

**Supplementary Table 2.** Associations between clinical characteristics and immune subtypes

Variable	Number of patients	Immune subgroup			P-value
		Hot (n=35)	Intermediate (n=107)	Cold (n=140)	
Tumor size (cm)		2.42±1.8	2.01±2.1	1.55±1.4	0.020*
Sex					0.053
Female	206	22 (62.9)	73 (68.2)	111 (79.3)	
Male	76	13 (37.1)	34 (31.8)	29 (20.7)	
ECl					0.099
Yes	147	16 (45.7)	49 (45.8)	82 (58.6)	
No	135	19 (54.3)	58 (54.2)	58 (41.4)	
ETE					<0.001*
Yes	124	22 (62.9)	61 (57.0)	41 (29.3)	
No	158	13 (37.1)	46 (43.0)	99 (70.7)	
C_LNM					<0.001*
Yes	151	26 (74.3)	75 (70.1)	50 (35.7)	
No	131	9 (25.7)	32 (29.9)	90 (64.3)	
L_LNM					<0.001*
Yes	118	24 (68.6)	52 (48.6)	42 (30.0)	
No	164	11 (31.4)	55 (51.4)	98 (70.0)	
LVI					0.501
Yes	231	29 (82.9)	91 (85.0)	111 (79.3)	
No	51	6 (17.1)	16 (15.0)	29 (29.7)	
Recurrence or persistent disease					0.267
Yes	40	8 (22.9)	15 (14.0)	17 (12.1)	
No	242	27 (77.1)	92 (86.0)	123 (87.9)	

Values are presented as mean ± standard deviation or number (%). All statistical tests were performed using the Fisher exact test.

ECl, extracapsular invasion; ETE, extrathyroidal extension; C\_LNM, central lymph node metastasis; L\_LNM, lateral lymph node metastasis; LVI, lymphovascular invasion.

\*Indicates significance with  $P < 0.05$ .