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Epitope based vaccine design against Japanese encephalitis virus.

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Japanese Encephalitis is a serious public health problem with significant mortility in children and old people in Asian countries. JE virus, a flavivirus (single-stranded RNA), represents the most significant etiology of arboviral encephalitis worldwide. The current stategy discusses the scientific approach of T- lymphocyte epitope based vaccine. The concept of peptide-based vaccine holds several advantages over traditional vaccines, including safety considerations, the relatively long shelf-life, the ability to target the immune response towards specific epitopes that are neither suppressive nor hazardous for the host and the possibility of preparing multi-pathogen vaccine. The efficacy of a peptide vaccine is highly dependent on the exact identification of the immunogenic epitopes that confer protection as well as the efficient presentation of these epitopes to the immune system. The study initially involves the identification of components of, immunogenic peptides (epitopes) of JEV, which may be expected to mediate the immune response to this virus. In silico approaches are used for the design of EVs. In particular, computational methods for MHC binding prediction have already become standard tools in immunology. In silico approaches to MHC binding prediction yield high accuracies. Later, population coverage analysis will be done for the predicted epitopes to determine the proportion of various populations that may be expected to show T-cell response to each peptide. The conservancies of these predicted T-cell epitopes across various JEV genotypes will also assessed. At last, the revelant epitopes studied in the second part of the approach would be synthesized as chimeras. The chimeric peptide(s) will be expressed and purified after cloning it into a suitable vector (pUC series / pET series). The chimeric peptides thus purified would be studied for immugenic responses by ELISA and Western blot techniques.

Biography

Bhawna Rathi has completed her PhD work from SGPGI, Lucknow. She has been into research for 7 years. She has 6 international publications and attended many national and international conferences. Presently working as Lecturer at Amity University, India.