ALLERGY, GENETICS

SMAD3, VITAMIN D AND ASTHMA

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A new JACI paper claims

in three independent birth cohorts (N=60, N=30, N=28) DNA methylation at the SMAD3 promoter was selectively increased in asthmatic children of asthmatic mothers and was associated with risk of childhood asthma.

and argues

although associations between SMAD3 variants rs17228058, rs744910, rs17294280 and asthma have been reported in GWAS, asthma-related SMAD3 methylation differences were unlikely to be influenced by SMAD3 genotype

while I am not convinced as it is common wisdom that

If a SNP interferes with or alters a TF binding site, it could potentially affect both DNA methylation and gene expression independently.

So this possibility needs to be excluded before drawing any conclusions. BTW, SMAD3 is a well know vitamin D target...

1,25-dihydroxyvitamin D3–bound [1,25(OH)2D3-bound] vitamin D receptor (VDR) specifically inhibits TGF-β–SMAD signal transduction through direct interaction with SMAD3.

while so far only IL2 methylation was linked to asthma (another super Vitamin D target).