

Dendritic Cell-Specific Intercellular Adhesion Molecule-3-Grabbing Non-integrin (DC-SIGN) genetic polymorphism is associated with dengue infection among Sabahan population

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ABSTRACT

Introduction: Given that the primary dengue receptor on human dendritic cells is the C-type lectin DC-SIGN (CD-209), a single nucleotide polymorphism (SNP) in the gene encoding for this receptor may increase one's vulnerability to a variety of infectious diseases, including dengue. **Objective:** The aim of this study was to assess the association between SNP (rs11465393) and dengue susceptibility among Sabah community. **Materials and methods:** This is a matched case and control study involving Sabahan (focusing on Kadazan-Dusun and Bajau ethnicities) population. With the aid of Fluidigm SNPtrace panel Genotyping Assays, DNA was used to conduct the SNP genotyping. Consequently, statistical analysis using the STRATA software to ascertain whether the SNP rs11465393 is associated with dengue in the population. **Results and conclusion:** A total of 382 participants of Kadazan-dusun and Bajau ethnicity were recruited (191 cases and 191 control group). TT genotype (versus GG genotype) exhibited increased risk of dengue infection in pooled participants and Kadazan-Dusun ethics [35 (25.74%) compared 23 (14.37%) in cases and control, respectively; $p=0.038$] and 46 (24.47%) versus 26 (13.68%) in cases and control, respectively; $p=0.020$]. TT genotype (versus GG genotype) was significantly associated with dengue in pooled and female participants [23 (24.47%) versus 11 (12.50%) in cases and control, respectively; $p=0.044$; and 46 (24.47%) versus 26 (13.68%) in cases and control, respectively; $p=0.020$]. Overall, female Bajau ethnic with the TT genotype had a significantly higher risk to contract dengue [6 (24.00%) versus 1 (6.25%) in cases and controls, respectively, $p=0.017$]. Furthermore, a significant association between dengue and the male gender of the Kadazan-dusun ethnic with the T allele was found [60 (44.78%) versus 59 (33.52%) in cases and controls, respectively, $p=0.044$; odds ratio: 0.62, 95% CI 0.38 - 1.01]. The CD209 rs11465393 SNP increased susceptibility to dengue infection. This GG genotype has an impact on how much DC-SIGN is expressed on cell surfaces, plausibly associated to boosted immunity and reduced viral replication.