

# Genetic Profiles of Aggressive Variants of Papillary Thyroid Carcinomas

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**Table S1.** List of 50 target genes.

<i>TERT</i> promoter	<i>BRAF</i>	<i>NRAS</i>	<i>HRAS</i>	<i>KRAS</i>
<i>E1F1AX</i>	<i>TP53</i>	<i>RB1</i>	<i>NF1</i>	<i>NF2</i>
<i>PTEN</i>	<i>PI3K3CA</i>	<i>ATM</i>	<i>MEN1</i>	<i>ARID1B</i>
<i>TSHR</i>	<i>MED12</i>	<i>RBM10</i>	<i>ARID2</i>	<i>POLE</i>
<i>PPM1D</i>	<i>STK11</i>	<i>CHEK2</i>	<i>ZFHX3</i>	<i>BDP1</i>
<i>KMT2A</i>	<i>KMT2C</i>	<i>TG</i>	<i>EZH1</i>	<i>APC</i>
<i>AKT1</i>	<i>SPOP</i>	<i>ALK</i>	<i>RET</i>	<i>PIK3C2G</i>
<i>PIK3CG</i>	<i>AKT3</i>	<i>TSC2</i>	<i>MTOR</i>	<i>ARID1A</i>
<i>ARID1B</i>	<i>ARID5B</i>	<i>SMARCB1</i>	<i>PBRM1</i>	<i>ARTX</i>
<i>KMT2D</i>	<i>MSH2</i>	<i>FGFR3</i>	<i>PDGFRB</i>	<i>ERBB3</i>

**Table S2.** Comparison of genetic profile of TCV-PTC and CCV-PTC.

Pathological Subtypes of Thyroid Cancer	TCV-PTC	CCV-PTC	<i>p</i> -value
<b>Driver genes</b>	92%	82%	0.78
<i>BRAF</i>	92%	73%	0.33
<i>NRAS</i>	0%	9%	0.69
<b><i>TERT</i> promoter</b>	17%	18%	0.99
<b>Tumor suppressor genes</b>	25%	18%	0.99
<i>ZFHX3</i>	17%	9%	0.94
<i>TP53</i>	4%	0%	0.99
<i>CHEK2</i>	4%	9%	0.99
<b>Key pathways and functional groups</b>	33%	36%	0.99
HMTs	8%	18%	0.78
SWI/SNF complex	17%	9%	0.94
PI3K/AKT/mTOR pathway	13%	9%	0.99

Abbreviation: TCV, tall cell variant; PTC, papillary thyroid carcinoma; CCV, columnal cell variant; HMTs, histone methyltransferase.

**Table S3.** *BRAF* and *NRAS* mutation in TCV-PTC patients.

TCV-PTC	TCV-PTC of PTC-TCGA ( <i>n</i> = 29)	TCV-PTC of Current Study ( <i>n</i> = 25)
<i>BRAF</i>	97%	92%
<i>NRAS</i>	0%	0%

Abbreviation: TCV: Tall cell variant, PTC: papillary thyroid carcinoma, TCGA: The Cancer Genome Atlas.