Development of rapid and portable diagnostic assays for Ebola virus diseaseJiro Yasuda^{1,2}*¹Institute of Tropical Medicine, Nagasaki University, Japan, ²National Research Center for the Control and Prevention of Infectious Diseases, Nagasaki University, Japan*

From 2013 to 2016, the largest outbreak of Ebola virus disease (EVD) since the disease was first reported in 1976 occurred in West Africa. More than 28,000 cases were reported, and more than 11,000 people died from the disease, primarily in Guinea, Liberia, and Sierra Leone. During this outbreak, we developed the reverse transcription-loop mediated isothermal amplification (RT-LAMP) assay for EBOV using a portable device. The validation study in Guinea republic showed that the assay had comparable diagnostic accuracy to that of the reference real-time RT-PCR test for serum samples or oral swabs from suspected EVD cases. In Guinea, a mobile field laboratory with RT-LAMP testing facilities was deployed to improve the laboratory diagnostic abilities in remote areas. The RT-LAMP test can be conducted using a portable and battery-equipped detection system, making it practical for use in the field.

Outbreaks of emerging viral diseases have been reported every year in anywhere of the world. Our assay system could be applied to diagnostics for other viral diseases.