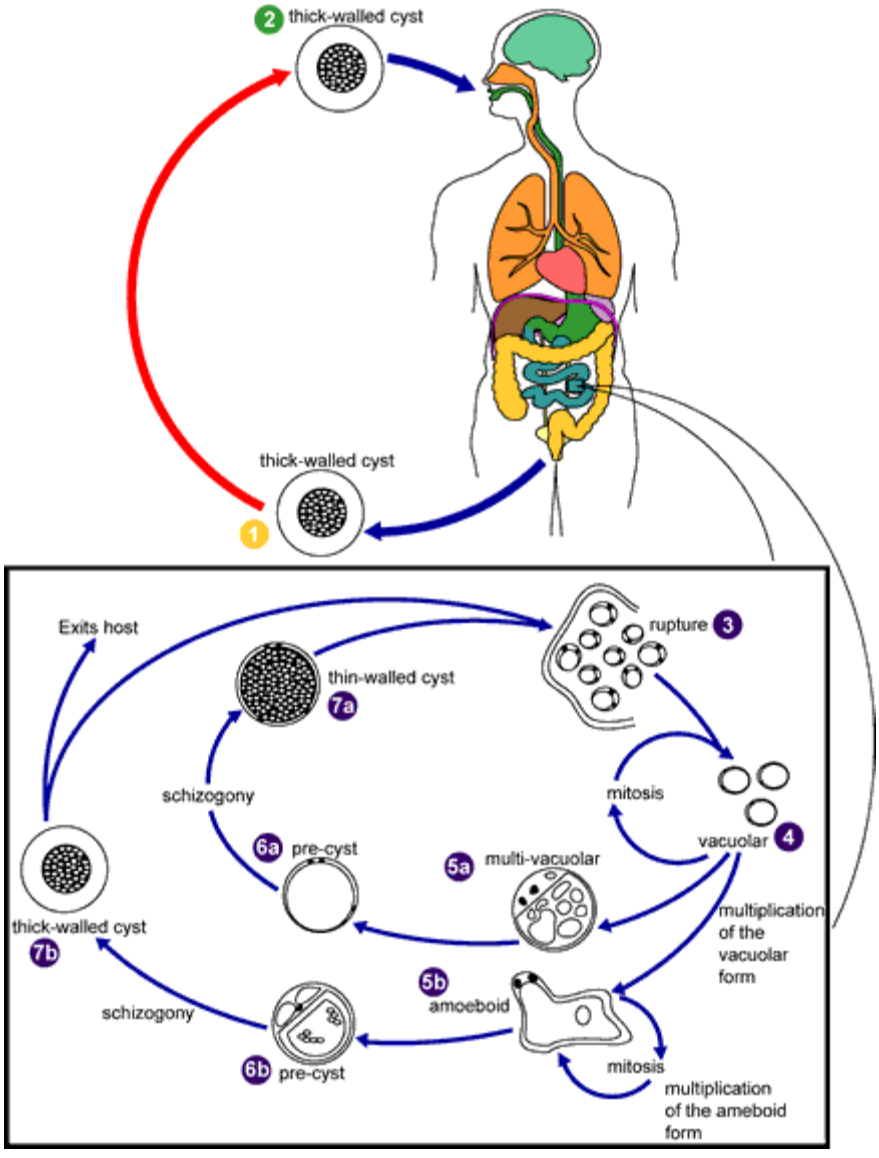
Blastocystis hominis infection

Causal Agent:

The taxonomic classification of *Blastocystis hominis* is mired in controversy. It has been previously considered as yeasts, fungi, or ameboid, flagellated, or sporozoan protozoa. Recently, however, based on molecular studies, especially dealing with the sequence information on the complete SSUrRNA gene, *B. hominis* has been placed within an informal group, the stramenoiles (Silberman et al. 1996). Stramenopiles are defined, based on molecular phylogenies, as a heterogeneous evolutionary assemblage of unicellular and multicellular protists including brown algae, diatoms, chrysophytes, water molds, slime nets, etc. (Patterson, 1994). Cavalier-Smith (1998) considers stramenopiles to be identical to his infrakingdom Heterokonta under the kingdom Chromista. Therefore, according to Cavalier-Smith, *B. hominis* is a heterokontid chromista.

Life Cycle:



Knowledge of the life cycle and transmission is still under investigation, therefore this is a proposed life cycle for *B. hominis*. The classic form found in human stools is the cyst, which varies tremendously in size from 6 to 40 µm (1). The thick-walled cyst present in the stools (1) is believed to be responsible for external transmission, possibly by the fecal-oral route through ingestion of contaminated water or food (2). The cysts infect epithelial cells of the digestive tract and multiply asexually ((3), (4)). Vacuolar forms of the parasite give origin to multi vacuolar (5a) and ameboid (5b) forms. The multi-vacuolar develops into a pre-cyst (6a) that gives origin to a thin-walled cyst (7a), thought to be responsible for autoinfection. The ameboid form gives origin to a pre-cyst (6b), which develops into thick-walled cyst by schizogony (7b). The thick-walled cyst is excreted in feces (1).

Geographic Distribution:

Worldwide.

Clinical Features:

Whether *Blastocystis hominis* can cause symptomatic infection in humans is a point of active debate. This is because of the common occurrence of the organism in both asymptomatic and symptomatic persons. Those who believe symptoms could be related to infection with this parasite have described a spectrum of illness including watery diarrhea, abdominal pain, perianal pruritus, and excessive flatulence.

Laboratory Diagnosis:

Diagnosis is based on finding the cyst-like stage in feces. Permanently stained smears are preferred over wet mount preparations because fecal debris may be mistaken for the organisms in the latter. Do not wash specimens in water (e.g., during concentration procedures) as this will lyse the organisms, resulting in false negatives.

Diagnostic findings

- Microscopy
- Morphologic comparison with other intestinal parasites
- Bench aid for *Blastocystis*

Treatment:

Despite the controversial clinical significance of this organism, metronidazole or iodoquinol has been reported to be effective.