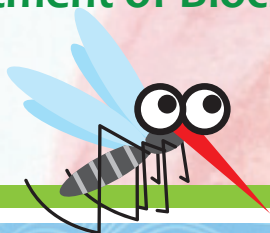


Natural DENV infection in Bangladesh: detection, sero-prevalence and immunogenicity of DENV serotypes



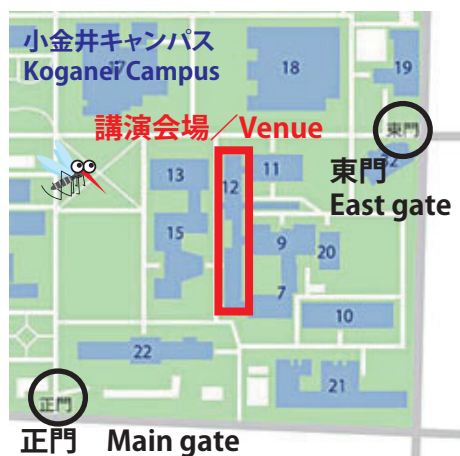
Prof. Mohammad Monirul Islam
University of Chittagong,
Department of Biochemistry and Molecular Biology



Thursday
May 30, 2019
16:30 - 17:30

■開催場所 / Venue

東京農工大学 小金井キャンパス
12号館 1階 L1217 教室
Room L1217, 1st Fl., Building 12,
Koganei Campus, TUAT



Dengue, a mosquito-borne viral disease, is caused by four dengue virus serotypes (DENV1-4). Despite being very similar in sequences and structures, all four DENVs are serologically distinct and DENV serotype distribution varies in different geolocations and even varies in different epidemics at the same region. Here, we report an epitope-grafted DENV4 ED3 possessing sero-specificity of both DENV3 and DENV4 in mice model and sero-cross-recognition of all natural anti-dengue antibodies in DENV infected sera, irrespective of infecting DENV serotypes. The DENV-specific RT-PCR indicated that among the DENV infected sera, 42% were single DENV serotype infected where DENV1, DENV2, DENV3 and DENV4 constituted 66.7, 18.2, 12.1 and 3%, respectively. The remaining 58% of the samples had concurrent heterotypic DENV infections, where again DENV1 was the most common (89%). Artificial immunization studies in Swiss albino mice clearly indicated that DENV2 ED3 (2ED3) was the most immunogenic while DENV3 ED3 (3ED3) and DENV4 ED3 (4ED3) were moderately and DENV1 ED3 (1ED3) was the least immunogenic, fully corroborating with their prevalence in natural dengue infections; the least immunogenic was the most prevailed serotype. These observations clearly suggested that, first, epitope-grafted 4ED3 is worth considering for quantitative and qualitative investigation of natural DENV infection. Secondly, concurrent heterotypic DENV infection might be related with increased dengue incidence and dengue severity in Bangladesh. Thirdly, the high prevalence of DENV1 serotype is most likely to be originated from its low immunogenicity. To this end, we proposed that a careful designing and optimization of an ED3-based anti-dengue strategies may help exploring dengue etiology in much details and is worth implementing for reducing world dengue burden.

■共催 / Co-Organized by

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Institute of Global Innovation Research "Life Science" Mizutani Team
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