:Ciliates: move by cilia 4:Apicomplexa(Sporozoa) tissue parasites</p> | <p><u>Round worms (Nematodes):</u> - elongated, cylindrical, unsegmented. <u>Flat worms :</u> - Trematodes: leaf-like, unsegmented. - Cestodes: tape-like, segmented.</p> |

Parasitic Protozoa



Intestinal



Blood and tissues



Examples of Diseases caused by Intestinal Protozoa

Parasite

Disease

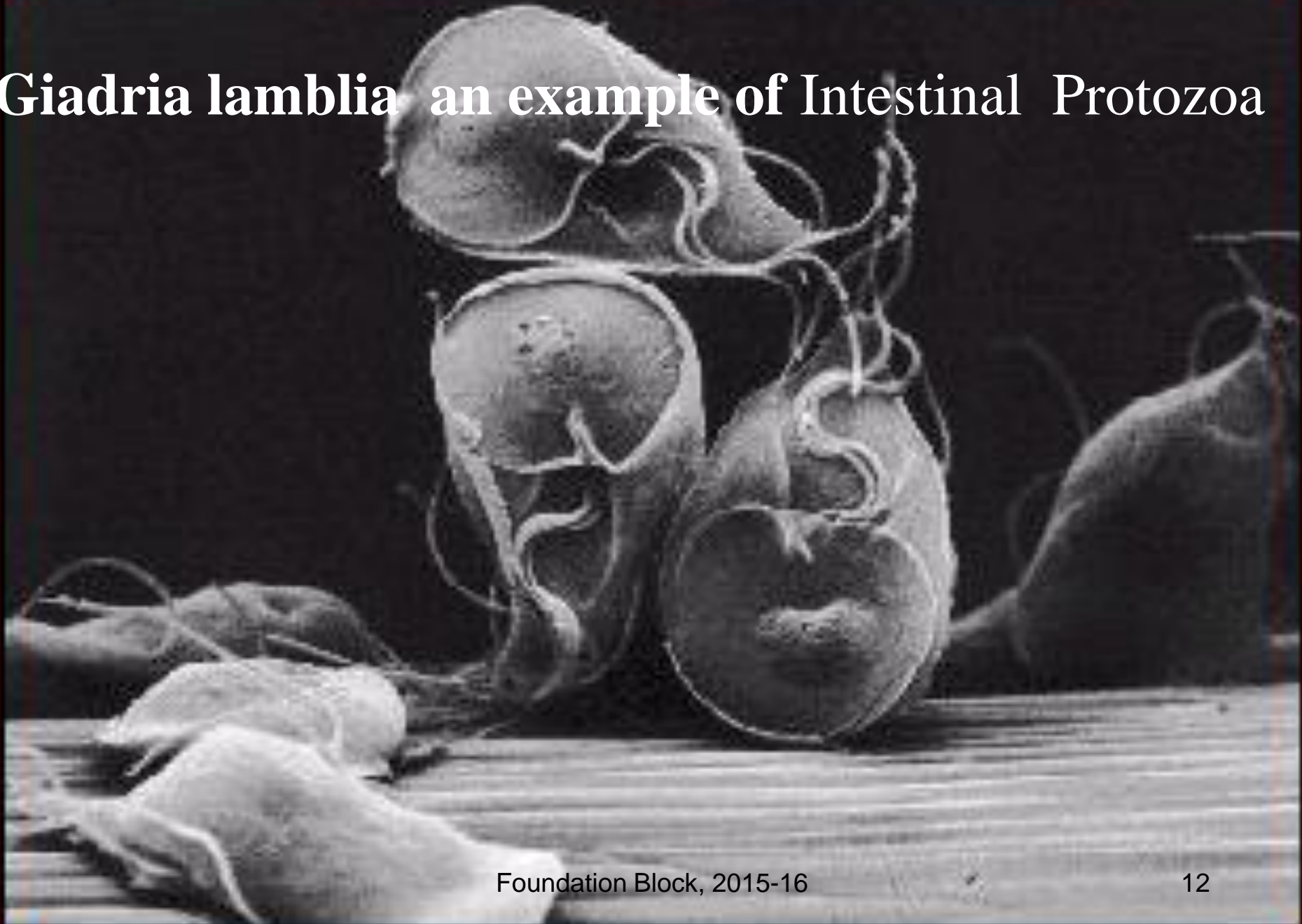
Giardia lamblia

giardiasis

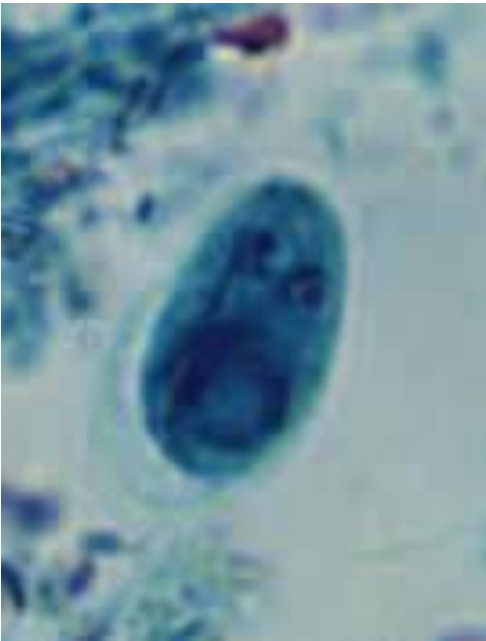
Entamoeba histolytica

amoebiasis

Giardia lamblia an example of Intestinal Protozoa

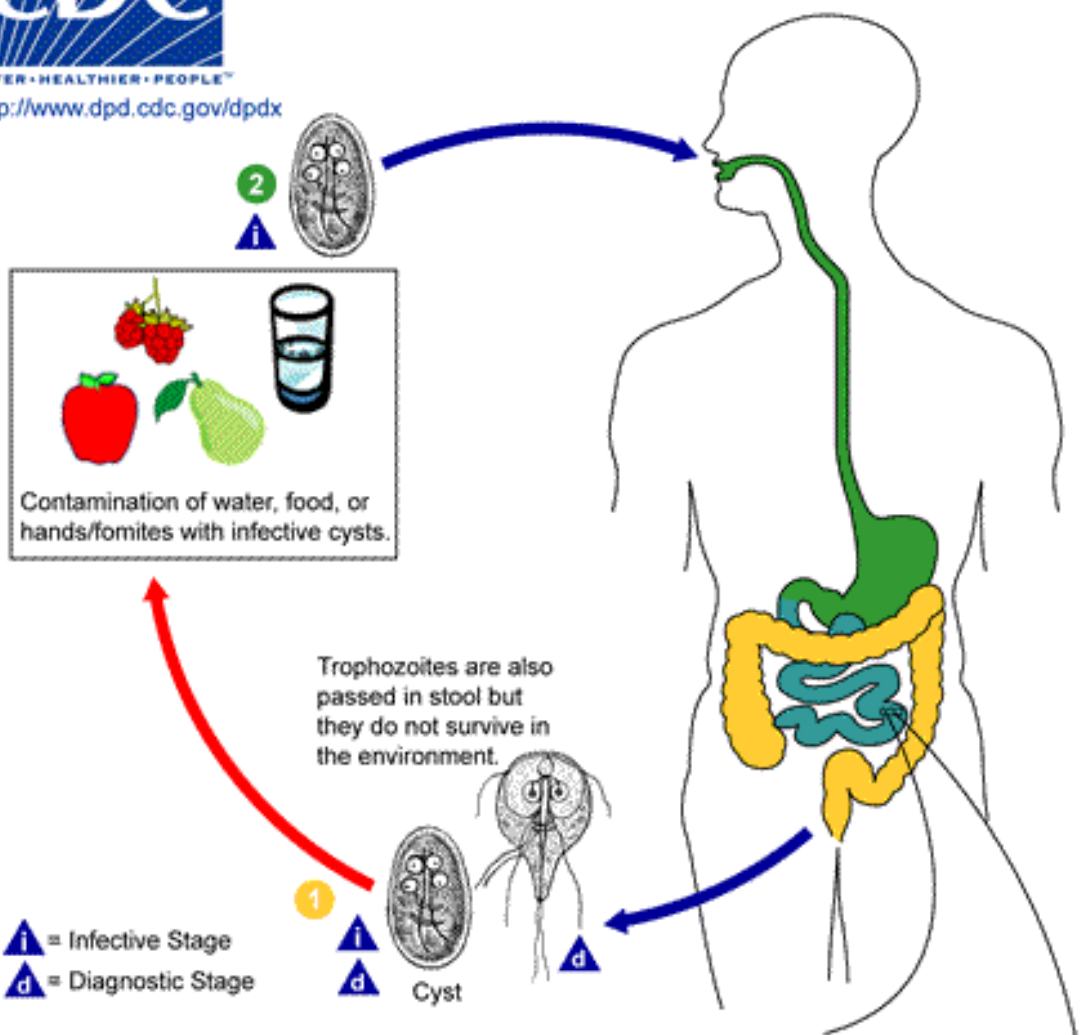


***Giardia* cyst**



***Giardia* trophozoite**

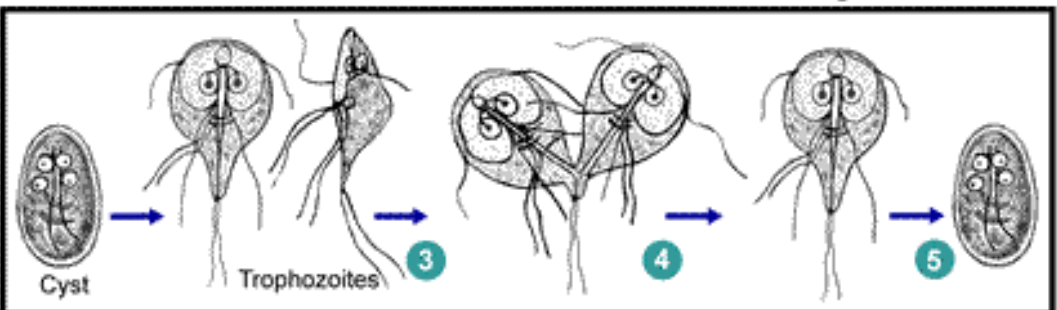




Giardia lamblia

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Life cycle



Examples of Diseases caused by Blood and Tissue Protozoa

Parasite

Disease

Plasmodium spp

malaria

Malaria Species

Four species of malaria :

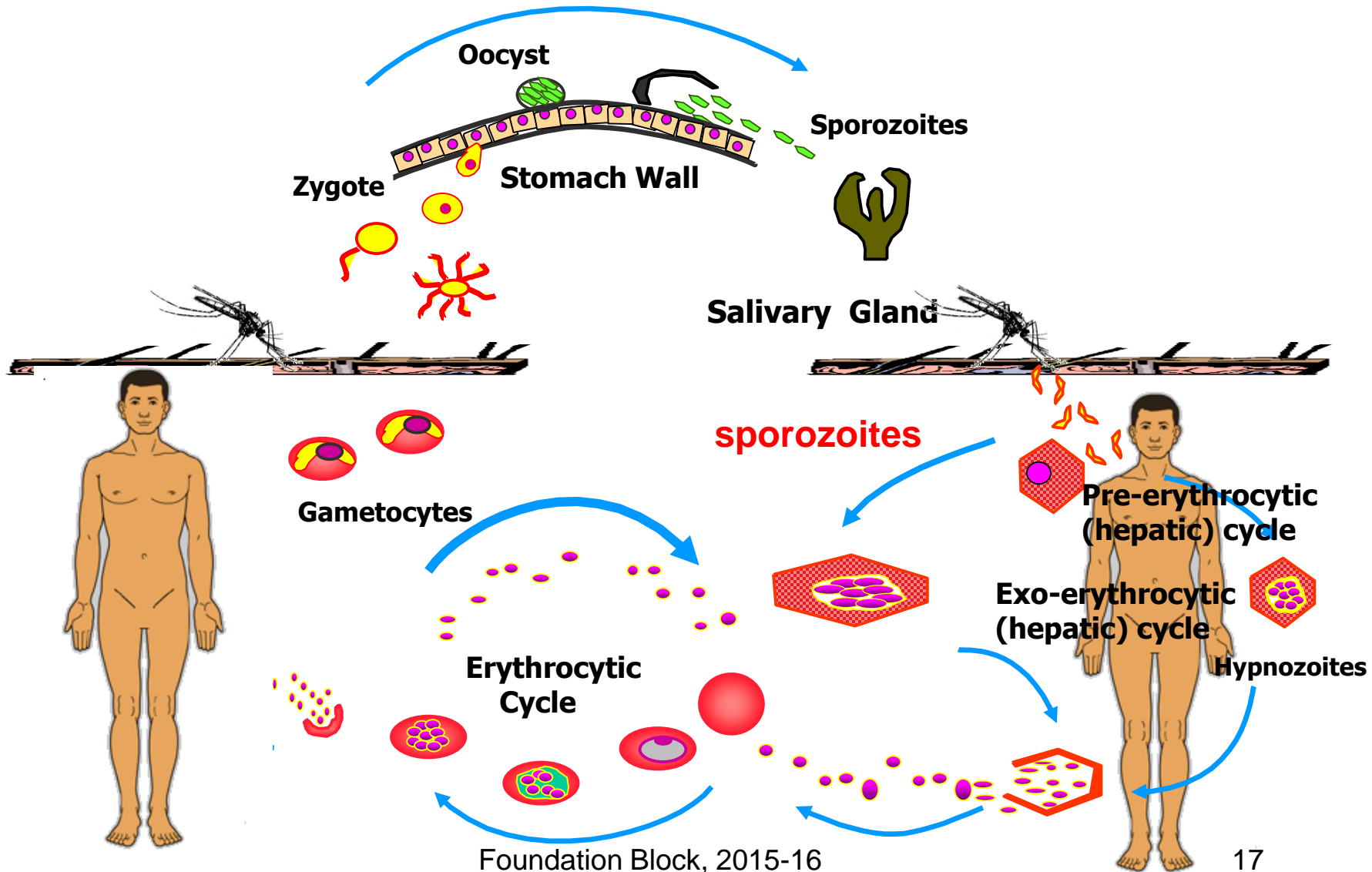
Plasmodium falciparum

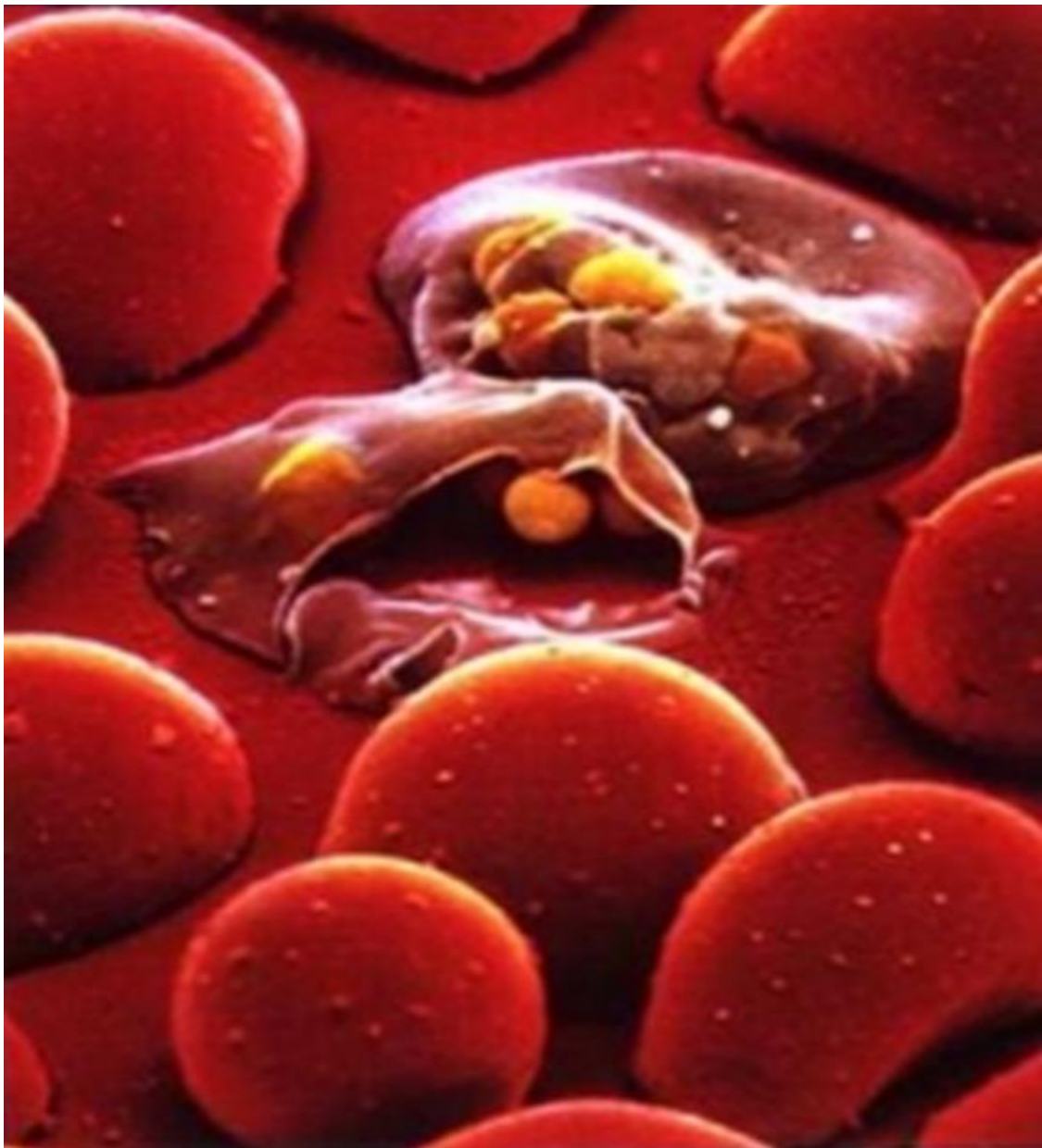
Plasmodium vivax

Plasmodium ovale

Plasmodium malariae

LIFE CYCLE OF MALARIA





**Malaria parasites
inside red blood cells**

Examples of Diseases caused by Blood and Tissue Protozoa

Parasite

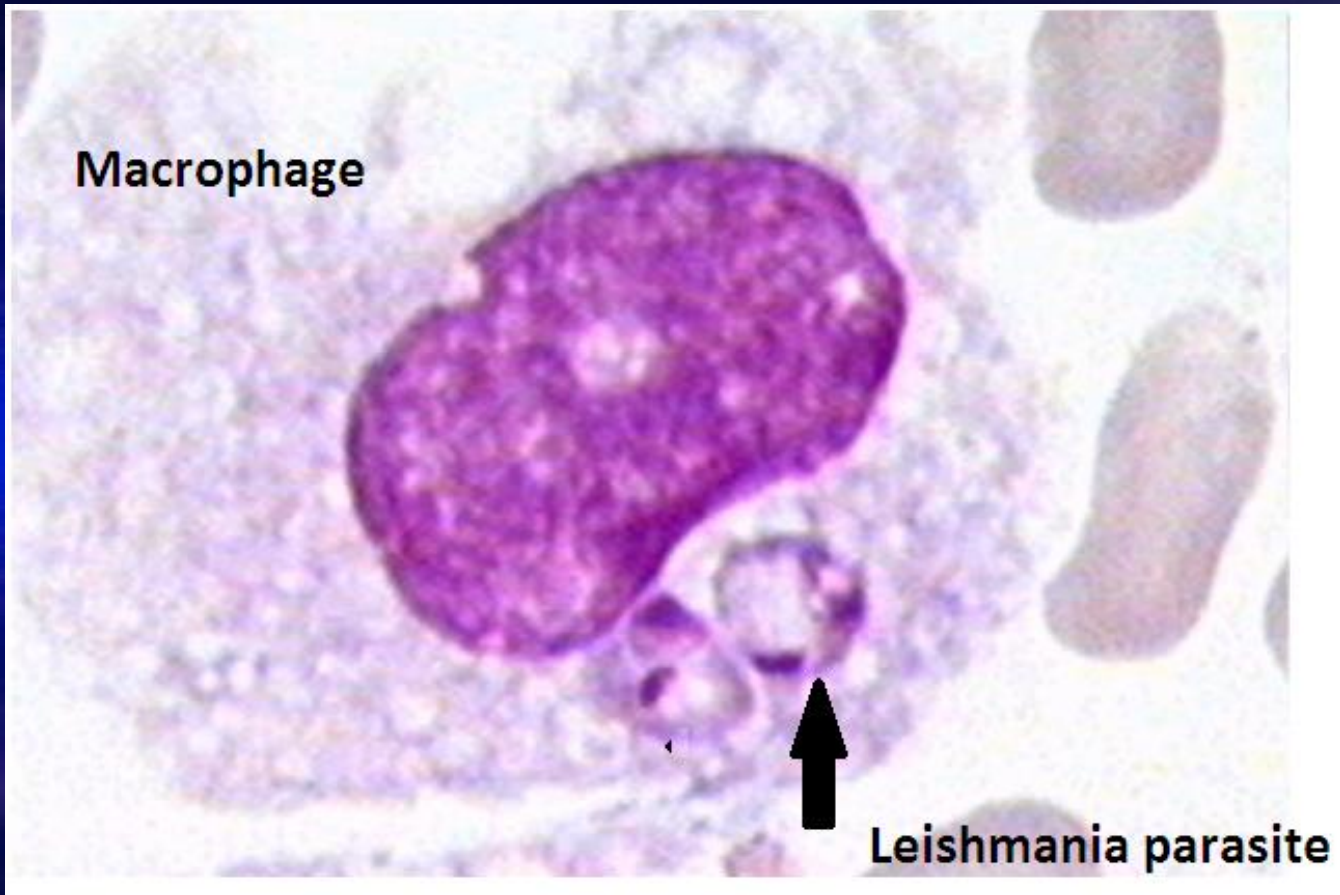
Disease

Leishmania major

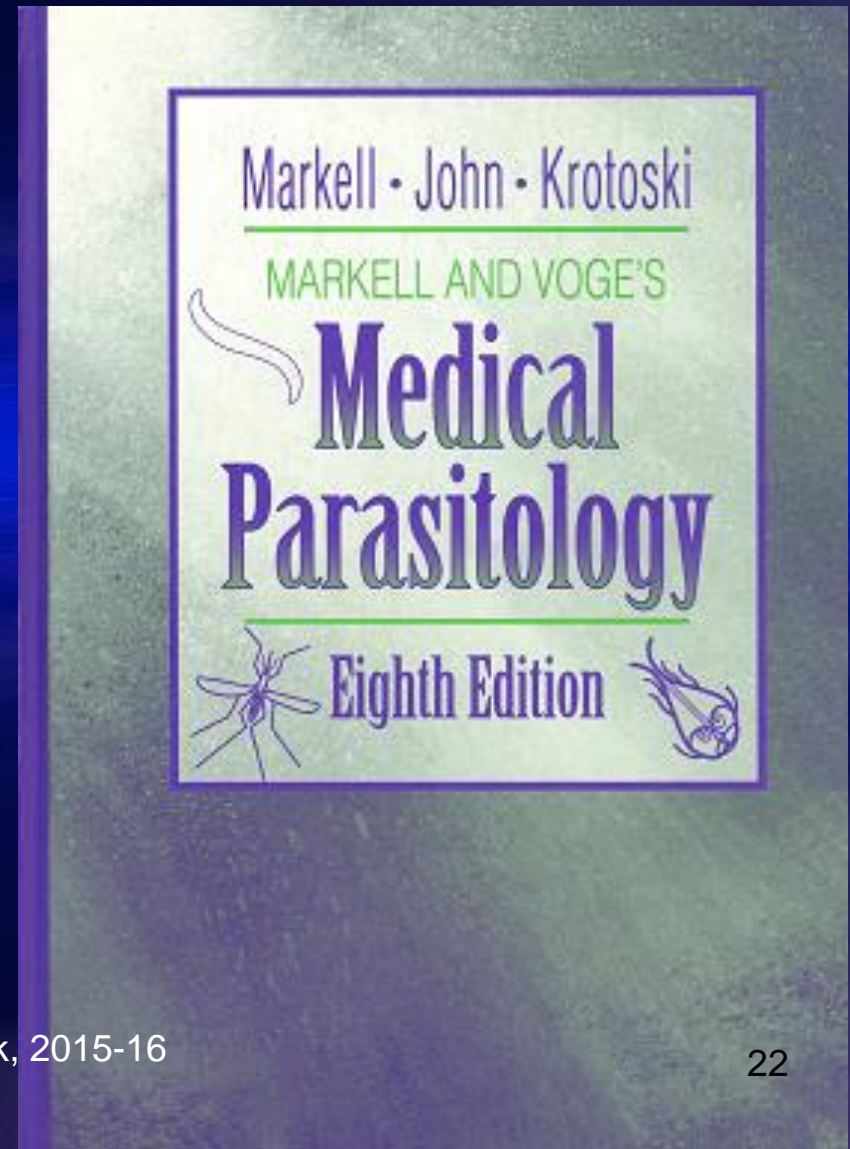
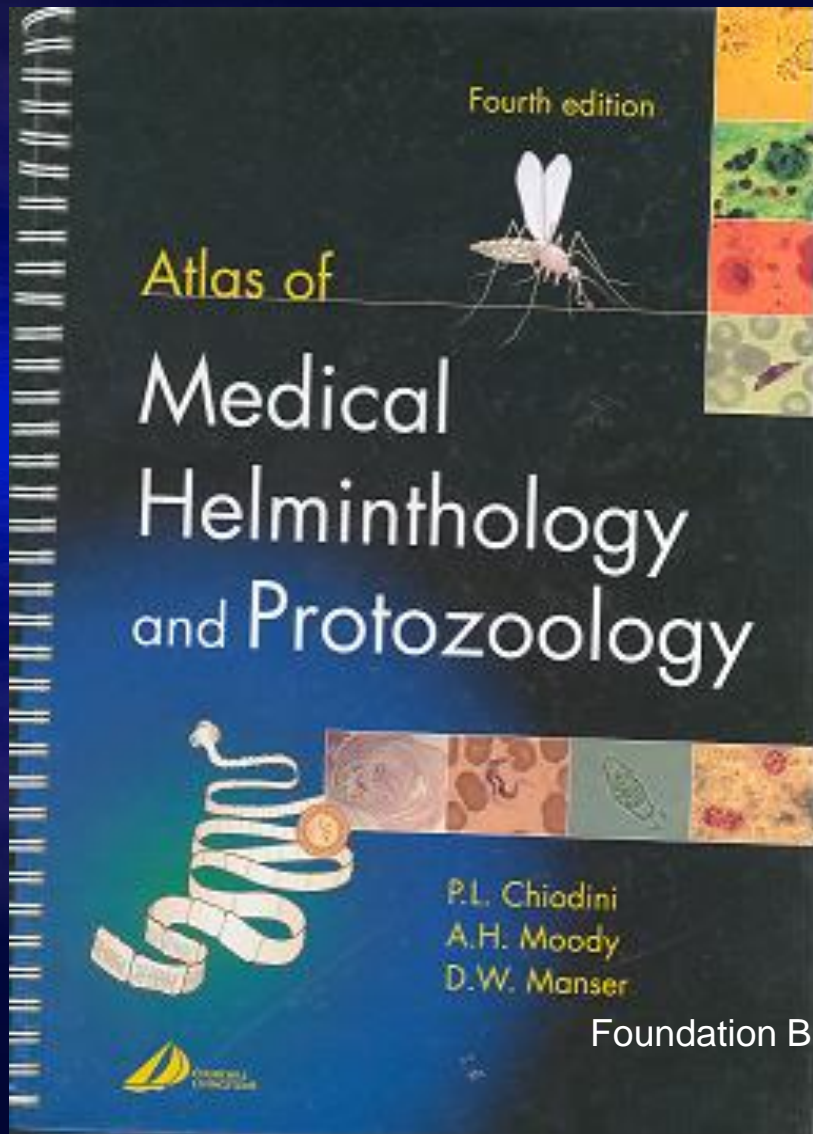
Cutaneous leishmaniasis

Cutaneous leishmaniasis caused by *Leishmania major*





Resources on Parasitology



Resources on Parasitology

Centre for Disease Control and Prevention (CDC) :

http://www.dpd.cdc.gov/DPDx/HTML/Para_Health.htm