

LOCALIZATION OF THE CYSTOGENOUS GLANDS OF *OPISTHORCHIS VIVERRINI* CERCARIAE

Patpicha Arunsan¹, Chalermmlap Donthaisong¹, Kulwadee Suwannatrai¹,
Sattrachai Prasopdee¹, Jutharat Kulsantiwong², Apiporn Suwannatrai¹,
Thidarut Boonmars¹, Jariya Umka Welbat³, Songpol Oopachitakul³ and Smarn Tesana¹

¹Food-Borne Parasite Research Group, Department of Parasitology, ³Department of Anatomy, Faculty of Medicine, Khon Kaen University, Khon Kaen; ²Department of Biology, Udon Thani Rajabhat University, Udon Thani, Thailand

Abstract. Opisthorchiasis in northeastern Thailand is an important etiology of cholangiocarcinoma. To form the infectious stage, free swimming cercariae penetrate cyprinid fish, shed their tails, and then secrete a cystic substance to cover their larval stage to form metacercariae in the fish body. We determined the location of the cystogenous glands in *Opisthorchis viverrini* cercariae. The cercariae and metacercariae were obtained from the naturally infected snail host, *Bithynia siamensis goniomphalos* and from cyprinid fish, respectively. The cyst walls of the metacercariae were separated and used to immunize inbred male BALB/c mice to obtain cyst wall antibodies. The general characteristics of the *O. viverrini* cercariae and metacercariae were studied by hematoxylin and eosin (H&E) staining of sections. The location and ultrastructure of the cystogenous glands of cercariae were studied by immunoperoxidase, immunofluorescence and transmission electron microscopy. The structures and organelles of cercariae and metacercariae could be identified, but the cystogenous glands could not be detected in H&E sections. The immunoperoxidase and immunofluorescence sections revealed positive reactions for cystogenous glands predominated in the lateral part of the cercariae and were clearly seen in the cyst wall of the metacercariae. The ultrastructure of the cystogenous glands contained semitranslucent electron dense oval shaped granules. If interference occurs during the formation of the cysts by fish immune response, the metacercariae may not develop to maturity. It may be easily digested or degraded by human stomach acid and pepsin. This may be an efficient method for control of *O. viverrini* infection which requires further detailed study.

Keywords: *Opisthorchis viverrini*, cercariae, cystogenous gland, immunoperoxidase, immunofluorescence, transmission electron microscopy

Correspondence: Dr Smarn Tesana, Food-Borne Parasite Research Group, Department of Parasitology, Faculty of Medicine, Khon Kaen University, Khon Kaen 40002, Thailand.
Tel. 66 (0) 43 363434; Fax 66 (0) 43 202475
E-mail: smarn_te@kku.ac.th, tessmarn@yahoo.com