IS01-2 **A next-generation malaria vaccine based on viral-vectored platforms for infants**

○ Shigeto YOSHIDA[1], Mitsuhiro IYORI[1], Naoto HORI[1], Iroha YAMAGOSHI[1], Hisatoshi SHIDA[2], Hiroaki MIZUKAMI[3]

[1]Kanazawa Univ. Sch. of Pharm., [2]Hokkaido Univ. Institu. for Genetic Med., [3]Jichi Med Univ. Dept. of Med.

As a valuable addition to sustain affordable malaria control, a candidate vaccine needs to perform safely, and ideally efficiently, during neonatal and early life vaccination in resource-poor settings. Accordingly, such a malaria childhood vaccine needs to be tailored for integration into the Expanded Programme on Immunization vaccines. At the same time, we should consider host factors which may severely impair vaccine efficacy. Because the most advanced malaria vaccine, RTS,S, cannot induce high or long-lasting protective immune response for neonatal or infants in Africa. We hypothesize that helminths and maternal antibodies are critical host factors to be considered for malaria vaccine development. In fact, a significant number of individuals living in tropical areas are co-infected with helminths, which are known to adversely affect immune responses to a number of different existing vaccines.

To overcome these problems with RTS,S, we have developed four viral-vectored vaccine platforms. Of them, LC16m8 Δ is the highly attenuated, replication-competent vaccinia virus strain, which is a genetically more stable variant of LC16m8. LC16m8 has been originally developed in Japan and has been administered to more than 100,000 infants with no serious adverse events. Moreover, it elicited potent and life-long anti smallpox neutralizing antibodies in infants. We will show our recent results on malaria vaccine efficacy in a murine model using heterologous prime-boost immunization regimen with the four viral-vectored vaccines.