**In silico** design of epitope based peptide vaccine against virulent strains of HN-Newcastle disease virus (NDV) in poultry species

Marwa Mohamed Osman, Ezdihar Elhadi El Amin, Alaa Abdelrhman Ahmed, Ahmed Abubakar Elsayed, Afra Abd Elhamid Fadl Allia, Marwan Mustafa Badawi and Mohamed Ahmed Salih

Africa City of Technology, Sudan

**Newcastle disease virus** (NDV) species belongs to the genus *Avulavirus*, order Mononegavirales, family Paramyxoviridae. It is an enveloped virus with a negative sense, non-segmented, single stranded RNA genome. At present, vaccines are mostly based on B cell immunity. But recently, vaccine based on T cell epitope has been encouraged as the host can generate a strong immune response by CD8+ T cell against the infected cell. Moreover, recent reports of vaccine failure from many countries on the ability of classical NDV vaccines to stop spread of disease. We aimed to design a peptide vaccine for NDV particularly for the hemagglutinin neuraminidase protein (HN) using computational methods to predict epitopes inducing immune system and can be used later to create a new peptide vaccine could replace on conventional vaccines. A total of available 60 virulent strains of HN-NDV were retrieved from NCBI for bioinformatics analysis using Immune Epitope Data Base (IEDB) to predict B and T cells epitopes. We used MHC class I and II alleles in this study due to the difficulty to determine MHC B complex alleles in poultry. Four T cell epitopes were suggested to interact with MHC class I (548ISNTLFGEF556, 546AEISNTLFG554, 526YTTSTCFKV534 and 88V ALESPLAL96) and three epitopes were suggested to interact with MHC class II (484LRGVFGTML492, 205YLALGVLRT213 and 548ISNTLFGEF556) while two B cell epitopes were suggested for therapeutic peptide vaccine for B cell (233QNRKSCSV240 and 418SSY420). We considered this study distinctive because no research ever dealt with peptide based vaccine on virulent strains of NDV using **in silico** approach.

**Biography**

Marwa Mohamed Osman was awarded MS.c. degree at the age of 30 years from Sudan Academy of Sciences. She is an Associate Researcher at Africa city of Technology,Sudan-Khartoum. She has published 2 papers and has more than 10 papers (under submission) in word renowned journals. She has been member of American society of Clinical Pathology (ASCPi) as International Medical Scientist.

marmarzamaaani@gmail.com

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