

The excellence in research work for which the Sun Pharma Research Award is claimed

The Nominee (Professor Chiranjib Chakraborty) has performed translational research significantly, and his area is primarily confined to three directions. (i) Mutation in diseases development, drug resistance, and the creation of virus variants (ii) The role of ncRNA (non-coding RNA), especially miRNA, in various diseases such as diabetes, cancer, rheumatoid arthritis, etc. (iii) Immunoinformatics based vaccine construct development.

Using Immunoinformatics, Professor Chiranjib Chakraborty has created a new line of vaccine development. His vaccine construct using AI, He has developed a dozen immunoinformatics-based next-generation vaccine constructs for various infectious diseases to cancer.

Among his dozen vaccine constructs, the following five works are important.

(1) Professor Chakraborty and his co-workers have **developed the world's first mutiepitopic next-generation immunoinformatics-based vaccine construct against SARS-CoV-2**, published in the Journal of Medical Virology(92(6):618-631.doi: 10.1002/jmv.25736.). It's impact factor is 12.7 and the work has been cited 374 times. The technology was patented, and it has been granted a South Korean patent(Patent no 10-2425 492; Application Date: 27. 04. 2020. Grant Date: 21.07. 2022).

(ii) **Professor Chakraborty and his co-workers have developed the world's first Vaccine Candidate Using Alternative Epitopes Against Wuhan and All Significant Mutant Variants of SARS-Cov-2.** It is a next-generation candidate considering significant mutations.

(ii) Professor Chakraborty and his co-workers have developed the world's first mutiepitopic next-generation immunoinformatics-based vaccine construct against monkeypox. It was developed through the screening of whole genome-encoded proteins of the mpox virus. The work has been published in Travel Medicine and Infectious Disease(2022, 50:102481.doi: 10.1016/j.tmaid.2022.102481. Impact Factor: 12.0), and a patent was applied for the technology.

(iii) **Recently, they have developed an artificial intelligence (AI)-based, mutation-proof, next-generation vaccine construct against SARS-CoV-2. It was the World's first AI-based vaccine construct.** It was published in the International Journal of Biological Macromolecules (2023, 242(Pt 2):124893.doi: 10.1016/j.ijbiomac.2023.124893.) with an 8.2 impact factor.

(iv) *Helicobacter pylori* (*H. pylori*) creates an ulcer in the patients. They have developed a mutation-proof, next-generation vaccine construct against *H. pylori*. The work has been published International Journal of Peptide Research and Therapeutics (IF=2.5), applied for patent work, and has been cited 37 times.



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Editor: Infection, Genetics and Evolution (IF=3.2); Associate Editor: Frontiers in Bioengineering and Biotechnology (IF= 5.7); Associate Editor: Frontiers in Pharmacology (IF= 5.6)

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