

## Diagnostic keys for plasmodia (Giemsa stained blood films)

	Question/Answers	Go to	Parasite
1	Which shape does the parasite have?		
1a	Ring form with 1 nucleus	6	
1b	Ring form with 2 nuclei, delicate ring, sometimes accollé; often multiple rings per cell		P. falciparum (multiple rings)
1c	Parasite almost as big as erythrocyte with <b>only 1 nucleus</b> (amoeboid trophozoite or gametocyte)	2	
1d	Parasite as big as erythrocyte with <b>more than 1 nucleus</b> (schizont)	7	
1e	Parasite is "banana-shaped" (micro- or macrogametocyte)		P. falciparum (gametocyte)
2	Are vacuoles visible in the parasite?		
2a	The parasite has no vacuoles (gametocyte)	3	
2b	The parasite contains one or several small vacuoles (mature trophozoite)	5	
3	What is the shape of the parasite?		
3a	Gametocyte is "banana-shaped" (Macrogametocyte: blue cytoplasm, elongated, chromatin mass concentrated in the middle Microgametocyte: more stumpy, cytoplasm more redish, chromatin mass diffuse)		P. falciparum (gametocyte)
3b	Gametocyte is round or oval	4	
4	Which changes of the parasitized erythrocyte can be observed?		
4a	Parasitized erythrocyte is larger than normal erythrocyte, round, Schüffner's dots present		P. vivax (gametocyte)
4b	Parasitized erythrocyte enlarged, oval with fimbriated edges and pronounced Schüffner's dots		P. ovale (gametocyte)
4c	Parasitized erythrocyte not enlarged or even smaller, <b>no</b> Schüffner's dots or Maurer's clefts		P. malariae (gametocyte)
5	What is the shape of the parasite and its host cell?		
5a	Parasite has an amoeboid form; parasitized erythrocyte enlarged with Schüffner's dots		P. vivax (amoeboid trophozoite)
5b	Parasite has an amoeboid form; parasitized erythrocyte enlarged, oval with fimbriated edges and pronounced Schüffner's dots		P. ovale (amoeboid trophozoite)
5c	Parasitized has a band form; erythrocyte not enlarged or even smaller, no Schüffner's dots or Maurer's clefts		P. malariae (trophozoite, band form)

6	What is the aspect of the ring form (young trophozoite) and its host cell?		
6a	Ring fragile and small, common: multiple rings in same cell		P. falciparum (ring form)
6b	Ring thick, parasitized erythrocyte normal size with Maurer's clefts		P. falciparum (older trophozoite)
6c	Ring thick, medium size, cytoplasm compact, <b>no</b> Schüffner's dots or Maurer's clefts. Parasitized erythrocyte normal size or even <b>smaller</b>		P. malariae (ring form)
6d	Ring thick and big, <b>no</b> Schüffner's dots or Maurer's clefts. Parasitized erythrocyte enlarged		P. vivax (ring form)
6e	Ring thick and big <b>with</b> Schüffner's dots. Parasitized erythrocyte enlarged, oval		P. ovale (or P. vivax, older trophozoite)
7	How many nuclei (merozoites) are visible within the schizont?		
7a	More than 12 (up to 24) merozoites		P. vivax (mature schizont)
7b	Less than 12 merozoites	8	
8	What are the characteristic signs of the parasitized erythrocyte?		
8a	Erythrocyte enlarged (round), with Schüffner's dots; Merozoites not clearly separated (immature schizont)		P. vivax (immature schizont)
8b	Erythrocyte enlarged (oval with fimbriated edges), with Schüffner's dots; Merozoites not clearly separated (immature schizont) or clearly separated (mature schizont)		P. ovale (schizont)
8c	Erythrocyte not enlarged or even smaller, <b>no</b> Schüffner's dots or Maurer's clefts, merozoites arranged in rosettes with central brown-yellow pigment		P. malariae (schizont)