

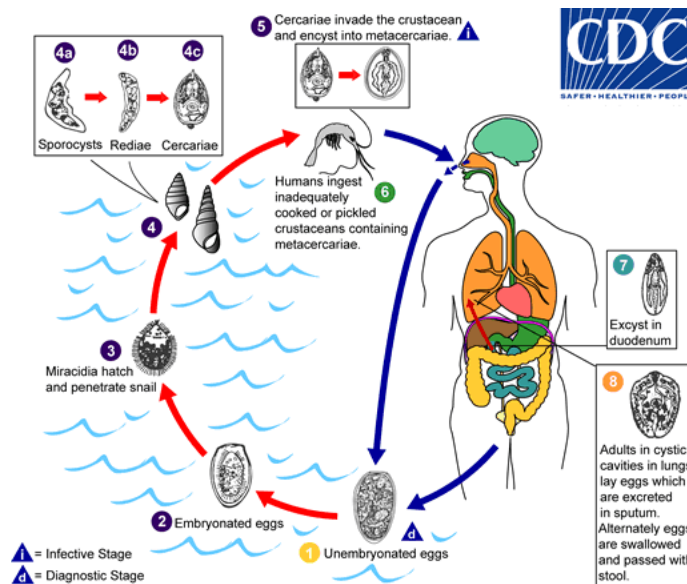


# Parasites Biology

## Causal Agent:

More than 30 species of trematodes (flukes) of the genus *Paragonimus* have been reported which infect animals and humans. Among the more than 10 species reported to infect humans, the most common is *P. westermani*, the oriental lung fluke.

## Life Cycle:



The eggs are excreted unembryonated in the sputum, or alternately they are swallowed and passed with stool ①. In the external environment, the eggs become embryonated ②, and miracidia hatch and seek the first intermediate host, a snail, and penetrate its soft tissues ③. Miracidia go through several developmental stages inside the snail ④: sporocysts ④a, rediae ④b, with the latter giving rise to many cercariae ④c, which emerge from the snail. The cercariae invade the second intermediate host, a crustacean such as a crab or crayfish, where they encyst and become metacercariae. This is the infective stage for the mammalian host ⑤. Human infection with *P. westermani* occurs by eating inadequately cooked or pickled crab or crayfish that harbor metacercariae of the parasite ⑥. The metacercariae excyst in the duodenum ⑦, penetrate through the intestinal wall into the peritoneal cavity, then through the abdominal wall and diaphragm into the lungs, where they become encapsulated and develop into adults ⑧ (7.5 to 12 mm by 4 to 6 mm). The worms can also reach other organs and tissues, such as the brain and striated muscles, respectively. However, when this takes place completion of the life cycles is not achieved, because the

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