

Environmental Parasitology

1. Staffs and Students (April, 2010)

Professor	Nobuo Ohta	
Associate Professor	Nobuaki Akao	
Assistant Professor	Takashi Kumagai,	Rieko Shimogawara,
	Mitsuko Suzuki	
Project Associate Professor	Takashi Suzuki	
Senior Technical staff	Misato Tomoda	
Graduate Student (PhD)	William K. Anyan,	Keisuke Nakayama,
	Takenori Seki,	Toshie Taniguchi,
	Kei Kitamura,	Bethel Kwansa-Bentum,
	Toshihiro Tokiwa,	Yuki Miyazawa,
	Katarina Macuhova,	Katsumi Maezawa
Graduate Student (Master)	Ichibon Fukuda,	Kumiko Sekiguchi

2. Purpose of Education

Because of the recent development and the global changes in social system and life style, parasitic infections are becoming more heterogeneous. When we consider about factors promoting spreading parasitic diseases, multidisciplinary approaches are needed: medical, zoological and sociological.

Our laboratory mainly deals with pathophysiology and epidemiology of parasitic infections. Immunology, molecular biology and clinico-pathology are approaches employed. Main subjects in our laboratory are schistosomiasis, zoonotic helminthiasis, malaria and trypanosomiasis, all of which include laboratory and field investigations. In the schistosomiasis research, we focus on developing new diagnostic method by DNA detection in the sample, and uncovering immunopathogenesis of the typical hepatic inflammation. For zoonotic helminthiasis, developments of diagnostic tools are urgent matters to be studied. Our laboratory is one of the reference stations for the diagnosis in Japan.

Since 2008, TMDU started collaboration project on research on infectious diseases at Noguchi Memorial Institute for Medical Research. At the collaboration center at NMIMR, molecular approaches to discover new drug targets for African trypanosomiasis are underway.

3. Research Subjects

- (1) Pathological Research on zoonotic parasitoses: Toxocariasis, Dilofilariasis
- (2) Epidemiological survey of parasitic diseases: Toxocariasis, Angiostrongyloidiasis, Spirurine larva, Schistosomiasis
- (3) Molecular epidemiology of tropical diseases: Drug resistance of malaria parasites, Drug resistance of anopheline mosquitoes, Molecular detection of Trypanosomes in Tsetse fly.
- (4) Immunopathology of schistosomiasis: Regulation of egg-granuloma formation in schistosomiasis japonica.
- (5) Drug development against parasitic infection: New drug candidates for schistosomiasis
- (6) Regulation of gene expression in parasitic helminthes: RNAi and parasitism in schistosome parasites.
- (7) Molecular and epidemiological research on parasitic infections in West African sub-region: Special

4. Clinical Services

Clinical services for the diagnosis of parasitic infections are our routine activities.

5. Publications

Original articles

1. Akiyama T, Ohta N.: Parasite-specific antibody profile in the aqueous humor of rabbits with ocular toxocariasis. *Parasitology International*, 59: 112-20, 2010.
2. Kumagai T, Shimogawara R, Ohmae H, Wang TP, Lu SH, Chen R, Wen LY & Ohta N. : Detection of early and single infection of *Schistosoma japonicum* in the intermediate host snail, *Oncomelania hupensis*, by PCR and Loop-mediated isothermal amplification (LAMP) assay. *American Journal of Tropical Medicine and Hygiene*, 83: 542-548, 2010.
3. Anyan WK, Kumagai T, Shimogawara R, Seki T, Akao N, Obata K, Kwansa-Bentum B, Bosompem KM, Boakye DA, Wilson MD, Karasuyama H & Ohta N. : Schistosome eggs have a direct role in the induction of basophils capable of

a high level of IL-4 production: Comparative study of single- and bisexual infection of *Schistosoma mansoni* *in vivo*. *Tropical Medicine and Health*, 38: 13-22, 2010.

4. Ohshima S, Ohashi-Suzuki M, Miura Y, Yabu Y, Okada N, Ohta N & Suzuki T. : TbUNC119 and its binding protein complex are essential for propagation, motility, and morphogenesis of *Trypanosoma brucei* procyclic form cells. *PLoS One*, 5:e15577, 2010.
5. Horii T, Shirai H, Jie KJ, Palacpac NQ, Tougan T, Hato M, Ohta N, Bobogare A, Arakaki N, Matsumoto Y, Namazue J, Ishikawa T, Ueda S, Takahashi M.: Evidences of protection against blood-stage infection of *Plasmodium falciparum* by the novel protein vaccine SE36. *Parasitology International*, 59:380-386, 2010.
6. Macuhova K, Kumagai T, Akao N, Ohta N.: Loop-mediated isothermal amplification assay for detection and discrimination of *Toxocara canis* and *Toxocara cati* eggs directly from sand samples. *Journal of Parasitology*, 96:1224-7, 2010.

Review Article

(None)

Book

(None)