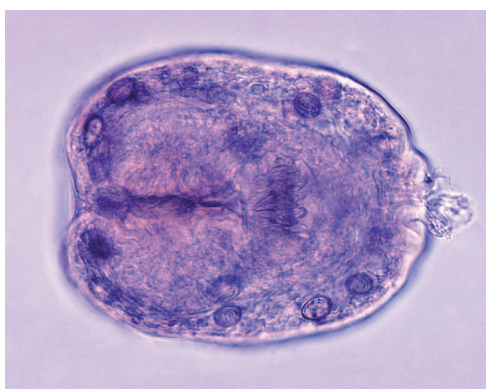


SERION ELISA *classic* Echinococcus IgG

SERION ELISA *classic* Echinococcus IgG test is a quantitative and qualitative immunoassay for detection of human antibodies in serum or plasma directed against *Echinococcus granulosus* and *Echinococcus multilocularis*. The assay is used for the diagnosis of acute infections, serological follow up of therapy and epidemiological studies.



Micrograph of *Echinococcus granulosus* (Source: Centers for Disease Control and Prevention, United States Department of Health and Human Services).

Pathogen

Echinococcosis is a zoonotic infection caused by developmental stages (larvae, hydatid, metacestodes) of two kinds of tapeworms *Echinococcus granulosus* and *Echinococcus multilocularis*. Infections with *E. granulosus* occur worldwide, while infections caused by *E. multilocularis* are restricted to the northern hemisphere. Sources of infection are final hosts i. e. dogs for *E. granulosus* and primarily foxes for *E. multilocularis* as well as food contaminated with parasite eggs.

Disease

After oral ingestion of parasite eggs by humans (as an intermediate host) and hematogenous distribution inside the host, the *E. granulosus* larvae (oncospheres) begin to vesiculate mainly in the liver (approx. 60 % of the patients), but also in the lungs (20 %) and in other organs (20 %). The parasites form spherical, unilocular, fluid-filled cysts which can achieve diameters between 1 to 15 cm. In contrast to cystic echinococcosis, *E. multilocularis* larvae are found almost exclusively (98 %) in the liver, but secondary lesions can spread metastatically to other organs (lungs, kidneys, CNS and others). The parasites grow infiltrative and tumor-like in the host tissue and, during weeks up to months, form a spongy „alveolar“ system of connected cavities which are filled with small vesicles.



The diffuse borders are usually not well delimited from adjacent liver tissue. Cysts of *E. granulosus* cause pathological damage or dysfunction mainly by the gradual process of space-occupying repression or displacement of vital host tissue, vessels, or organs. Consequently, clinical pathology varies greatly, depending on the site and size of the cyst, e.g. epigastric and thoracic pain. For differential diagnosis tumors of different genesis (malign, benign) should be considered. Continuous tissue destruction caused by *E. multilocularis* leads to clinical manifestations of liver dysfunction after an incubation time of 5 up to 15 years. The nonspecific symptoms usually include epigastric pain (36 % of the patients) and obstructive jaundice (27 %). In untreated patients lethality was found to be 94 to 100 %. Treatment significantly decreased mortality to 10 to 14 %.

Diagnosis

Diagnosis of echinococcosis relies on epidemiologic and clinical findings, on detection of cysts by radiology, ultrasonography and computer tomography, as well as on serologic techniques. With regard to *E. multilocularis*, most patients develop parasite-specific antibodies. In infections caused by *E. granulosus* cyst integrity, vitality and size and the specific organ parasitized may affect the antibody response. Patients with liver infections by *E. granulosus* are more likely to be IgG antibody seropositive than patients with lung infections by *E. granulosus*. Consequently, seronegativity can not exclude echinococcosis.

Validation of SERION ELISA *classic* Echinococcus IgG

The SERION ELISA *classic* Echinococcus IgG was evaluated by analysis of 90 serum samples from blood donors and 34 serum samples from patients with suspected *Echinococcus* infection. The results were compared with the results of a commercially available ELISA, which, like the SERION ELISA *classic* Echinococcus IgG, is based on cyst fluid of *Echinococcus granulosus*. Sera classified as borderline were not included in the calculation.

Sensitivity and Specificity

SERION ELISA <i>classic</i>	Sensitivity	Specificity
Echinococcus IgG	> 99 %	> 99 %

Precision

The intra- and interserial precisions were determined by the analysis of serum samples of different reactivities.

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Sample	Mean value OD	Intraassay CV (%) (n=20)	Mean value OD	Interassay CV (%) (n=10)
weak positive	0,34	5,3	0,38	4,2
positive	0,71	2,5	0,75	2,6
strong positive	1,40	1,9	1,44	3,2

Order Information

SERION ELISA *classic* Echinococcus IgG

Order Nr.: ESR 107 G

Please visit our website www.virion-serion.com for more information on our SERION ELISA *classic* products.

Institut Virion\Serion GmbH
Serion Immundiagnostica GmbH
Friedrich-Bergius-Ring 19
97076 Würzburg, Germany

Tel.: +49 (0)931 3045-222
Fax: +49 (0)931 3045-100
dialog@virion-serion.de
www.virion-serion.com

Institut Virion\Serion GmbH
Beijing 100005, China
www.virion-serion.cn