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### **In silico identified immunogenic Ebola nucleoprotein peptides elicit immune response**

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Immunoinformatics has come by leaps and bounds to finding potent vaccine candidates against various pathogens. In the current study, a combination of different T (CD4<sup>+</sup> and CD8<sup>+</sup>) and B cell epitope prediction tools was applied to find peptides containing multiple epitopes against Ebola nucleoprotein (NP) and the presentation of peptides to human leukocyte antigen (HLA) molecules was analyzed by prediction, docking and population coverage tools. Further, ELISA was carried out to measure IFN- $\gamma$  in peptide stimulated peripheral blood mononuclear cells isolated from the blood of healthy volunteers. Six peptides containing multiple T and B cell epitopes were obtained after prediction studies and

eliminating the peptides liable to generate autoimmune and allergic response. All peptides displayed 100% conservancy in Zaire Ebola virus. Prediction tools, Auto dock Vina and CABS-dock results confirmed the ability of predicted peptides to bind with diverse HLA alleles. Population coverage analysis predicted high coverage (> 85%) for expected immune response in four continents (Africa, America, Asia and Europe). Peptide stimulated cells showed enhanced IFN- $\gamma$  secretion as compared to unstimulated cells. Therefore, the identified NP peptides can be considered as potential synthetic vaccine candidates against Ebola virus.

#### **Biography**

Sahil Jain has completed his BTech at the age of 23 years from Jaypee University and joined Thapar Institute of Engineering and Technology (TIET) as a PhD student in 2015. He worked for more than 3 years in information technology and pharmaceutical sectors and is currently employed as a teaching assistant at TIET since 2016.

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