conferenceseries.com

4th International Conference on VACCINE RESEARCH

February 09, 2024 | Webinar

Omicron deletions and mutations decrease the efficacy of old spike vaccine but RNA Topoisomerase (Nsp2), rRNA Methyltransferases (Nsp9/10/13/14/16), ORF7a and ORF8 will be new vaccine and therapeutic targets

Asit Kumar Chakraborty
Vidyasagar University, India

Corona virus infected ~600 million people with confirmed >6400000 deaths worldwide. So far, only Nsp12 (RdRp) and Nsp3 (C3 protease) proteins were targeted for drug design but Spike protein recombinant vaccine first saved this Earth from deadly Alpha-Delta coronavirus infections. Recently, omicron corona virus has 30 mutations including 24LPP plus 69HV deletions on the Spike and old vaccine may not be sufficient!

Methodology & theoretical orientation: We searched corona homology proteins by BLAST among 20,000 sequences to get homology with other known bacterial proteins. Problem of such search was that viral sequences were orthologous and hardly one could get a perfect homology but scattered. In truth, it worked to find some important findings in 2020, but now volume of viral sequences increased and NCBI portal only gave 5000 sequences to search.

Findings: Nsp2 RNA topoisomerase was a vaccine candidate and it had 25% scattered homology with Vibrio haemolytica DNA topoisomerase I/IV as well as DNA primase and bi-subunit DNA topoisomerase IB of Trypanosoma brucei and DNA gyrase. Further, other vaccine candidates, Nsp16 was a 2'-O-Ribose Uridine Methyltransferase and Nsp13 was a 2'-O-Ribose Guanosine Capping Methyltransferase. Nsp13 protein had scattered homology to ribosomal L6 and L9 proteins and Nsp2 protein to L1 protein and Nsp15 protein to S1/S22 ribosomal proteins but also had similarity to different bacterial rRNA methyltransferases. However, ORF7a/b, ORF8 proteins and 3'UTR deletions and TAA termination may be significant.

Conclusion: Thus, new vaccine candidates, Nsp2, Nsp8, Nsp9, Nsp10, Nsp13, Nsp14 and Nsp16 proteins may be recruited easily to mitoribosome making chimera ribosome to methylate the 21S rRNA of human mitochondria. Such change in host protein synthesis (CoxI/II) may cause an inhibition in oxidative phosphorylation and ATP synthesis causing blood clotting, breath trouble, coma and heart failure as seen in corona-infected patients.

Biography

Asit Kumar Chakraborty gained his M.Sc. and M.Phil (Microbiology) from Vidyasagar University, Shimla (India), later being awarded his Ph.D. in Biotechnology by Vidyasagar University of Pune. In January 1982, he joined Central research Institute, Kasauli (H.P.) under Government of India, Ministry of health and Family welfare and worked till July 1994.