conferenceseries.com

International Virtual Congress on PEDIATRICS

December 08, 2021 | Webinar

Role of GNE gene specific p.V727M ethnic founder mutation in HIBM patients using various bioinformatics approaches

Vikas Sharma
Chaudhary Devi Lal University, India

Statement of the Problem: GNE gene-specific c.2179G>A(p.V727M) is a key alteration reported in Hereditary inclusion body myopathy(HIBM) patients and represents an ethnic founder mutation in the Indian/ Asian cohort. However, the underlying role of this mutation in pathogenesis remains largely unknown.

Methodology & Theoretical Orientation: In the present study, we aimed to access possible mechanisms of V727M mutation that could be leading to myopathy disease via various in-silico tools. Briefly, MutPred and PredictSNP tools were used to identify V727M induced functional and phenotypic changes. The vibrational entropy and enthalpic changes of flexible conformations of the mutation was studied using DynaMut that integrates normal mode approaches with graph-based distance matrix in the mutating residue environment. We also used simulation studies for studying V727M mutation on the structure of the GNE protein. Tools to study protein-protein interaction were also explored. Further, the available ChIP-seq data was analyzed to predict the possible interactions.

Findings: Our results propose that V727M mutation could induce deleterious effects or pathogenicity and affect the stability of GNE protein. Analysis of differential genes reported in the V727 mutant case suggests it can affect GNE protein interaction with various transcription factors.

Conclusion & Significance: We conclude that V727M mutation could alter the interaction of GNE with various transcription factor including MYC, thereby altering transcription of sialyltransferase(STs) and neuromuscular genes. Thus understanding these effects could pave the way for developing effective therapies against HIBM.

Biography

Dr. Vikas Sharma is working as a scientist in AIIMS-New Delhi, India. He has worked extensively in the field on Neuro-oncology. Most of his research work is focused on Genetic and epigenetic modification in GBM tumors of the brain. He has also reported epigenetic modification profiles in glioma using ChIP-sequencing approaches. Presently, he is exploring mutational effect in HIBM myopathy by studying ethnic founder mutations that are prevalent in HIBM patients in Indian Cohort.