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Abstract (poster session)

The usefulness of mice monoclonal antibody in dengue virus diagnosis and research

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Objective. The aim of this work was to generate, characterize and mainly use mice monoclonal antibodies in serodiagnosis and dengue researches. Methods: Mabs were generated by conventional technology of Kholer and Milstein. Mice immunizations were used dengue-2 virus (D-2V) New Guinea C and Cuban (A15) strains. Mabs were characterized to determine: immunoglobulin isotype, protein recognition, and biological characteristics. In some cases, they were used in different assays: serological diagnosis, passive protection, viral protein expression and used in the identification of dengue mimotopes by a phage display peptide library (pVIII-9aa). Results: H3-6 Mab specific to D-2V New Guinea C strain showed IgG 2a isotype and was able to recognize E protein from 4 dengue serotypes by Immunofluorescence assays. This Mab was capable of detecting anti dengue IgA antibody by ELISA as a possible marker in early and recent dengue infection. From the biopanning process, three mimotope peptides were identified. These showed similarity in their amino acid sequences with E dengue protein. One peptide was synthesized containing E dengue mimotope which was recognized by anti dengue antibodies in sera from convalescent infected patients. 8H8 Mab was raised against core (C) dengue protein specific to D-2V A15 Cuban strain. It was the IgG1 isotype and it had no hemaglutination inhibition, neither complement fixation nor neutralization properties. 8H8 Mab followed kinetically C dengue protein expression in mosquito cells (from 6h to 96h post-inoculation) and immunolocalized in brain tissues from D-2V infected mice (from 24 to 78 h post-inoculation). In preliminary studies, 8H8 Mab was competent to recognize the C dengue protein in viremic serum from infected patients which made possible the quantification of a C recombinant dengue protein. Conclusions: Our results suggest that mice monoclonal antibodies continue being useful in Dengue diagnosis and research. Mabs can be used directly in serodiagnosis or indirectly through phage-displayed peptide library for the development of diagnostic systems and a potential vaccine against this pathogen. Murine Mabs with defined virus specificities were efficient analytic tools for detection and expression of dengue C protein in vivo and in vitro.