Antigenisitas protein rekombinan premembran dan envelope virus dengue serotipe 2 yang diekspresikan pada pichia pastoris galur X-33 = Antigenicity of premembrane and envelope recombinant protein of dengue virus serotype 2 expressed in pichia pastoris strain X-33

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Abstrak

Infeksi DENV masih menjadi masalah kesehatan masyarakat di Indonesia karena dapat menyebabkan penyakit berat dan bahkan mungkin berakibat fatal. Pengembangan vaksin rekombinan dengan antigen yang mampu dengan efektif menginduksi respon imun perlu untuk dikembangkan. Kesesuaian genotipe yang digunakan di vaksin dan genotipe yang beredar di suatu wilayah berimplikasi terhadap keberhasilan pengembangan vaksin. Plasmid rekombinan yang dirancang berdasarkan gen prM-E DENV-2 strain 151 diekspresikan di Pichia pastoris strain X-33. Telah dilakukan optimasi ekspresi dan antigenisitas protein rekombinan prM-E. Diperoleh 4 koloni P. pastoris rekombinan dengan fenotipe Mut . Hasil SDS-PAGE dan Western blot menunjukkan protein telah berhasil diekspresikan pada ukuran 50 kDa. Kondisi ekspresi optimum protein rekombinan prM-E DENV-2 yaitu pada konsentrasi metanol 1 dengan waktu inkubasi 48 jam. Protein rekombinan prM-E DENV-2 dikenali oleh antibodi anti- prM-E DENV-2 dan bereaksi silang dengan antibodi anti-prM-E DENV-1, DENV-3, serta DENV-4. Protein rekombinan prM-E DENV-2 yang diperoleh dapat digunakan sebagai antigen dalam pengembangan vaksin protein rekombinan dengan strain Indonesia.

.....DENV infection is still a public health problem in Indonesia because it can cause severe illness and may even be fatal. Development of recombinant vaccine with antigens capable of effectively inducing an immune response needs to be developed. The suitability of genotypes used in vaccines and genotypes circulating in a region has implications for the successful development of vaccines. Construction of a recombinant plasmid based on prM E gene of DENV 2 strain 151 was used for expression in Pichia pastoris strain X 33. Optimization and antigenicity of DENV 2 prM E recombinant protein were tested. Four Mut phenotypes were generated. SDS PAGE and Western blot analysis showed that the protein was expressed with a molecular weight of 50 kDa. Optimal protein expression level occurred at concentration of 1 methanol with 48 hours incubation time. DENV 2 prM E recombinant protein was recognized by anti prM E DENV 2 and also showed cross reaction with anti prM E DENV 1, DENV 3, and DENV 4 antibodies. Thus, the DENV 2 prM E recombinant protein can be used as an antigen in the development of the recombinant protein vaccine of the dengue strains of Indonesia.