

# **Classification of Medical Parasitology**

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## **Objectives:**

**\*Outline classification of medically important parasites.**

**Medical Parasitology is generally classified into:**

- **Protozoology** - Deals with the study of medically important Protozoa (unicellular organisms) .
- **Helminthology**- Deals with the study of helminths (multicellular organisms), that affect man.

## 1-Protozoa :

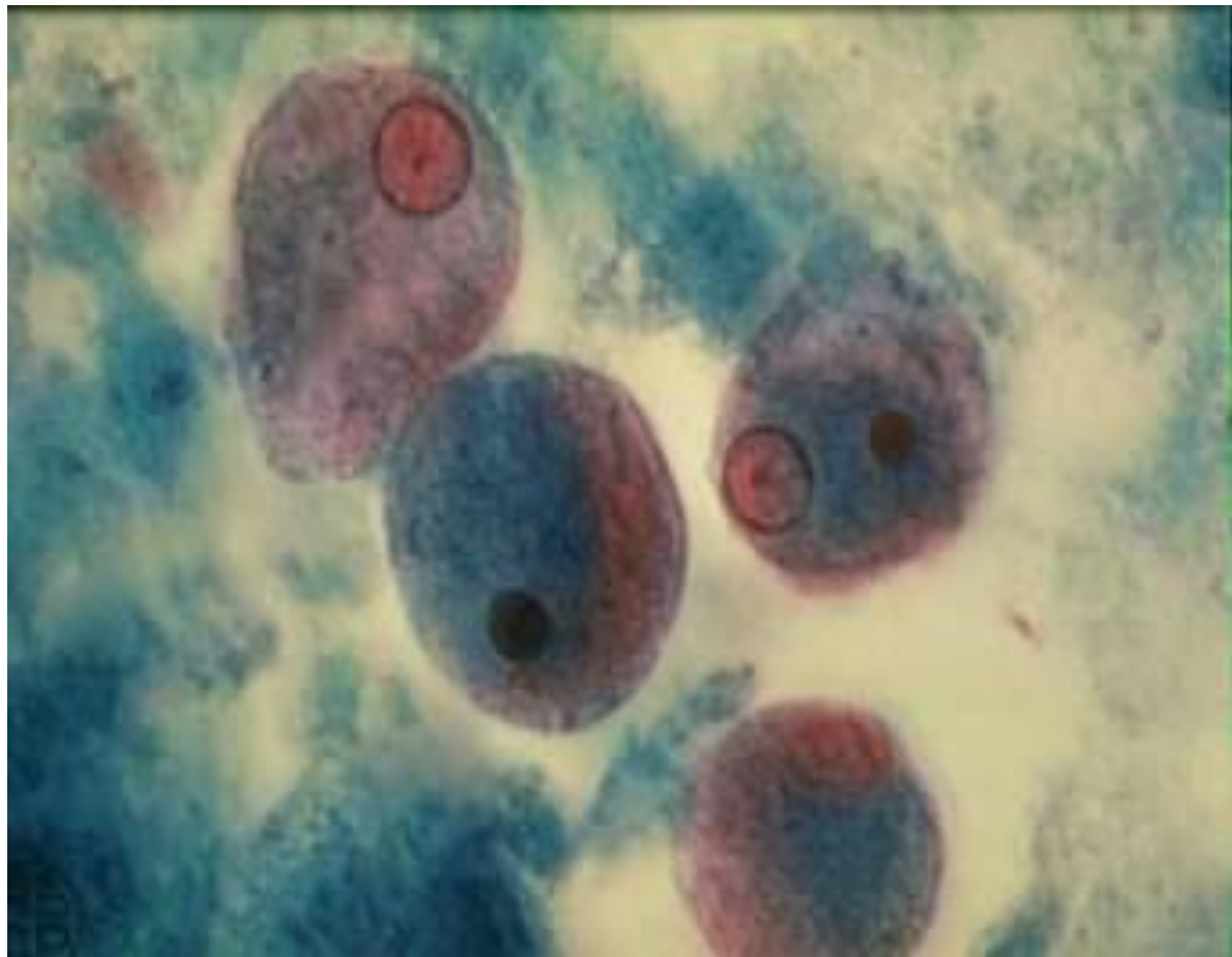
The protozoa are a diverse group of unicellular eukaryotic organisms, with animal-like behaviors, such as motility and predation live in the host and gets its food from its host. Parasitic protozoa vary in size.

- \* It is contain membrane-bound nucleus and cytoplasm.

- \*The cytoplasm is divided into:

- \* Inner form (endoplasm)

- \*Outer form (ectoplasm)



**\*it can be classified according to the methods of movement and reproduction :**

<b>Class</b>	<b>Organelles of Locomotion</b>	<b>Method of Reproduction</b>
<b>Rhizopods</b>	<b>Pseudopods</b>	<b>Binary fission</b>
<b>Ciliates</b>	<b>Cilia</b>	<b>Binary fission</b>
<b>Flagellates</b>	<b>Flagella</b>	<b>Binary fission</b>
<b>Sporozoans</b>	<b>None</b>	<b>Schizogony/gametogony</b>

Table 14.2 Microbiology: A Clinical Approach (© Garland Science)

\*Transmission : Mostly person-to-person, via :  
-Fecal-oral rout: Fecally contaminated food or water ( *Blastocystis hominis* ).



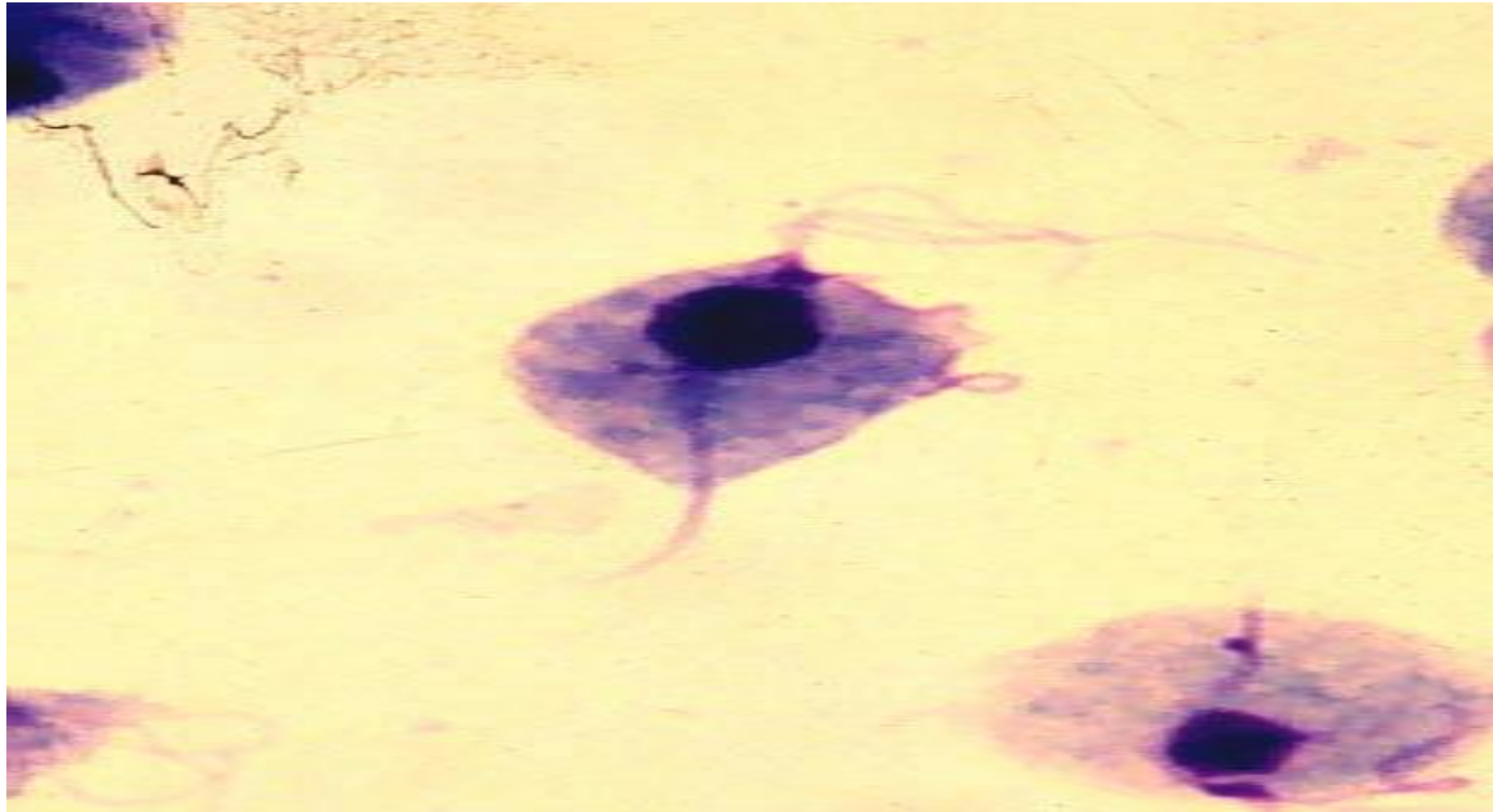


\*Transmission : person-to-person by :  
-Insect bites (leishmania tropica )



\*Transmission via:

- Sexual contact (*Trichomonas vaginalis*).





\*Transmission via:

-Insect feces (*Trypanosoma cruzi*).

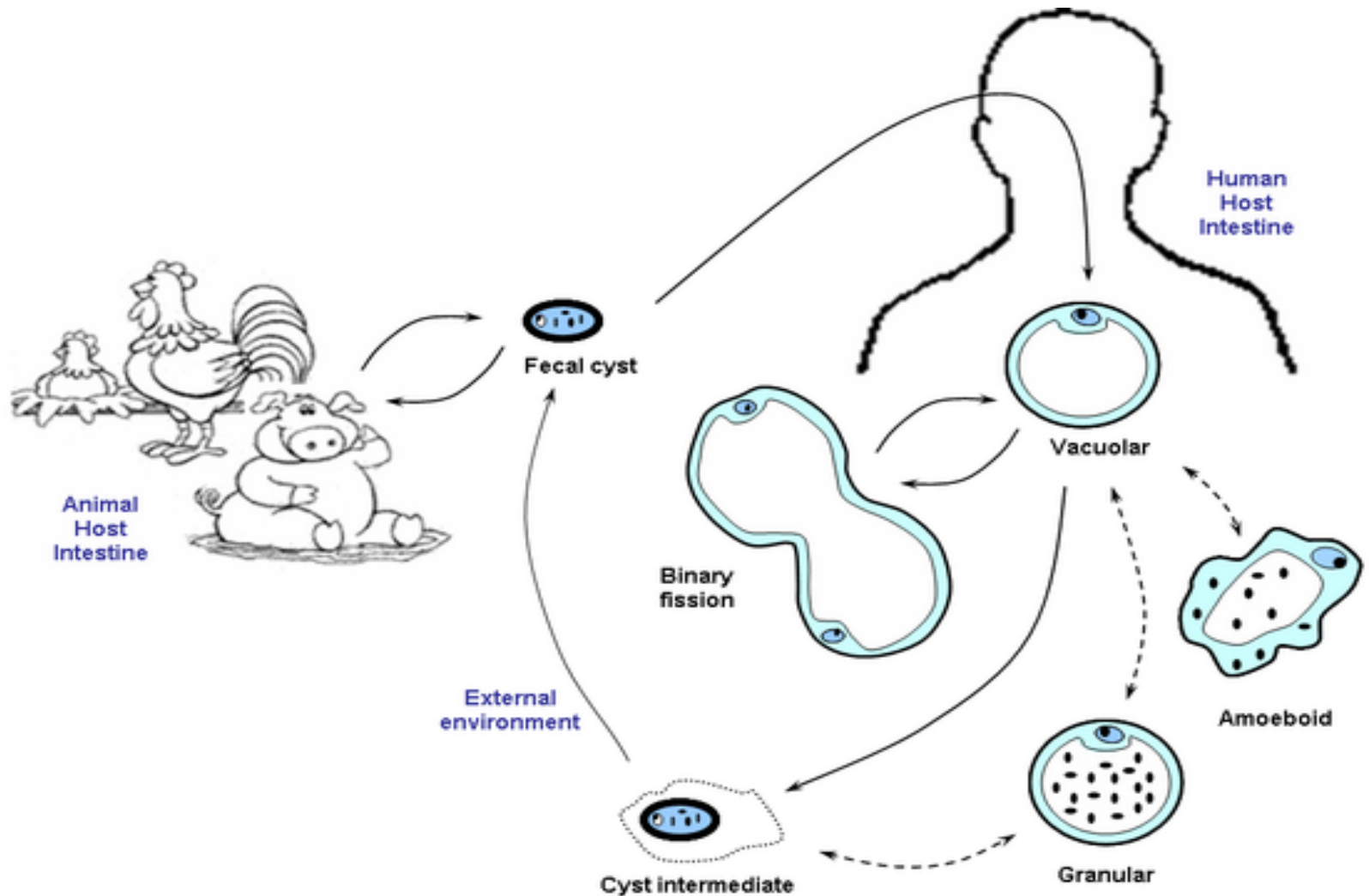


## \*Stages of life cycle :

-Trophozoite stage : The motile vegetative stage, colonize the host, multiplies by binary fission ( longitudinal binary fission such as in flagellates or transverse binary fission such as in ciliates).

-Cyst stage : The non-motile, infective stage; survive in the environment due to the presence of a cyst wall. Cysts cant multiply .

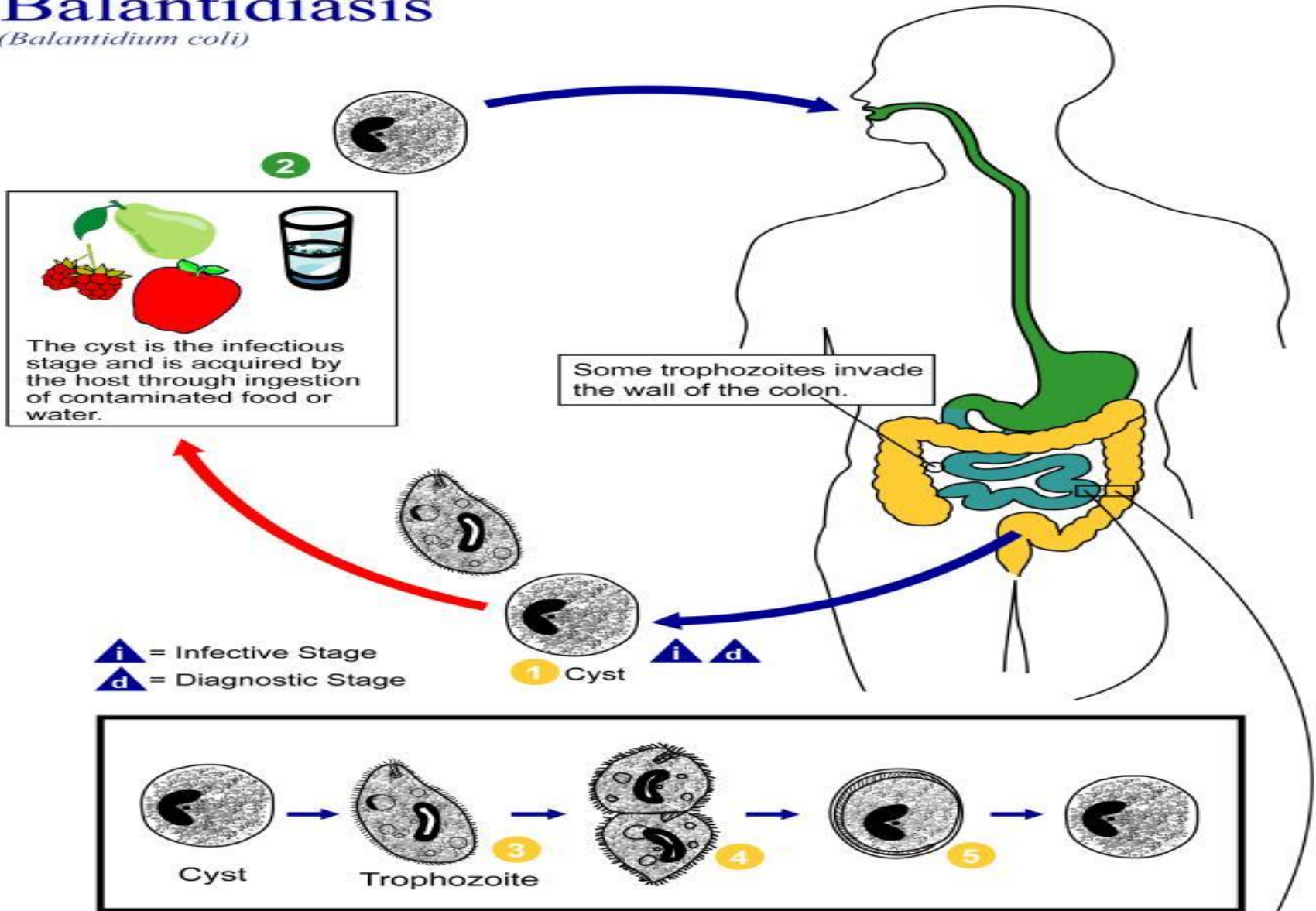
# Life Cycle of *Blastocystis hominis*



# Life Cycle:

## Balantidiasis

(*Balantidium coli*)



# There are three groups of Amoebae :

1-Pathogenic amoeba :- *Blastocystis hominis* ,  
*Entamoeba histolytica*

2-Non pathogenic amoeba :-

\**Entamoeba coli*

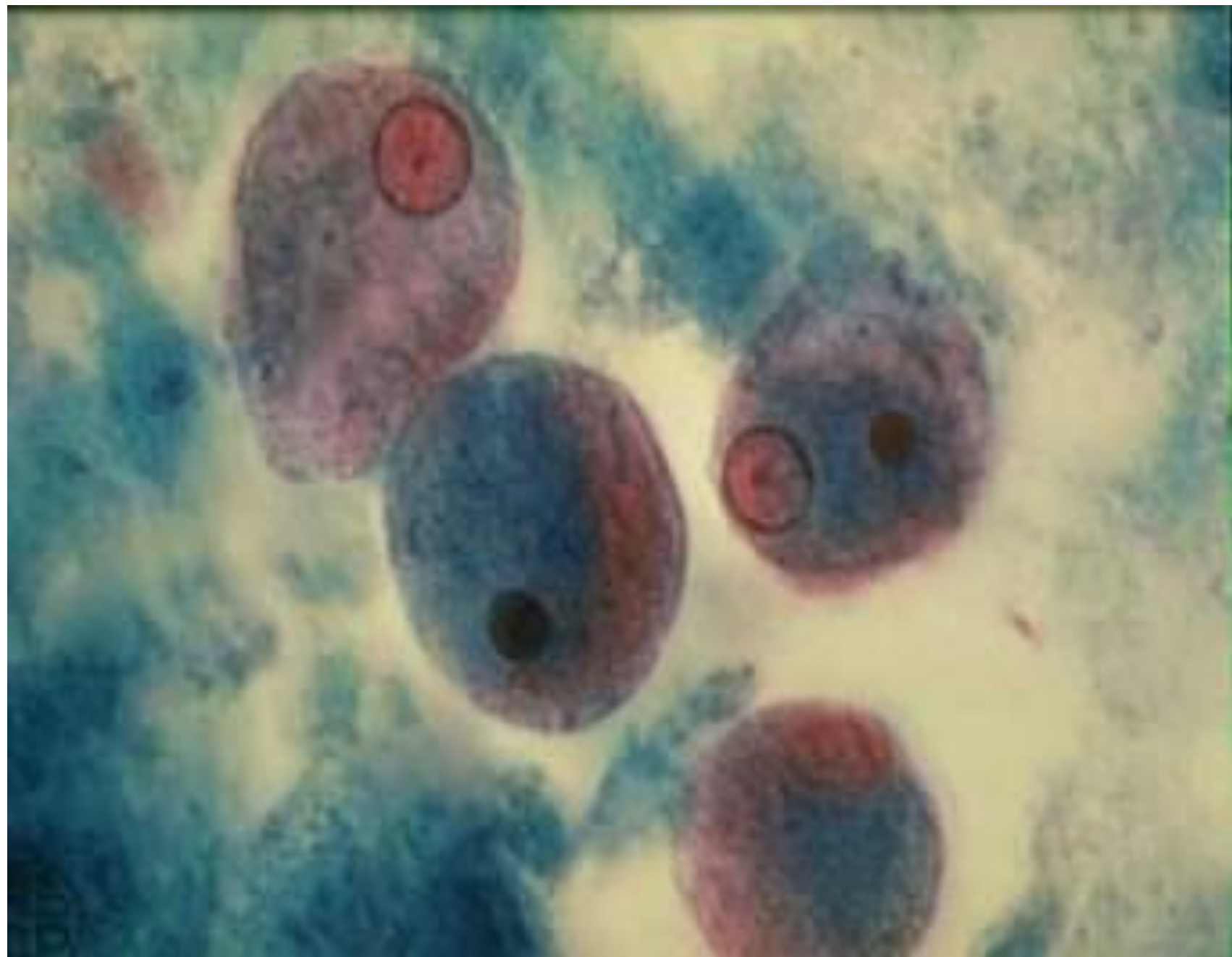
\**Entamoeba gingivalis*

\**Endolimax nana*

\**Iodameba butschili*

3-Free living amoeba :- *Neogleria gruberi*





*Entamoeba coli*

Trophozoite

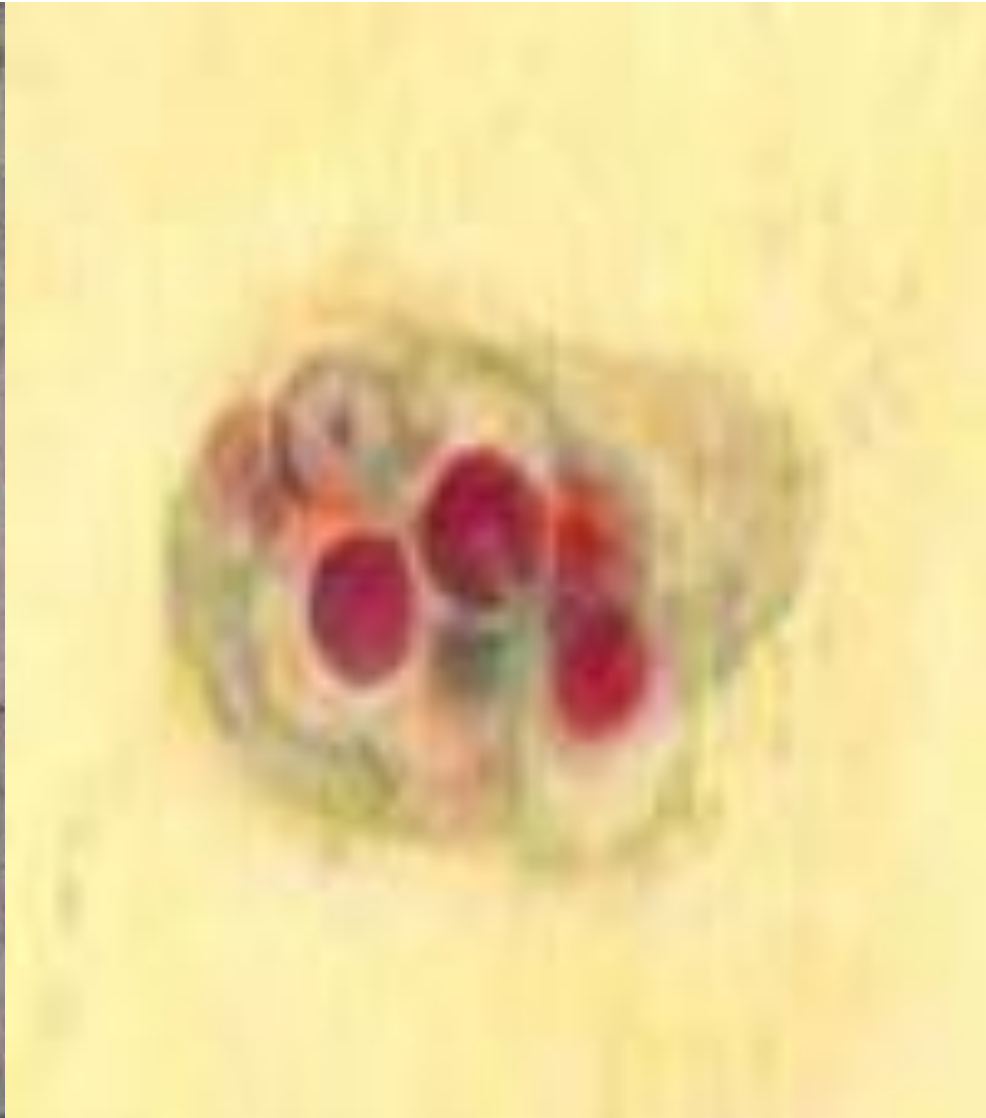


Cyst



10µm

# Entamoeba gingivalis



*Neagleria gruberi*



# Helminthology:

<b>1-Phylum: Platyhelminthes</b>	<b>2-Phylum: Nematelminthes</b>
<b>a-body flattened dorsoventrally</b>	<b>a- body cylindrical</b>
<b>b- body cavity absent</b>	<b>b- body cavity present</b>
<b>c- alimentary canal absent or rudimentary</b>	<b>c- alimentary canal complete</b>
<b>d- suckers present</b>	<b>d- suckers absent</b>
<b>e- mostly hermaphrodite</b>	<b>e- sexually differentiated.</b>

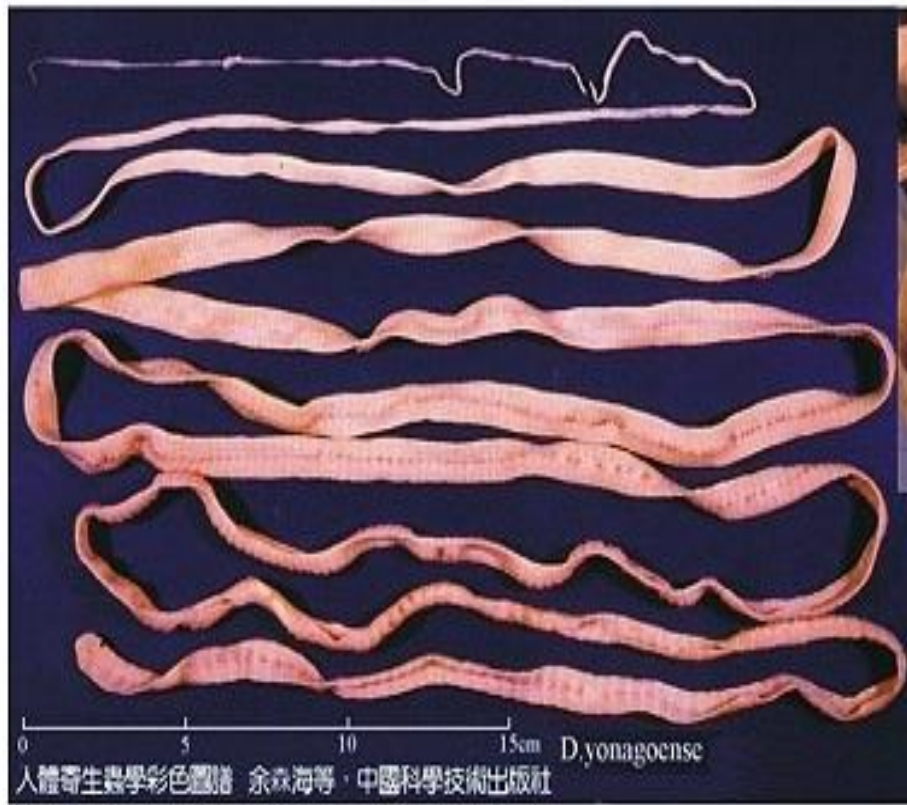


<b>1A-Class: Cestodea (Tape worm)</b>	<b>1B-Class: Trematodea</b>	<b>2A-Class: Nematodea</b>
<b>Body: tape like, segmented</b>	<b>leaf-like, unsegmented</b>	<b>cylindrical, unsegmented.</b>
<b>Sex: hermaphrodite</b>	<b>hermaphrodite (except Schistosoma).</b>	<b>differentiated into male and female worms.</b>
<b>Head: often with hooks and suckers</b>	<b>without hooks but with suckers</b>	<b>no hooks or suckers, well developed buccal capsule</b>
<b>Alimentary canal: absent</b>	<b>incomplete, without anus</b>	<b>complete with anus</b>
<b>Body cavity: absent</b>	<b>Absent</b>	<b>Present</b>
<b>Infection : generally by ingestion of encysted larvae</b>	<b>mainly by ingestion of encysted larvae, and sometimes through larval penetration to the skin</b>	<b>Ingestion eggs Or Penetration of larvae Or ingestion of encysted larvae</b>

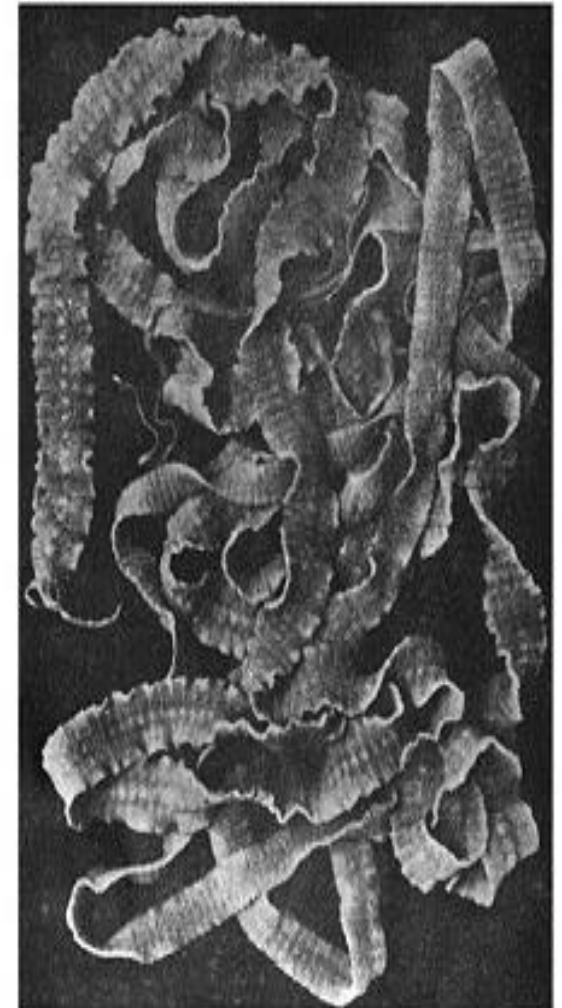
***Taenia saginata* (tape worm)**



# Diphyllobothrium latum (tape worm)



盧老師  
教學網



與廣節裂頭條蟲的成蟲相似

# *Hymenolepis nana* (tape worm)



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Parasites and Parasitological Resources



# **Fasciola hepatica (Trematoda)**





# **Fasciolopsis buski (Trematoda)**



# Clonorchis sinensis (Trematoda)



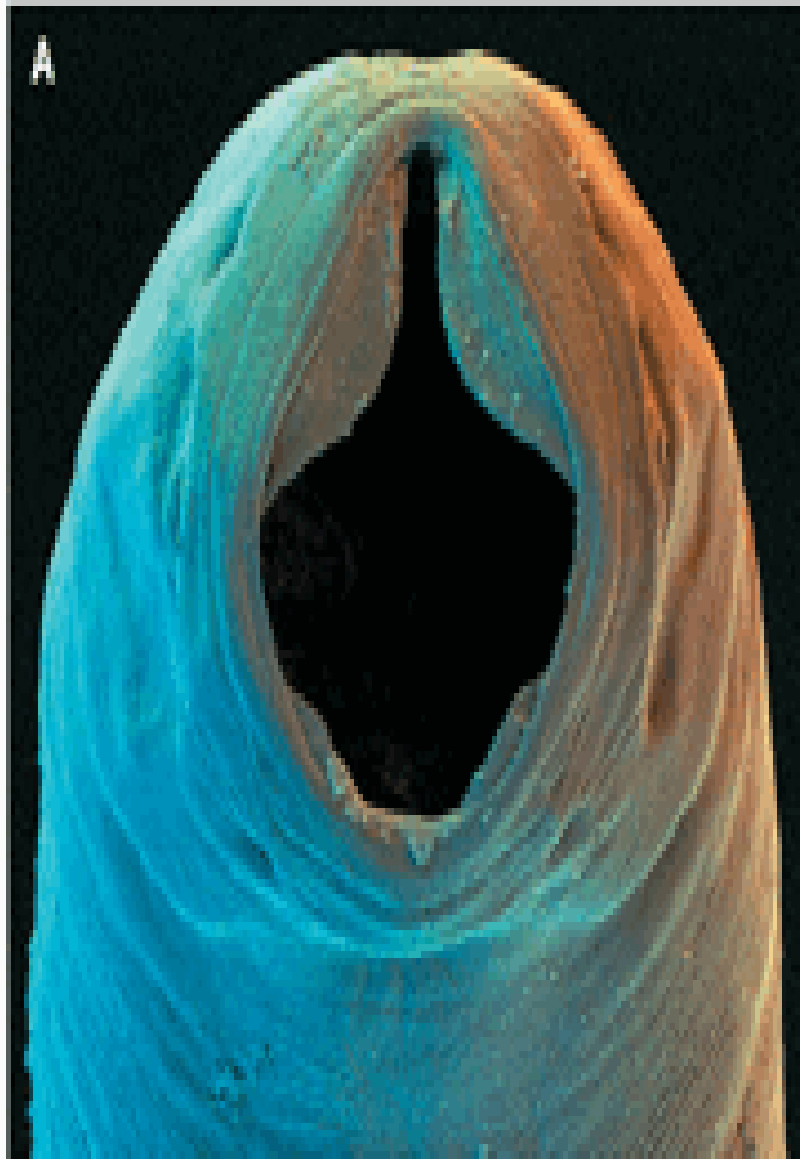
# Trichuris trichiura (Nematoda)



*Necator americanus*

(Nematoda)

*Ancylostoma duodenale*



# (Nematoda)

*Enterobius vermicularis*

Female

Male



2mm



1mm