



長崎大学  
NAGASAKI UNIVERSITY

LONDON  
SCHOOL of  
HYGIENE  
& TROPICAL  
MEDICINE



Title of PhD project / theme	<b>Biochemistry and structural biology studies of <i>Trypanosoma cruzi/brucei</i> drug target proteins.</b>
Supervisory team	<p><b>John M. Kelly</b> Professor of Molecular Biology Department of Pathogen Molecular Biology Faculty of Infectious and Tropical Diseases London School of Hygiene and Tropical Medicine, TEL: 0207-927-2330 E-MAIL: <a href="mailto:john.kelly@lshtm.ac.uk">john.kelly@lshtm.ac.uk</a></p> <p><b>Kiyoshi Kita, PhD.</b> Dean and Professor of School of Tropical Medicine and Global Health (TMGH) Nagasaki University 1-12-4 Sakamoto, Nagasaki 852-8523 Japan Phone: +81-95-819-7575 Mobile: +81-90-8486-1387 Email: <a href="mailto:kitak@nagasaki-u.ac.jp">kitak@nagasaki-u.ac.jp</a></p> <p><b>Daniel Ken Inaoka, PhD.</b> Assistant Professor (TMGH) Email: <a href="mailto:danielkeninaoka@yahoo.co.jp">danielkeninaoka@yahoo.co.jp</a></p>
Brief description of project / theme	<p>We are expecting to identify several essential genes from a high-throughput CRISPR/Cas9 gene editing screen applied to <i>T. cruzi</i> extracellular amastigotes, in collaboration with AIST. The aim then will be to undertake biochemical and structural studies to complement the biological data and to provide a preliminary assessment on the “drugability” of the target proteins. Biochemical studies with recombinant enzymes will take place at Nagasaki and structural biology studies will be carried out at our third-generation synchrotron facilities (SPring-8 at Hyogo and PF at Tsukuba). Validation using animal models will be done in UK, together with additional functional studies</p> <p>For <i>T. brucei</i>, we will initiate biochemical and structural biology studies of trypanosome alternative oxidase/glycerol kinase in combination with inhibitors. <i>In vivo</i> chemical biology studies will be done in the UK using the <i>in vivo</i> imaging system developed by the Kelly lab.</p>
Particular <i>prior</i> educational requirements for a student undertaking this project	Parasitology/Microbiology Molecular Biology
Skills we expect a student to develop/acquire whilst pursuing this project	Biochemistry Structural Biology Molecular Parasitology Bioinformatics