# IMMUNOHISTOCHEMICAL STUDY OF ACUTE AND CHRONIC TOXOPLASMOSIS IN EXPERIMENTALLY INFECTED MICE

Phuangphet Waree[1,4], David JP Ferguson[2], Emsri Pongponratn[3], Urai Chaisri[3] and Yaowalark Sukthana[1,5]

[1]Department of Protozoology, Faculty of Tropical Medicine, Mahidol University, Bangkok, Thailand; [2]Nuffield Department of Pathology, Oxford University, John Radcliffe Hospital, Oxford, UK; [3]Department of Tropical Pathology, Faculty of Tropical Medicine, Mahidol University, Bangkok, Thailand; [4]Department of Microbiology and Parasitology, Faculty of Medical Science, Naresuan University, Phitsanulok, Thailand; [5]International College, Mahidol University, Bangkok, Thailand

Abstract. Acute and chronic *Toxoplasma* infections were evaluated in mice using stage specific antibodies and immunocytochemistry. Mice with acute toxoplasmosis were less active, had erectile body hair and seldom took food or water resulting in weight loss. All mice died within 7 days post-inoculation. The immunohistochemical technique enhanced visualization of parasites allowing their distribution to be accurately followed. Following intraperitoneal infection, tachyzoites were initially identified on the surface of the liver and spleen. There was a rapid increase in the number of tachyzoites associated with invasion from the surrounding connective tissue into the organs with formation of inflammatory lesions in the liver. The focal inflammatory lesions showed increasing numbers of tachyzoites with the period post-inoculation. Similar increases in tachyzoites were observed for the spleen. In contrast, only a few individual tachyzoites were seen in the brain at the final time point. In chronic infections, the mice were asymptomatic but tissue cysts containing large numbers of bradyzoites were observed in all brains with the average number of 295 tissue cysts per half brain and the average cystic size of 46.02 ± 5.08 μm. By histology and immunostaining, the tissue cysts were readily identifiable along with a mild inflammatory cell infiltration into the meninges and perivascular cuffing. Double immunocytochemical labelling confirmed the exclusive presence of tachyzoites during the acute phase and bradyzoites during the chronic phase.

Correspondence: Dr Yaowalark Sukthana, Department of Protozoology, Faculty of Tropical Medicine, Mahidol University, 420/6 Ratchawithi Road, Bangkok 10400, Thailand.
Tel: 66 (0) 2354-9001 ext 1830; Fax: 66 (0) 2643-5601
E-mail: tmymv@mahidol.ac.th