

Diagnostic keys for amoebae and flagellates (SAF stained)

	Question/Answers	Go to	Parasite
1	What parasitic stage do you observe?		
1a	Cyst with a thick cell wall	2	
1b	Trophozoite with 2 or more flagellae	8	
1c	Trophozoite with no flagellum	9	
2	Can filaments be seen within the cyst?		
2a	Filaments present (cyst of flagellate)	3	
2b	No filaments present (cyst of amoeba)	4	
3	What is the size and shape of the cyst?		
3a	Cyst pear shaped, 1 nucleus, size 5-9 μm		Chilomastix mesnili (cyst)
3b	Cyst oval with thick wall, 2 – 4 nuclei, size 10-14 μm and "halo" (gap between cyst wall and cytoplasm)		Giardia lamblia (G. duodenalis) cyst
4	How do the nuclei look like?		
4a	There is peripheral nuclear chromatin present	5	
4b	There is no peripheral nuclear chromatin present	7	
5	How is the chromatin arranged?		
5a	Chromatin is fine granular, evenly distributed, Karyosome small, usually in the centre of the nucleus	6	
5b	Chromatin coarsely granular, unevenly arranged, Karyosome eccentric, cyst larger than 10 μm (immature cyst: with vacuole and 2 , rarely 4 nuclei; mature cyst: has no vacuole and 8 nuclei (often not all visible)		Entamoeba coli (trophozoite)
6	What is the size of the cyst?		
6a	Cyst is smaller than 10 μm , 1, 2 or 4 nuclei, glycogen mass, vacuole present		Entamoeba hartmanni (cyst)
6b	Cyst is larger (between 10 and 15 μm) with glycogen mass and vacuole (1, 2 or 4 nuclei)		Entamoeba histolytica / E. dispar (immature cyst)
6c	Cyst is larger (between 10 and 15 μm) no glycogen mass and no vacuole (4 nuclei)		Entamoeba histolytica / E. dispar (mature cyst)
7	What is the shape of the nuclei?		
7a	Cyst contains 4 small nuclei with compact chromatin masses like small pin needle dots		Endolimax nana (cyst)
7b	Cyst with large eccentric and half-moon refracting nucleus, large vacuole present		Iodamoeba bütschlii (cyst)
8	How many flagellae has the parasite?		
8a	Trophozoite with 4 flagellae, 1 nucleus, "end spine" size: 6 – 20 μm		Chilomastix mesnili (trophozoite)

8b	Trophozoite (pear shaped) with 4 pairs of flagellae and 2 nuclei; resembles a face		Giardia lamblia (G. duodenalis) trophozoite
9	How do the nuclei look like?		
9a	There is peripheral nuclear chromatin present	10	
9b	There is no peripheral nuclear chromatin present	13	
10	How is the chromatin arranged?		
10a	Chromatin coarsely granular, unevenly arranged, Karyosome eccentric, size : larger than 15 μm		Entamoeba coli (trophozoite)
10b	Chromatin is fine granular, evenly distributed, Karyosome small, usually in the centre of the nucleus	11	
11	Are red blood cells within the parasite?		
11a	Red blood cells are present		Entamoeba histolytica (tissue or magna form)
11b	There are no blood cells phagocytosed	12	
12	What is the size of the trophozoite?		
12a	Size usually under 10 μm		Entamoeba hartmanni (trophozoite)
12b	Size larger than 10 μm		Entamoeba histolytica / E. dispar (trophozoite)
13	How many nuclei can be seen?		
13a	One nucleus in all trophozoites	14	
13b	Two nuclei in more than 50% of trophozoites and large chromatin mass		Dientamoeba fragilis (trophozoite)
14	What is the shape of the nucleus?		
14a	Nucleus with peripheral granules, fine cytoplasm, trophozoite smaller than 10 μm		Endolimax nana (trophozoite)
14b	Nucleus refracting, trophozoite larger than 10 μm		Iodamoeba bütschlii (trophozoite)