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Impact of A3B deletion polymorphism on HIV-1 susceptibility

Kavita Kakkar¹, Sanjukta Vidyant¹, Anurag Rathore², Animesh Chatterjee³, Nikky Nyari¹, Swati Sharma¹, Sayali Mukherjee⁴, Vikas Agarwal¹ and T N Dhole¹

¹Sanjay Gandhi Post Graduate Institute Of Medical Sciences, Lucknow

²University of Minnesota, Minneapolis

³All India Institute Of Medical Science, New Delhi

⁴Amity University, Lucknow

The human APOBEC3 (A3) family proteins of cytidine deaminases potently restricts HIV-1 replication (A3B), a gene involved in innate immunity exhibiting insertion-deletion polymorphism across world population and provides intrinsic immunity to retroviral infection. In humans, a high-frequency distribution of 29.5kb deletion occurs between exon 5 and exon 8, and A3B deletion genotype is observed. This deletion results in complete loss of A3B coding region. The present study investigated the effect of insertion(I)/deletion(D) polymorphism frequencies of A3B gene on susceptibility to HIV infection among 84 HIV seronegative (HSN) and 26 HIV seropositive (HSP) individuals in North Indian population, which was assessed based on frequencies of three genotypes: deletion-homozygous (D/D), hemizygous (D/I), and no deletion (I/I) genotypes between infected and uninfected cohorts.

The genotypic analysis showed no significant difference in the ratios of A3B genotype between HIV infected (I/I 57.7%, I/D 30.8% and D/D 11.5%) and HIV uninfected (I/I 42.9%, I/D 30.9% and D/D 26.2%) individuals and also no association of deletion allele was seen on HIV disease susceptibility among HSN (I vs D odds ratio = 0.327, P value 0.093, 95% CI= 0.085 and I vs I/D odds ratio = 0.738, P value = 0.550, 95% CI = 0.273) when compared with HSP. These results suggest no significant effect of A3B gene polymorphism on the HIV-1 susceptibility and also no association was found with hemizygote genotype. Hence, preliminary analysis of the data has shown that there is no significant impact of A3B deletion on HIV-1 susceptibility.

Biography

Kavita Kakkar hails from the sacred city of Allahabad and is a PhD scholar. She completed her B.Sc (Hons) from Allahabad Agricultural Institute Deemed University and M.Sc from Vellore Institute of Technology. Her keen and enthusiastic approach towards the field of Microbiology has motivated her to attend multiple academic programs, conferences like ASICON etc. and fetched her an award during BIOXPLORE'07. Her five year stint with Sanjay Gandhi Post Graduate institute of Medical Sciences, Lucknow where she currently working as SRF on an ICMR project on HIV, has further sharpened her aptitude for research and thirst for knowledge. She is currently pursuing Ph.D on aspect of HIV pathogenesis, and have 2 publications and 6 nucleotide submissions. She strives to maintain a good learning curve throughout her career.

kavita.26kakkargmail.com