

**Mustansiriyah University**

**College of science**

**Biology Dept.**

**Zoology**

**4th class**

**Zoonoses lab. (6)**

- A} Intestinal ----- 1) *E. histolytica*  
2) *G. lamblia*  
3) *Cryptosporidium*
- B} Urogenital Tract----- *Trichomonas vaginalis*
- C} Blood and Tissue----- 1) *Plasmodium*  
2) *Toxoplasma*  
3) *Trypanosoma*

# TOXOPLASMOSIS

**TOXOPLASMOSIS** :-It is an infection caused by the parasite

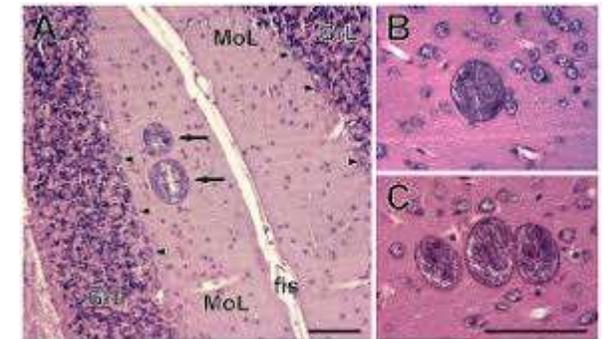
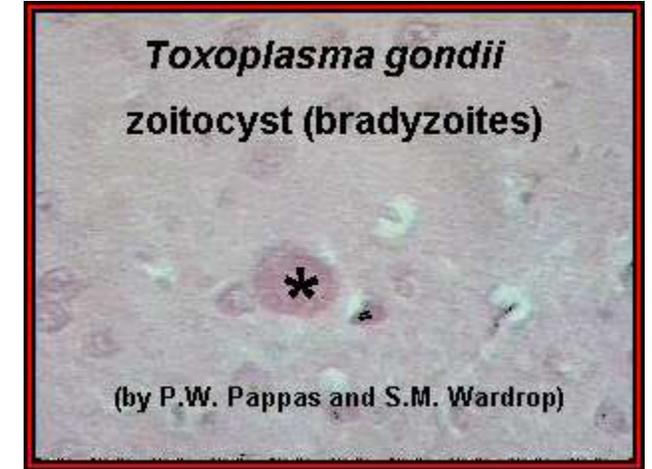
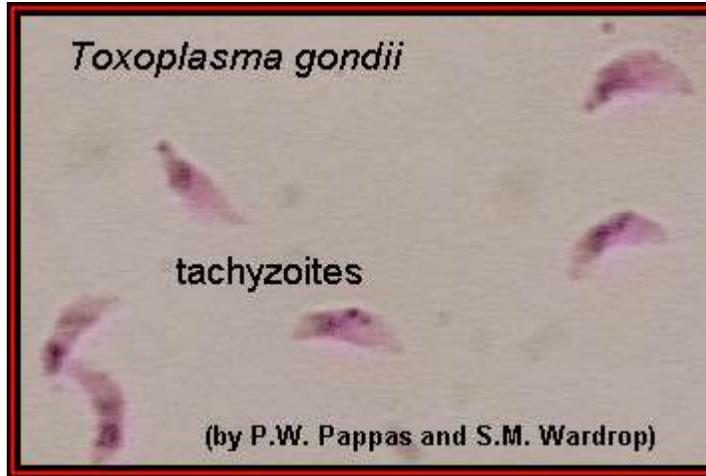
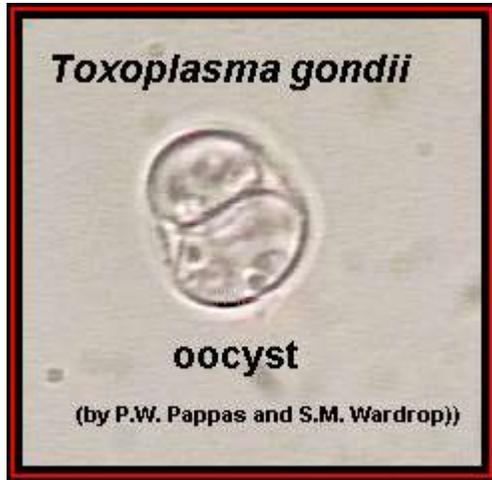
*Toxoplasma Gondii*.

- The protozoan *Toxoplasma gondii*, is a coccidian, intracellular parasite responsible for zoonotic infections in man and other mammals

- ❑ A disease of the blood and lymphatic system.
- ❑ **Cats** are a critical part of the life cycle.
- ❑ It is usually acquired by eating undercooked meats but can also be acquired by contact with cat feces.
- ❑ Primary problem is a **congenital infection of fetus**, resulting in either a stillbirth or a child with severe brain damage or vision problems.
- ❑ The normal final host is **cat** and relatives in the family.

Life Cycle: Two phases  
Intestinal and extra intestinal

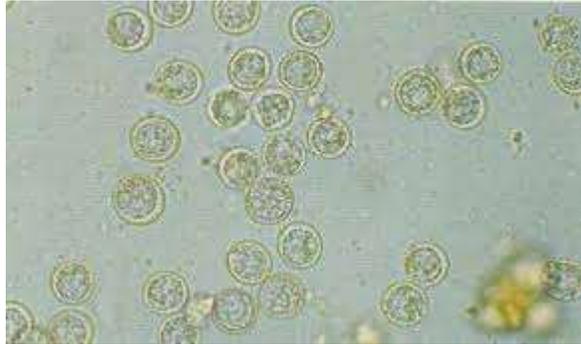
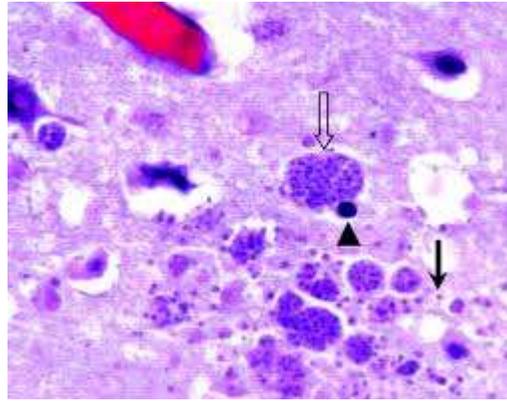
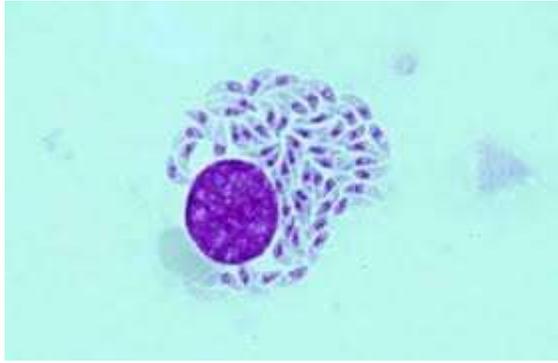
- 1} Oocysts- Only members of the cat family shed oocysts
- 2} Trophozoites- Tachyzoites are the actively proliferating trophozoites, which are observed during the acute stage of infection.
- 3} Tissue cysts (bradyzoites): Tissue cysts are found most commonly in the brain and in skeletal and cardiac muscle but can occur in any organ.

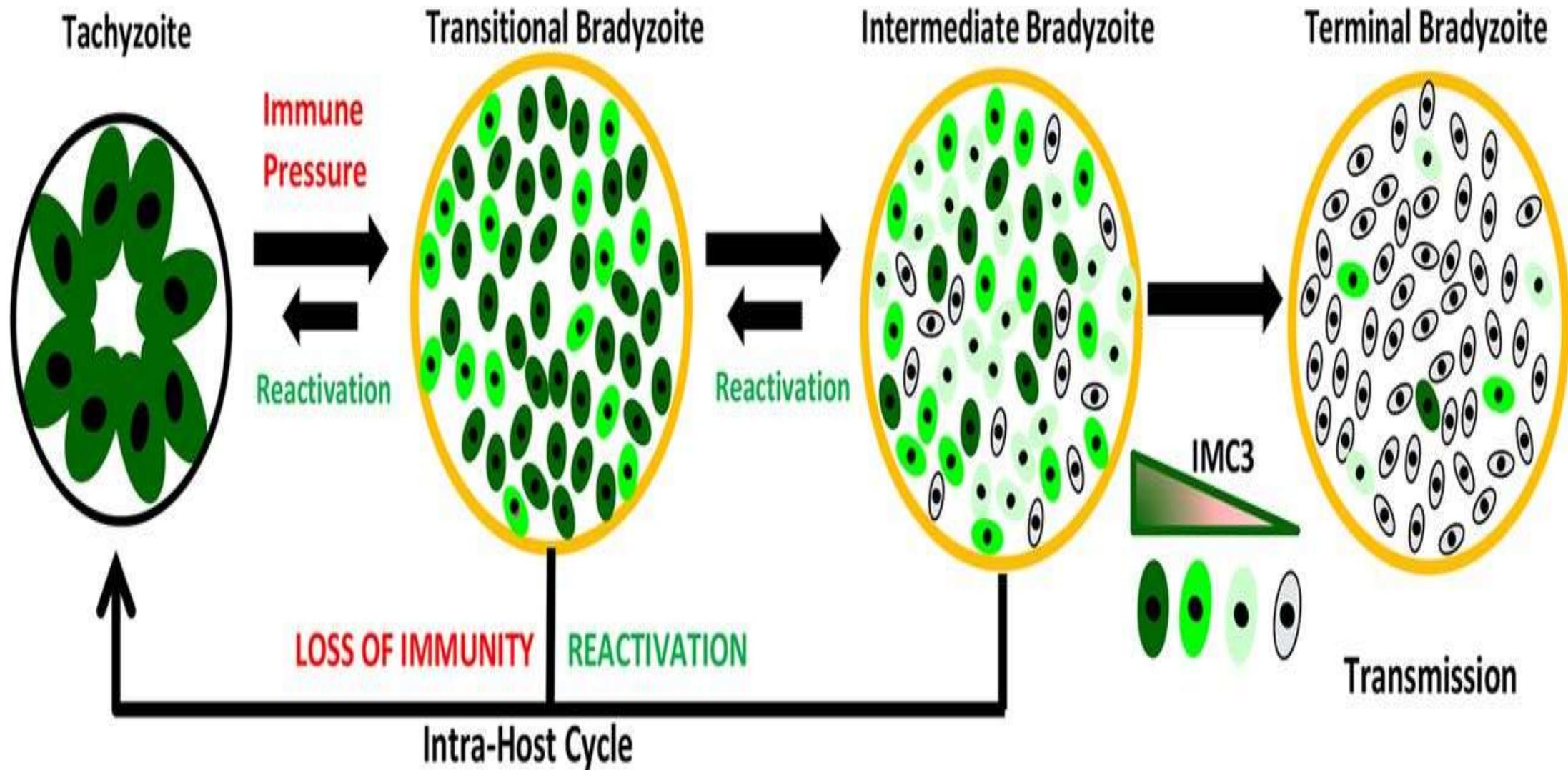


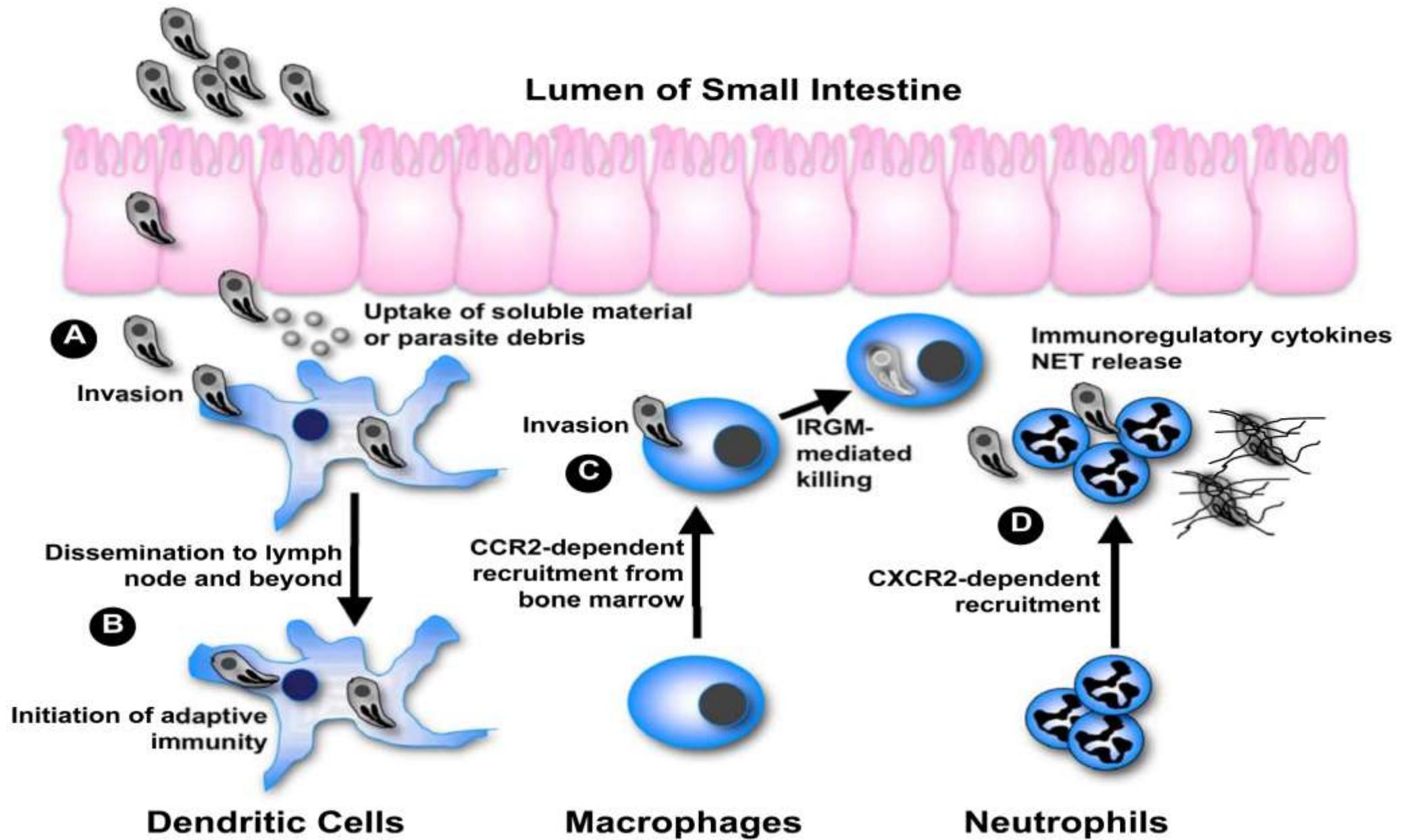
Oocysts  
{**cat**}

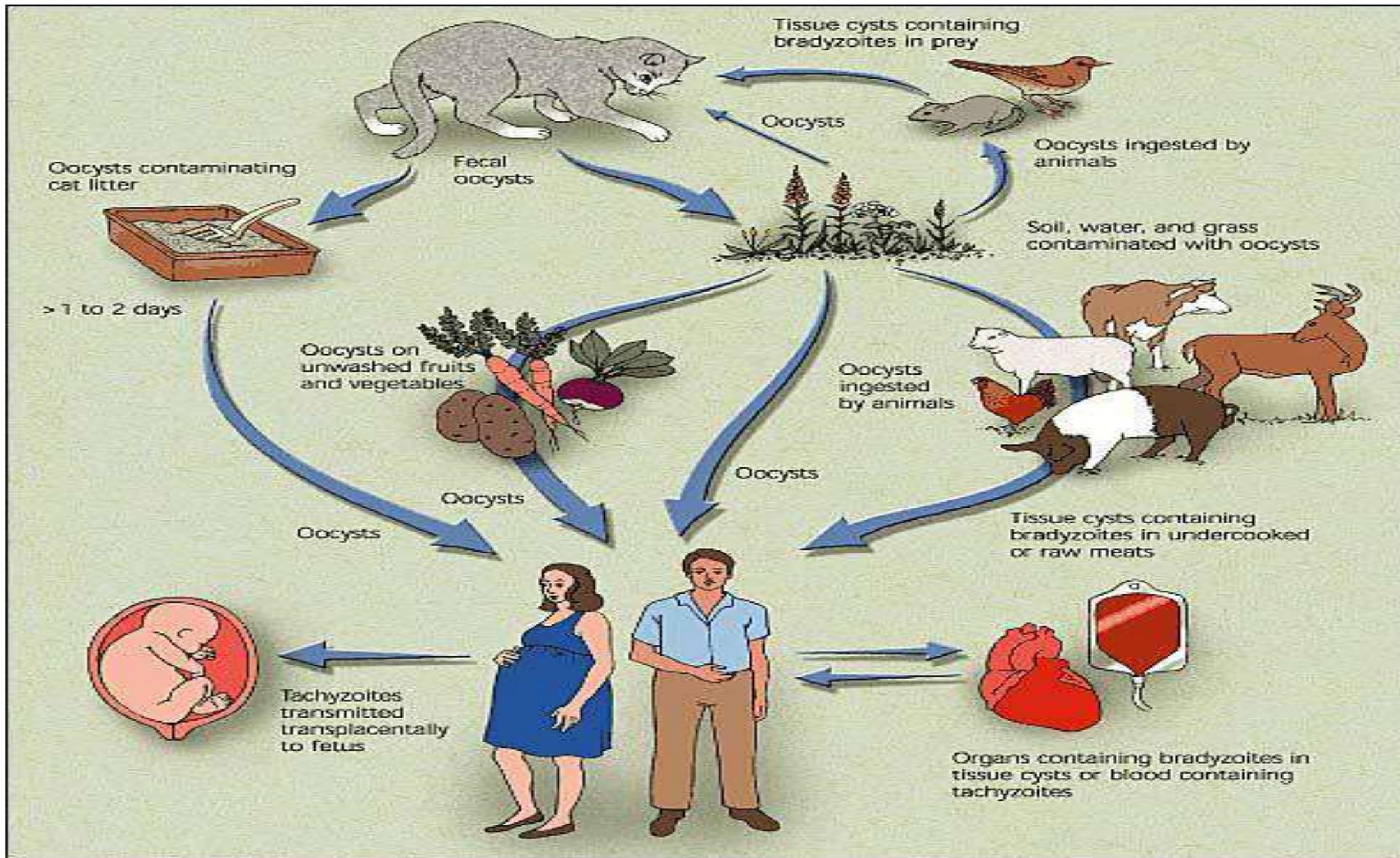
Trophozoites-

Tissue cysts





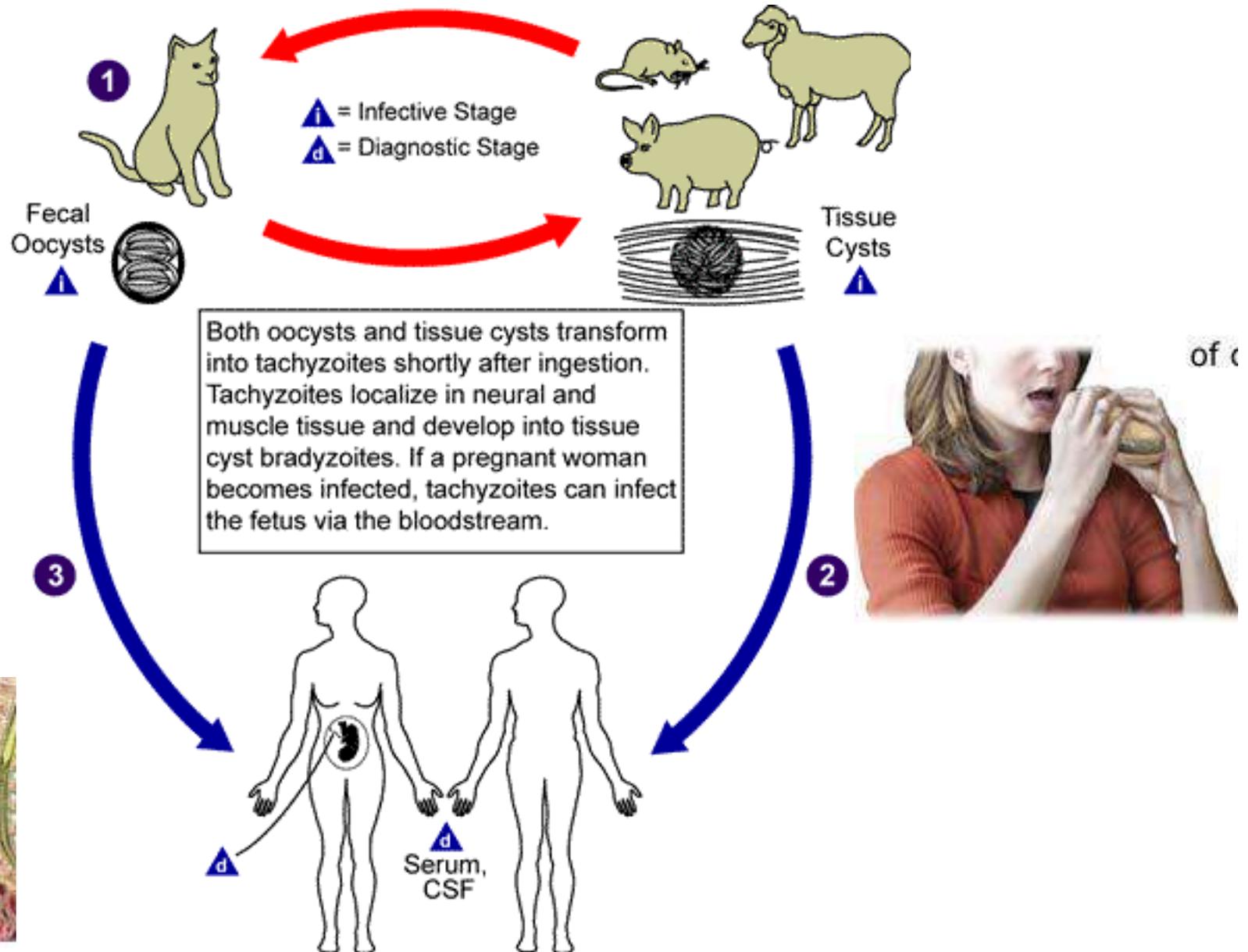




## Sporozoite



## Tachyzoite



## Signs and Symptoms:

- Fever
- Sore throat
- Sore muscles
- Tiredness
- Swollen glands
- Temporary blurred vision or loss of vision

Development in Cat: -Organisms ( either sporozoites from Oocysts or Bradyzoites from tissue cysts ) invade the muscle cells of cats small intestine. oocysts develop exit from the host cells into the gut lumen of the cat and pass out via feces

### Structure of Sporozoites:-

- ❑ In each Oocysts **two** sporocysts form and in about 48 hours four sporozoites form within sporocyst.
- ❑ The Oocyst with its each Sporozoites when ingested can either repeat its sexual cycle in a Cat

## Events on Development in man :-

- ❑ When man ingests Oocysts with eight Sporozoites excreted in Cats feces, can establish an infection and reproduces Asexually
- ❑ In humans Oocysts open in duodenum and releases eight Sporozoites which pass through the gut wall.
- ❑ Circulate in body and invade various cells.

# Implications on Human Health

In Humans produces

1. Congenital Toxoplasmosis
2. Post natal Toxoplasmosis



A fetus may contract toxoplasmosis through the placental connection with its infected mother

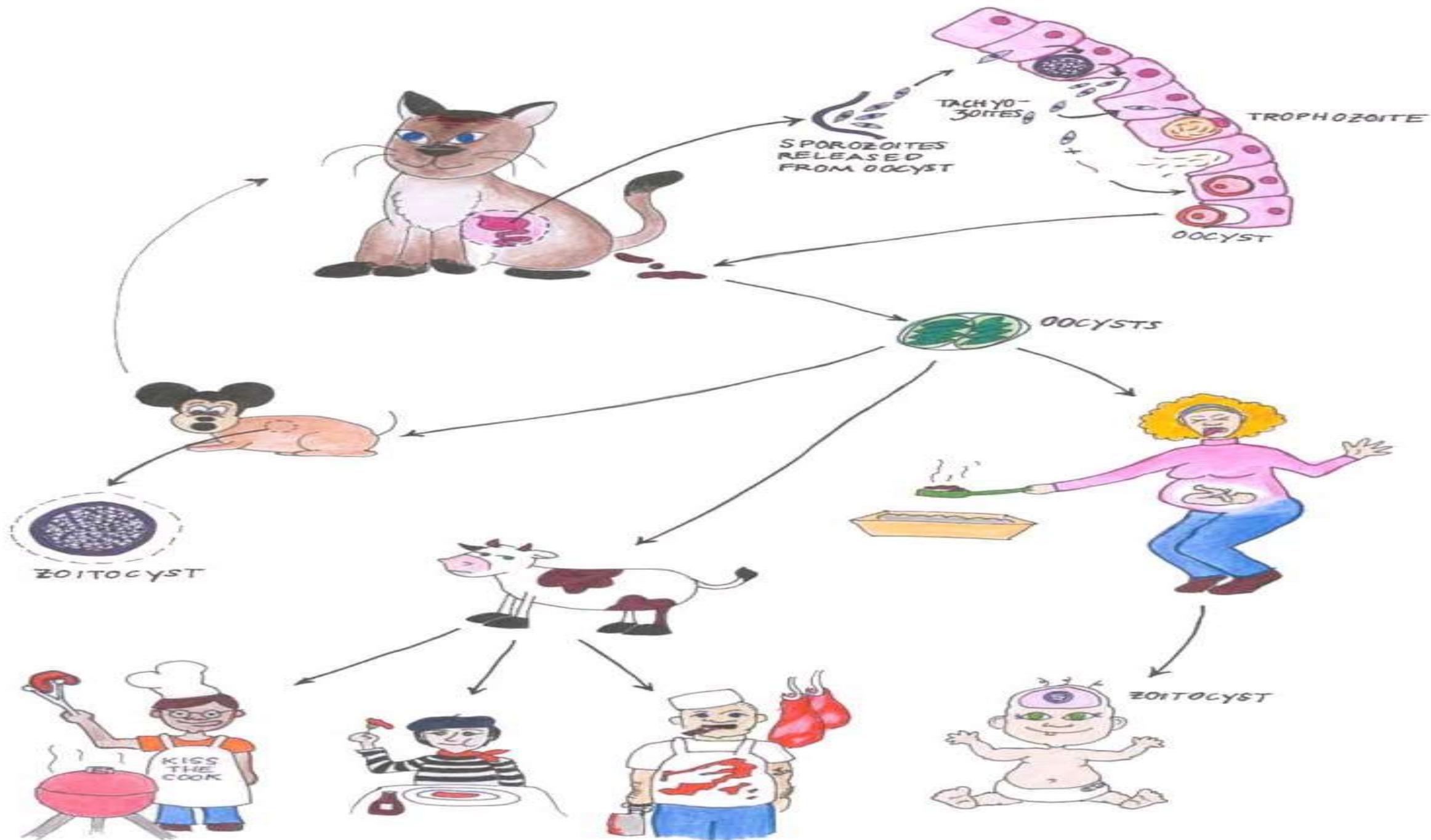
The mother may be infected by:

Improper handling of cat litter



Handling or ingesting contaminated meat





## Diagnosis:

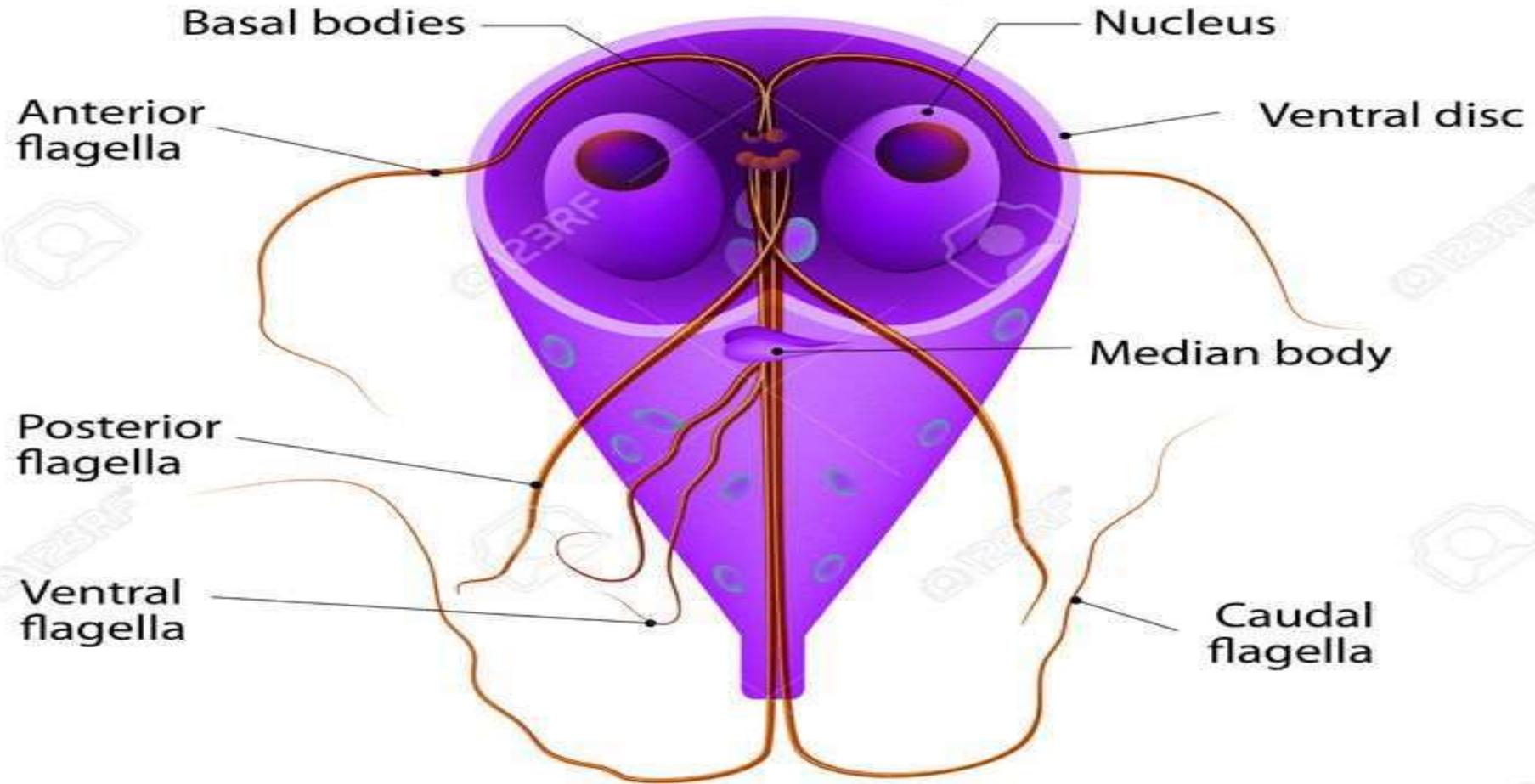
- Serological tests
- Polymerase chain reaction (PCR)
- Histological demonstration of the parasite and or its antigens (i.e. immunoperoxidase stain)
- Isolation of the organism

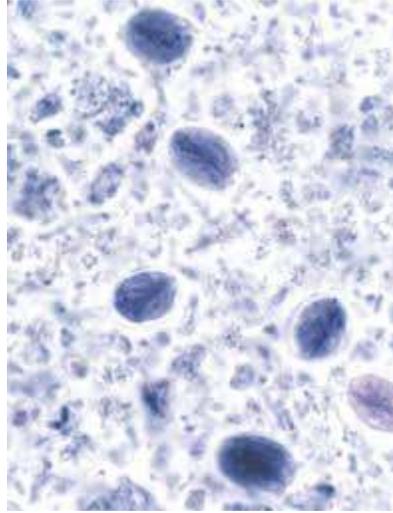
# GIARDIA LAMBLIA

Giardiasis is an infection that occurs in the intestinal region of the body, primarily targeting the stomach and small intestine.

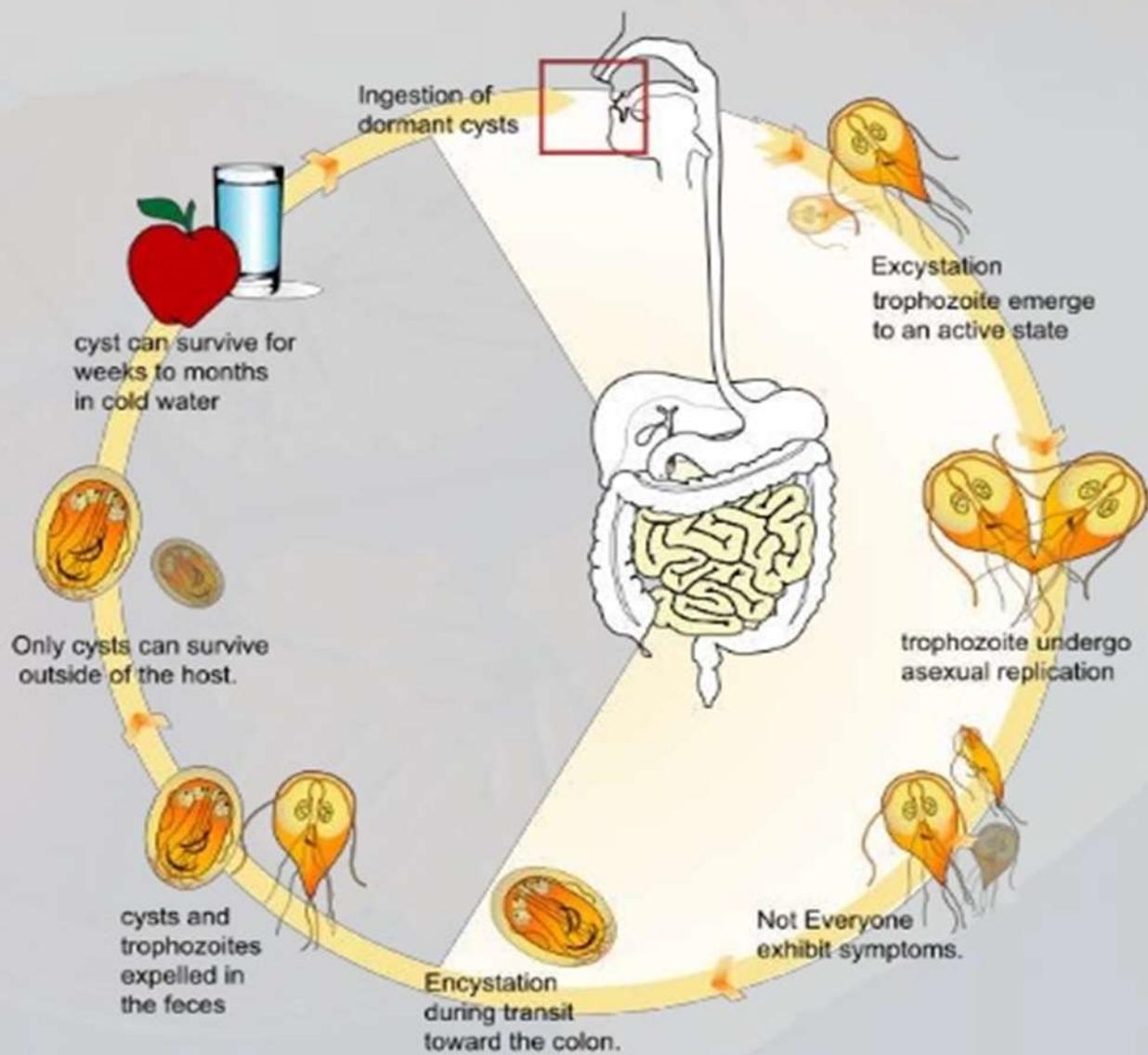
- Mainly caused by *Giardia lamblia* also known as *Giardia intestinalis*
- Most commonly found in the mucosa of the small intestine that are lined with enterocytes, the simple columnar epithelial cells.
- Spreads through contact with infected people, eating contaminated food & water.
- Pet dogs & cats also frequently contract Giardiasis.

# GIARDIA



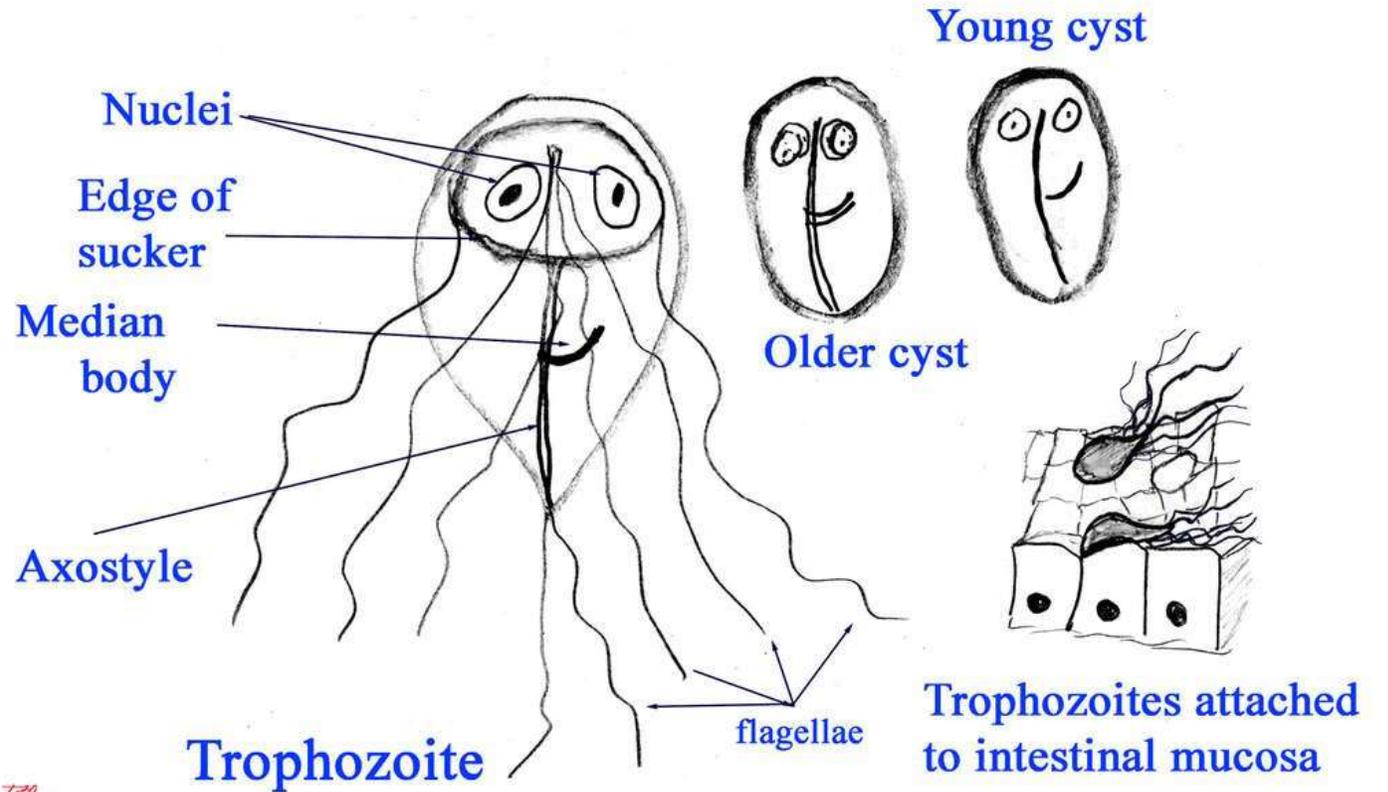
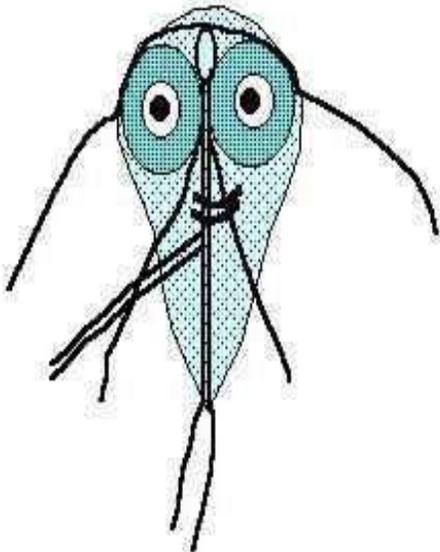


# Life cycle



# MORPHOLOGY

Two stages:  
1} Trophozoite  
2} cyst



# Symptoms

- ❑ Incubation period: 1-25 days
- ❑ Most infections asymptomatic
- ❑ Symptoms of clinical disease
  - ❖ Mild to severe gastrointestinal signs
    - Sudden onset diarrhea
    - Foul-smelling stools
    - Abdominal cramps
    - Bloating, flatulence
    - Nausea, fatigue
    - Weight loss

# Diagnosis

## 1 } Direct observation in feces

### ➤ Trophozoites

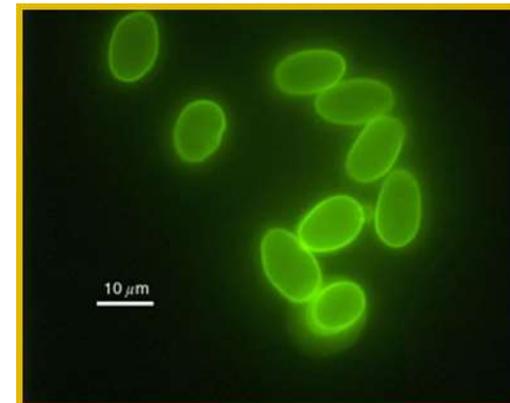
- "Tear drop" shape
- Two nuclei and tumbling mobility

### ➤ Cysts

- Approximately 13 microns long
- Oval, with 2-4 nuclei

## 2} Immunofluorescence

## 3} ELISA, PCR





**Trophozoites**



**Cysts**



**Cysts**