20 YEARS OF EXCELLENCE IN INTERNATIONAL MEETINGS
alliedacademies.com

Joint Event on
3rd INTERNATIONAL OBESITY SUMMIT AND EXPO
&
2nd International Conference on
DIABETES, NUTRITION, METABOLISM & MEDICARE
&
World Conference on
LASER, OPTICS AND PHOTONICS

November 05-06, 2018 | Philadelphia, USA

Khushdeep Bandesh, Biomed Res 2018, Volume 29 | DOI: 10.4066/biomedicalresearch-C7-019

Khushdeep Bandesh

[1]National Institute of Diabetes and Digestive and Kidney Diseases, USA
[2]CSIR-Institute of Genomics and Integrative Biology, India

Biography

Khushdeep Bandesh obtained her PhD early this year in functional genomics from CSIR-Institute of Genomics and Integrative Biology, India. She is currently a post-doctoral fellow at NIDDK. She received the 'Young Scientist Award' in human genetics for the year 2018 in India. She has worked for nearly a decade in T2D genetics in diverse human populations. Her research largely focuses mechanistic understanding of observed genetic associations on biological grounds.

khushdeep.bandesh@nih.gov

FUNCTIONAL POTENTIAL OF A sub-GWAS NONCODING VARIANT IN MODULATING THE TRAIT PHENOTYPE

Decades of rigorous genetic efforts have established type 2 diabetes (T2D) as apparently an outcome of altered metabolic traits. In this regard, C-peptide, a byproduct of insulin synthesis has been largely neglected. Owing to a higher plasma half-life (~30mins) than insulin (~4 mins), C-peptide is a precise measure for insulin secretion and presents independent functional activity.

We performed a two-staged Genome Wide Association Study (GWAS) for plasma C-peptide in Indians (N = 2,706) and identified a novel variant rs4454083 at sub-GWAS significance residing in intron of a GABA receptor-subunit gene - GABRA6 and simultaneously, in exon of a novel antisense lncRNA, which we named ARBAG. Expression of GABRA6 triggers fast inhibitory neurotransmission in human cerebellum and its recruitment to postsynaptic sites is administered by C-peptide. Imputation and targeted sequencing of associated region ensured that rs4454083 is a 'stand-alone' SNP. The variant allele (G) which is a minor allele across all world populations, was seen to be associated with remarkably higher ARBAG expression in cerebellum. A strong correlation was detected in expression of GABRA6 and ARBAG in human cerebellar cell-line. Presence of G allele was observed to stabilize lncRNA transcripts therefore leading to cellular abundance of ARBAG. Overexpression of ARBAG led to cleavage of full-length GABRA6 mRNA at/ around the site of complementarity between both RNAs and ended up in a dissociated GABRA6 protein which is rendered non-functional owing to separation of its ligand binding domain from trans-membrane domain. The findings demonstrate role of a sub-GWAS intronic variant in regulating functional mRNA isoforms of associated protein gene.

Note: