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# Differential dominance of immune response in flaviviral infections

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Although closely related in structure flavivirus infections in humans have a vast range of tissue trophism and clinical syndromes starting from mild fever to hepatitis to encephalitis and hemorrhagic manifestations. Rapid spread of the infections all over the world and lack of effective vaccines have made these viruses focus of research.

Neutralizing antibodies are generated against each of these viruses and have been used to monitor the circulation of viruses. However, antibody alone has never been seen as a sole protective response. Th2 response as a dominant immune response in Japanese encephalitis virus infection as well as protection by CD4 cells in immune cell transfer experiments has been demonstrated by us. In West Nile infection in mice, CD8 cells have been seen to be protective. In dengue virus existing CD4 response has been shown to be pathogenic resulting in dengue hemorrhagic fever.

Comprehensive studies in understanding underlying mechanisms in terms of antigen processing, presentation and cytokine regulation and manipulation of T cell response needs to be studied. These studies would have an impact on vaccine development against each of these viruses as a standard inactivated vaccine strategy successful in JE has not worked in other infections.

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