CDKN2B

This gene lies adjacent to the tumor suppressor gene CDKN2A in a region that is frequently mutated and deleted in a wide variety of tumors. This gene encodes a cyclin-dependent kinase inhibitor, which forms a complex with CDK4 or CDK6, and prevents the activation of the CDK kinases, thus the encoded protein functions as a cell growth regulator that controls cell cycle G1 progression. This gene's expression was dramatically induced by TGF beta, which suggested its role in the TGF beta-induced growth inhibition. Two alternatively spliced transcript variants of this gene, which encode distinct proteins, have been reported.

A total of 17 single nucleotide polymorphisms were selected and genotyped in 1,439 subjects which were comprised of 959 patients (pituitary neuroendocrine tumor 335; glioma 324; meningioma 300) and 480 population controls (PCs). Youn et al. discovered that a 3'untranslated region (3'UTR) variant, rs181031884 of CDKN2B (Asian-specific variant), had significant association with the risk of pituitary neuroendocrine tumor (PA) (Odds ratio = 0.58, P = 0.00003). Also, rs181031884 appeared as an independent causal variant among the significant variants in CDKN2A and CDKN2B, and showed dose-dependent effects on PA.

Although further studies are needed to verify the impact of this variant on pituitary neuroendocrine tumor susceptibility, the results may help to understand CDKN2B polymorphism and the risk of pituitary neuroendocrine tumor [1)].

1)
Youn BJ, Cheong HS, Namgoong S, Kim LH, Baek IK, Kim JH, Yoon SJ, Kim EH, Kim SH, Chang JH, Kim SH, Shin HD. Asian-specific 3'UTR variant in CDKN2B associated with risk of pituitary neuroendocrine tumor. Mol Biol Rep. 2022 Sep 12. doi: 10.1007/s11033-022-07796-1. Epub ahead of print. PMID: 36097105.