



Schistosoma mansoni



Schistosoma mansoni is the causative agent of schistosomiasis or bilharziosis.

Schistosomes are separate-sexual trematodes (blood flukes). The relatively thick male forms a tegumental fold, the ventral groove (or canalis gynaecophorus) in which the threadlike female is enclosed. The male thus appears to be slit longitudinally.

If the eggs are deposited into freshwater, the miracidia hatch from the eggshell and begin their search for a suitable intermediate host. Several freshwater snails (*Biomphalaria*-species) serve as intermediate host, in which the invading miracidia reproduce asexually, producing mother and daughter sporocysts, and finally numerous cercariae, which begin to swarm into the water. A characteristic feature of the cercariae is their forked tail. The cercariae swim freely about or cling to the surface of the water. Upon contact with a human host, enzyme secretion and vigorous movements enable them to penetrate the skin within a few minutes, or less frequently the mucosa when ingested with drinking water. During the infection process, the cercaria loses its tail, sheds the surface glycocalyx, forms a new tegument, and transforms into the schistosomulum. The schistosomes migrate through the venous circulation system into the right ventricle of the heart and the lungs. After travelling hematogenously into the intrahepatic portal vein branches adult worms develop and male-female pairs are formed. The pairs migrate into mesenteric veins or to the vesical plexus where sexual maturity takes place. Sexually mature *Schistosoma* females lay about 100-3.500 eggs a day, each containing an immature miracidium (= ciliate larva). At the site of their deposition, the eggs lie in chainlike rows within small veins. Some penetrate through the vascular wall and surrounding tissue to reach the lumen of the urinary bladder or intestine. Only a small part will be deposited, a large proportion (up to 50%) of the eggs laid remains in human body tissues (see "chronic phase" below).

The infection can be divided into the following phases:

Penetration phase: Penetration of cercariae into the skin, either without reaction or – especially in cases of repeated exposure – with itching and skin lesions (erythema, papules), which disappear within a few days.

In the **acute phase**, about 10 weeks after a severe initial infection, the symptoms may include fever, headache, limb pains, urticaria, bronchitis, upper abdominal pain, swelling of liver, spleen and lymph nodes, intestinal disturbances and eosinophilia. These symptoms persist for several days to several weeks. In low-level infections this phase is usually inapparent.

Chronic phase: the most significant phase in pathogenic terms begins after an incubation period of about two months with oviposition by *Schistosoma* females. A large proportion (up to 50%) of the eggs laid remain in human body tissues, not only near the worms (urinary bladder, intestine), but also in more distant localizations due to hematogenous spreading (mainly to the liver and lungs, more rarely to the CNS, the skin, and other organs), where they lodge in small vessels. Manifestations are restricted almost entirely to large intestine with hyperemia, granulomatous nodules, papillomas ("bilharzias"), ulcerations, hemorrhages and increasing fibrosis, abdominal pain and blood diarrhea.

Infections may be diagnosed by:

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| Microscopy: | Determination of <i>Schistosoma</i> eggs in stool |
| Serology: | Determination of specific antibodies based on the ELISA-technique |

NovaLisa™ Schistosoma mansoni IgG ELISA:

The NovaLisa™ *Schistosoma mansoni* IgG ELISA is intended for the qualitative determination of IgG-class antibodies against *Schistosoma mansoni* in human serum or plasma (citrate).

Antigens:

Purified Schistosoma mansoni antigens

Specific performance characteristics:

	Intraassay			Interassay			Sensitivity %	Specificity %
	n	Mean	CV %	n	Mean	CV %		
IgG	24	1,14	5,1	4	0,76	5,7	87	>95

Order information:

ELISA	Number of determinations	Product number
Schistosoma mansoni IgG	96	SCHG0410