



Echinococcus



Echinococcus species are small tapeworms (max. 6 mm long) and have only a few (two to six) proglottids (see fig.). The most important species of the genus Echinococcus are Echinococcus granulosus (Dwarf dog tapeworm) and Echinococcus multilocularis (Dwarf fox tapeworm).

The Echinococcus granulosus (Dwarf dog tapeworm) occurs worldwide, with relative high prevalences in eastern and south-eastern Europe, the Mediterranean countries, the Near East, northern and eastern Africa, South America and various parts of Asia and Australia.

The most important definitive host is the dog, whereby other Canidae (jackal, dingo and other wild canids) are involved in certain regions. Herbivorous and omnivorous vertebrates function as intermediate hosts, in particular domestic animals (ruminants, pigs, horses, camels) and in some areas wild animals as well.

Echinococcus multilocularis (Dwarf fox tapeworm) is widespread in the northern hemisphere with endemic regions in Europe, Asia (Turkey, Iran, Russia and bordering countries all the way to Japan), and North America (Alaska, Canada, northern and central US states). In Central Europe the parasite is widely distributed with prevalence levels in foxes exceeding 50% in some areas. The most important definitive hosts are red and polar foxes, although other wild carnivores (e.g. coyotes, raccoons, wolves) as well as dogs and cats can also carry this tapeworm species. The intermediate hosts are usually rodents (field mice, voles, muskrats etc.).

Humans are infected by peroral ingestion of Echinococcus eggs, either during direct contact with tapeworm carriers or indirectly by uptake of contaminated food (wild berries, vegetables, windfall fruit etc.) or drinking water. From which the oncospheres are released in the small intestine, penetrate into its wall and migrate hematogenously into the liver, as well as sometimes into the lungs and other organs. At first, the oncospheres develop into little vesicles, then gradually into metacestodes (fluid-filled cyst). The metacestodes of Echinococcus multilocularis is a conglomerate with an alveolar structure comprised of small cysts surrounded by granulomatous or connective tissue (alveolar Echinococcosis).

Species	Disease	Symptoms	Mechanism of infection
Echinococcus granulosus	cystic Echinococcosis	The cystic echinococcosis is always asymptomatic initially and it remains so for longer periods in a proportion of cases, especially when only small, well encapsulated or calcified cysts are present. Symptoms may appear after months or years when one or more cysts begin to disrupt organ functions due to their size, localization or expansive growth.	Infection by peroral ingestion of Echinococcus eggs
Echinococcus multilocularis	alveolar Echinococcosis	The initial phase of an infection is always asymptomatic. Following a long incubation period, usually 10-15 years, the infection of the liver may present with symptoms resembling those of a malignant tumor.	Main source of infection: Contaminated food (wild berries, vegetables, windfall fruit etc.)

Infections may be diagnosed by:

Microscopy: mainly leads to diagnose.

Serology: Determination of specific antibodies based on the ELISA-technique. The differentiation between *Echinococcus granulosus* und *Echinococcus multilocularis* is not possible.

NovaLisa™ Echinococcus IgG ELISA:

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

Antigens:

Purified *Echinococcus multilocularis* antigens

Specific performance characteristics:

	Intraassay			Interassay			Sensitivity %	Specificity %
	n	Mean	CV %	n	Mean	CV %		
IgG	8	1.33	6.3	12	1.29	7.3	>95	>95

Order information:

ELISA	Number of determinations	Product number
Echinococcus IgG	96	ECHG0130