

Results report

1. Establishment of an innovative biomedical research platform in Africa for a diagnostic technology development of concurrent multiple infectious diseases, a broad and comprehensive surveillance system and an integrated health strategy of the infectious diseases
2. Prof. Shunichi Yamashita (Centre for International Collaborative Research)
3. Prof. Matilu Mwau (Kenya Medical Research Institute (Kenya))

4. Results of Research and Development:

The project consists of five pillars; the outcomes of each pillar in the FY2015 are as below:

- 1) Development and management of molecular biomedical laboratory for multiplex immune-assay in Nairobi: At the biomedical laboratory established in Nairobi, developments of new diagnostic antigens and training/education for young scientists have been organized. Antigen pluralization for a pathogen and development/evaluation of diagnostic micro-beads have been done in the year. The results of the activities were published in scientific journals. Additionally, patent application has submitted to the Patent Agency of Japan regarding diagnostic antigen combination of Human African Trypanosomiasis.
- 2) Pilot surveys for two areas in Kenya were conducted in order to demonstrate the surveillance scheme for 4,000 residents selected randomly. From the pilot surveys, some evidence in terms of surveillance system development was obtained. Regarding prevalence map of NTDs, discussion to coordinate with DIAS (Data Integration and Analysis System), which provides land use and conditions from satellites, has started to complement the areas without prevalence data of NTDs by our program.
- 3) In Western Kenya, health surveys on Schistosomiasis were conducted. Along with that, development and evaluation of "child to child" educational tool, which is intended to transfer health-related information from child to child through play were also conducted in the same area.
- 4) Development of professionals: One of the researcher of this research programme pursued Ph.D. (Medical) supported by Japan Society for the Promotion of Science.
- 5) Outreach: We hold a symposium in Kenya in relation to this research programme on 14th Jan 2016 and offered a platform for both African researchers and government officials to exchange and share information. Over 200 participants attended this symposium.

<Essays>

1. Hoshi T, Fuji Y, Nzou SM, Tanigawa C, Kiche I, Mwau M, et al. Spatial Distributions of HIV Infection in an Endemic Area of Western Kenya: Guiding Information for Localized HIV Control and Prevention. *PloS one*. 2016;11(2):e0148636. doi: 10.1371/journal.pone.0148636. PubMed PMID: 26862764.
2. Tanigawa C, Fujii Y, Miura M, Nzou SM, Mwangi AW, Nagi S, et al. Species-Specific Serological Detection for Schistosomiasis by Serine Protease Inhibitor (SERPIN) in Multiplex Assay. *PLoS neglected tropical diseases*. 2015;9(8):e0004021. doi: 10.1371/journal.pntd.0004021.
3. Nzou SM, Fujii Y, Miura M, Mwau M, Mwangi AW, Itoh M, et al. Development of multiplex serological assay for the detection of human African trypanosomiasis. *Parasitology international*. 2015. doi: 10.1016/j.parint.2015.10.008. PubMed PMID: 26519611.
4. Kalenda YD, Kato K, Goto Y, Fujii Y, Hamano S. Tandem repeat recombinant proteins as potential antigens for the sero-diagnosis of *Schistosoma mansoni* infection. *Parasitology international*. 2015. doi: 10.1016/j.parint.2015.06.012. PubMed PMID: 26148816.