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# Association of *TAB2* gene polymorphism with endometrial cancer susceptibility and clinical analysis

## TAB2 gen polimorfizminin endometriyal kanser duyarlılığı ve klinik analizle ilişkisi

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#### **Abstract**

**Objective:** Transforming growth factor-β-activated kinase 1 binding protein 2 (TAB2) plays a vital role in inflammatory pathways. It has also been considered a potential target for the enhancement of the the antiestrogen effects. Previous evidence has indicated that *TAB2* gene variants are associated with several diseases, whereas their potential correlation with endometrial cancer (EC) is unclear. This study aims to initially explore the association between *TAB2* gene polymorphisms (rs237028 /AG, rs521845 T/G, and rs652921 T/C) and EC.

Materials and Methods: Polymerase chain reaction-restriction fragment length polymorphism was applied to determine the genotype composition and the allele frequencies of *TAB2* gene variant polymorphisms in 270 EC patients and 294 healthy controls.

**Results:** The G allele of rs521845 was related to the increase of EC risk [p=0.08, odds ratio (OR): 0.72, 95% confidence interval (CI): 0.56-0.91]. Moreover, EC risk was associated with rs521845 in different genetic models (p=0.017, OR: 0.63, 95% CI: 0.44-0.91 in the codominant model; p=0.0051, OR: 0.61, 95% CI: 0.43-0.87 in the dominant model). For rs237028, the percentage of AG genotype in patients with highly differentiated tumours (G1) was significantly higher than that in moderately, poorly differentiated patients (G2/G3) (p=0.031, OR: 0.77, 95% CI: 0.45-1.30).

Conclusion: Our results showed that the rs521845 polymorphism of TAB2, was associated with EC risk, suggesting that TAB2 may play a crucial role in EC prognosis.

Keywords: Endometrial cancer, TAB2, polymorphisms, risk

### Öz

Amaç: Dönüştürücü büyüme faktörü-β ile aktive olan kinaz 1 bağlayıcı protein 2 (TAB2), enflamatuvar yollarda hayati bir rol oynar. Ayrıca anti-östrojen etkilerinin artırılması için potansiyel bir hedef olarak da kabul edilmiştir. Önceki kanıtlar, *TAB2* gen varyantlarının çeşitli hastalıklarla ilişkili olduğunu gösterirken, endometriyal kanser (EK) ile potansiyel ilişkisi belirsizdir. Bu çalışma, *TAB2* gen polimorfizmleri (rs237028 /AG, rs521845 T/G ve rs652921 T/C) ile EK arasındaki ilişkiyi araştırmayı amaçlamaktadır.

**Gereç ve Yöntemler:** Polimeraz zincir reaksiyonu-restriksiyon parça uzunluk polimorfizmi, 270 EK'li hastada ve 294 sağlıklı kontrolde *TAB2* gen varyantı polimorfizmlerinin genotip kompozisyonunu ve alel frekanslarını belirlemek için uygulandı.

Bulgular: Rs521845'in G aleli, EK riskinde artışla ilişkiliydi [p=0,08, olasılık oranı (OR): 0,72, %95 güven aralığı (GA): 0,56-0,91]. Dahası, EK riski farklı genetik modellerde rs521845 ile ilişkiliydi [kodominant modelde (p=0,017, OR: 0,63, %95 GA: 0,44-0,91); dominant modelde (p=0,0051, OR: 0,61, %95

**PRECIS:** This study investigates the association between *TAB2* gene polymorphisms and endometrial cancer (EC). The rs521845 G allele was linked to increased EC risk, while the rs237028 AG genotype correlated with tumor differentiation. Findings suggest TAB2 may play a key role in EC prognosis.

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GA: 0,43-0,87). Rs237028 için, iyi farklılaşmış tümörleri olan hastalarda (G1) AG genotipinin yüzdesi, orta derecede farklılaşmış tümörleri olan hastalarda (G2/G3) önemli ölçüde daha yüksekti (p=0,031, OR: 0,77, %95 GA: 0,45-1,30).

**Sonuç:** Sonuçlarımız TAB2'nin rs521845 polimorfizminin EK riskiyle ilişkili olduğunu gösterdi ve bu da TAB2'nin EK prognozunda önemli bir rol oynayabileceğini düşündürmektedir.

Anahtar Kelimeler: Endometrial kanser, TAB2, polimorfizmler, risk

### Introduction

Endometrial cancer (EC) is ranked as one of the significant gynecologic malignancies, with an estimated 420,242 new cases diagnosed and 97,704 deaths worldwide in 2022<sup>(1,2)</sup>. Among malignant tumours of the female reproductive system in China, the incidence of EC is only lower than that of cervical cancer, and it mainly occurs in postmenopausal women<sup>(3)</sup>. However, in the past decade, the onset age of this disease has tended to become younger, and the incidence rate in young women has increased steadily year by year<sup>(4)</sup>. EC risk factors include persistent estrogen stimulation without progesterone antagonism<sup>(5)</sup>, obesity, diabetes, and hypertension, and infertility<sup>(6)</sup>. However, the molecular pathogenesis of EC remains unclear.

Previous research have shown that in the process of tumour formation and progression, in addition to the activation of related proto-oncogenes and inactivation of tumour suppressor genes, inflammatory stimulation and avoidance of immune surveillance are also important pathogenic factors<sup>(7)</sup>. Therefore, the tumour microenvironment<sup>(8)</sup> has become a research hotspot, as it is composed of tumour-related cells, inflammatory cells, immune cells, various cytokines secreted by related cells, and extracellular matrix<sup>(9)</sup>. Evidence from multiple sources has suggested that a critical factor in the occurrence and development of EC is the inflammatory microenvironment, and various inflammatory immune responses jointly promote the angiogenesis, proliferation, and invasion of EC<sup>(10)</sup>.

Transforming growth factor-β-activated-activated kinase 1 (TAK1) binding protein 2 (TAB2) is crucial to tumour necrosis factor (TNF) receptor-associated factor 6 (TRAF6) as a K63polyubiquitin-binding TAK1 adaptor protein(11), which is critical to TAK1 activation and downstream interleukin (IL)-1\beta induced nuclear factor-κB and mitogen-activated protein kinase pathway activation(12,13). TNF and IL-1-induced signal pathway activation is vital to inflammation, immunity, and cancer development(14); TAB2 has been suggested to be meaningful in several diseases. Moreover, the TAB2 gene, which encodes TAB2 protein, is identified to be significantly correlated with diseases such as coronary heart disease<sup>(15)</sup>, dilated cardiomyopathy (DCM)<sup>(16)</sup>, congenital heart disease<sup>(17)</sup>, breast cancer<sup>(18)</sup>, and epithelial ovarian cancer<sup>(19)</sup>. Endometrial, breast, and ovarian cancers share some hormonal and epidemiologic risk factors(20). Currently, no studies have been conducted on EC and TAB2 gene variation.

With the implementation of the Human Genome Project, single nucleotide polymorphism (SNP) research has become an essential approach in studying disease-related genes<sup>(21)</sup>. Single nucleotide polymorphisms are the most common

genetic variations in the human genome, and they can affect the expression of a gene, leading to certain changes in cells. To date, genome-wide association studies have confirmed multiple SNPs associated with EC<sup>(22,23)</sup>. Based on the above, we hypothesized that *TAB2* gene polymorphism was associated with EC risk. To test our hypothesis, we conducted the following studies to assess the role of rs237028 (A/G), rs521845 (T/G), and rs652921(T/C). To our knowledge, this study would be the first to evaluate the correlation between *TAB2* gene polymorphism and EC susceptibility.

### **Materials and Methods**

### **Study Subjects**

In this retrospective study, 270 EC women (mean age: 51.63±9.79 years) were recruited from the West China Second Hospital of Sichuan University from July 2010 to July 2016. All patients were diagnosed with EC by pathologists after histologic examination of biopsy tissue. Patients with autoimmune diseases or other malignancies were excluded to avoid multifactorial effects. The tumour stage is defined by the International Federation of Gynecology and Obstetrics (FIGO) surgical staging system for EC. The control group consisted of 294 healthy women (mean age: 51.86±12.70 years) who had no abnormal EC clinical symptoms and other underlying diseases and were randomly selected from routine physical examinations.

The present study was approved by the Medical Ethical Review Committee of West China Second Hospital of Sichuan University (approval number: 038, date: 03.03.2022), and all participants gave informed consent.

### **DNA Extraction and Genotyping**

The DNA isolation kit (BioTeke, Peking, China) was used to extract subjects' genomic DNA from blood samples per the manufacturer's instructions and stored the DNA at -20 °C. The rs237028 (A/G), rs521845 (T/G), and rs652921 (T/C) SNPs in the *TAB2* gene were genotyped using polymerase chain reaction (PCR)-restriction fragment length polymorphism analysis. Primer3.0 software was used to design primer sequences, which are shown in Table 1. The total volume of the PCR reaction was 10 mL, including 100 ng of the genomic DNA, 5 mL 2× Power Taq PCR MasterMix (BioTeke, Peking, China), 0.15 mL each primer, 3.7 mL ddH<sub>2</sub>O. The PCR cycle conditions of all SNPs were 95 °C for 4 minutes, followed by 30 cycles at 94 °C for 30 seconds, 60 °C for 30 seconds, 72 °C for 30 seconds and a final extension at 72 °C for 10 minutes. Then, PCR products were digested by restriction enzymes (shown in Table 1).

SNPs	Primer sequence	Major/minor gene	Annealing temperature (°C)	Restriction enzyme	Product size (Bp)
227020	F:5'-GCAGACTTGGAAAAGCAAACA-3'	A IC	50.0	11 1001	A: 138
rs237028	R: 5'-CCAGCCTGAGCAACAAGAG-3'	A/G	58.0	Hpy188I	G: 32 + 106
521045	F: 5'-TAGGGCGGTTGAGAAGTGAA-3'	TIC	60.0	A -1T	T: 120
rs521845	R: 5'-CCTGGGTGACTGAGCTCTTA-3'	T/G	60.0	AclI	G: 20 + 120
652021	F: 5'-GGCCATTTGGCTCAGAAAT-3'	TIC	(2.0	D. II	T: 104
rs652921	R: 5'-GAGGGAGCTCAGTGGAATTG-3'	T/C	62.0	BsaJI	C: 21 + 83
PCR: Polymera	se chain reaction, RFLP: Restriction fragment length polymorp	hisms, SNP: Single nucle	otide polymorphism, Bp: Base p	oair	

Table 1. Information on PCR-RFLP in enrolled subjects

Finally, the genotype of the sites was determined through the Fragment Analyzer 96 Automated CE system (AATI, America); about 10% of the samples were randomly selected for repeated determination, and the results were 100% consistent.

### Statistical Analysis

Version 20.0 of the SPSS software package for Windows (SPSS Inc., Chicago, IL, USA) was used to analyze the data. The genotype associations between the *TAB2* gene and EC were calculated by SNPstats online analysis software (https://www.snpstats.net/start.htm), which assessed the frequency distributions of four genetic models (codominant, dominant, recessive, and overdominant) in EC women and healthy controls. Chi-square tests were conducted to compare allele frequencies, genotype distributions, and the Hardy-Weinberg equilibrium between the two groups. Odds ratios (ORs) and respective 95% confidence intervals (CIs) were used to assess the influences of different alleles and genotypes. The primary parameters compared included allele frequency, genotype distribution, OR, and 95% CI between EC patients and controls. P<0.05 was considered statistically significant.

### Results

### Clinical Characteristics and Hardy-Weinberg Equilibrium Test

Between the EC patients and control subjects, there was no statistically significant difference (p>0.05) in general characteristics, such as mean age, body mass index (BMI), menopausal ratio, pregnancy history, etc. (shown in Table 2). Among the 270 EC patients, 247 patients had abnormal uterine bleeding, and 268 had received surgical treatment. The primary histopathological type of these patients was endometrioid adenocarcinoma. The genotypes of the three SNPs (rs237028, rs521845, rs652921) in the two groups all conformed to Hardy-Weinberg equilibrium.

### TAB2 Gene Polymorphisms and EC Susceptibility

The differences in the allele frequencies and genotypes of the three SNPs between patients with EC and controls are presented in Table 3. The genotype distributions of T/T, T/G, and G/G for rs521845 were 32.1%, 52.2%, and 15.7% in the case group and 43.5%, 44.9%, and 11.6% in the control group, respectively. Significance had been observed in the codominant model (p=0.017). In the dominant model, compared with the T/T genotype, T/G or G/G genotypes were associated with a significantly decreased risk of EC (p=0.0051, OR: 0.61, 95% CI: 0.43-0.87). Similarly, the frequency of G allele of rs521845 was higher in patients (42%) than in controls (34%) (p=0.08, OR: 0.72, 95% CI: 0.56-0.91). Meanwhile, similar results were observed between patients with endometrioid adenocarcinoma and controls. No significant correlation was found between EC and rs237028 or rs652921.

### Association Between TAB2 Gene Polymorphisms and Clinical Features

To learn more about the association between the three SNPs and EC, we stratified these EC patients according to age, BMI, family history of cancer, menopausal status, histological types, FIGO grades, myometrium invasion, parametrial invasion, cervical invasion, and lymph nodes status (Tables 4, 5, and 6). It was observed that for rs237028, the percentage of AG genotype in patients with highly differentiated tumours (G1) was significantly higher than that in moderately differentiated patients (G2/G3) (p=0.031, OR: 0.77, 95% CI: 0.45-1.30). In addition, there were no statistically significant differences among subgroups of other SNPs.

### **Discussion**

The *TAB2* gene maps on chromosome 6q25.1 and encodes a scaffold protein that forms a kinase complex that links TRAF6 and TAK1, thus determining TAK1 activation<sup>(24)</sup>. TAK1 has been implicated in regulating various cellular processes, including embryonic development, differentiation, autophagy, apoptosis, and cell survival has been thought to be related to the occurrence and development of cancer<sup>(25)</sup>. TAB2, as an essential protein for TAK1 activation, has been studied in many diseases. Initially, Sanjo et al.<sup>(26)</sup> found that TAB2 was necessary for embryonic development by preventing

Table 2. Baseline characteristics of endometrial cancer patients and health controls

Characteristics	Number of case (%)	Number of controls (%)	p
Sample size	270	294	
Age mean ± SD (range) (year)	51.63±9.79 (25-81)	51.86±12.70 (28-75)	0.81
BMI mean $\pm$ SD (kg/m <sup>2</sup> )	24.14±3.42	24.32±3.26	0.59
History of pregnancy			
Yes	254 (94.1%)	277 (94.2%)	0.74
No	16 (5.9%)	17 (5.8%)	0.54
Menopausal status			
Premenopausal	131 (48.5%)	128 (43.5%)	0.14
Postmenopausal	139 (51.5%)	166 (56.5%)	0.14
Family history of cancer			
Yes	21 (7.8%)	19 (6.5%)	0.22
No	249 (92.2%)	275 (93.5%)	0.33
Abnormal uterine bleeding			
Yes	254 (94.1%)		
No	13 (4.8%)		
FIGO grade			
G1	97 (35.9%)		
G2	98 (36.3%)		
G3	75 (27.8%)		
FIGO stage			
I	205 (75.9%)		
П	22 (8.1%)		
III	29 (10.7%)		
IV	12 (4.4%)		
Unknown	2 (0.7%)		
Histology			
Endometrioid adenocarcinoma	228 (84.4%)		
Non-endometrioid adenocarcinoma	42 (15.6%)		
Myometrial invasion			
<1/2	167 (61.9%)		
≥1/2	60 (22.2%)		
No	43 (15.9%)		
Parametrial invasion			
Yes	23 (8.5%)		
No	245 (90.7%)		
Cervical invasion			
Yes	43 (15.9%)		
No	225 (83.3%)		

Table 2. Continued

Characteristics	Number of case (%)	Number of controls (%)	p
Vascular invasion			
Yes	23 (8.5%)		
No	216 (80.0%)		
Lymph node status			
Yes	23 (8.5%)		
No	216 (80.0%)		
IHC			
ER (+)	198/222		
PR (+)	188/221		
P53 (+)	132/212		

SD: Standard deviation, BMI: Body mass index, FIGO: International Federation of Gynecology and Obstetrics, IHC: Immunohistochemistry, ER: Estrogen, PR: Progesterone

hepatocyte apoptosis. Owerbach et al. (27) that first identified that the *TAB2* gene was associated with susceptibility to type 1 diabetes mellitus. It's worth noting that in Thienpont et al. '\$(28) study, the *TAB2* gene was expressed in the developing heart and was mutated, deleted, or disrupted by a translocation among congenital heart defect patients. This suggested that the gene plays a vital role in the development of embryos and the formation of heart valves, a finding that has been linked to much subsequent research on the gene. Weiss et al. '\$(29) report supported the association of TAB2 haploinsufficiency with various congenital heart defects. Cheng et al. (30,31) found that TAB2 microdeletion is a risk factor for hypoplastic left heart syndrome (HLHS) and proposed the necessity of SNP microarray analysis and molecular testing for a TAB2 loss of function variant in HLHS patients.

TAB2 is not just part of the inflammatory pathway, but also considered a potential target to potentiate antiestrogen action<sup>(32)</sup>. Evidence provided by Reineri et al.<sup>(18)</sup> suggested that TAB2, in conjunction with the nuclear receptor corepressor complex and its novel functional domain, interacts with estrogen receptors in breast cancer cells. EC's leading risk factor is exposure to endogenous and exogenous oestrogens, and estrogen requires estrogen to function physiologically through estrogen receptor  $\alpha$  (ERS1). The ESR1 gene, encoding the estrogen receptor 1, is an identified oncogene for EC<sup>(33)</sup>. It is worth noting that the TAB2 gene is close to the ESR1 gene on the chromosome. This suggests that the TAB2 gene may be interlinked with the ESR1 gene, jointly affecting the occurrence and development of EC.

In the latest study, Shen et al. (16) confirmed that the *TAB2* gene polymorphism is associated with susceptibility to DCM in a Chinese population. Furthermore, their results showed that the risk of DCM was higher among G (A/G-G/G) carriers of rs237028, C carriers (C/T-C/C) of rs652921,

and *G* carriers (T/*G*-*G*/*G*) of rs521845. Interestingly, Huang et al.<sup>(19)</sup> showed that only rs237028 polymorphism in the *TAB2* gene was significantly associated with ovarian cancer susceptibility.

Although *TAB2* gene variants are significantly associated with various diseases, the association with EC remains unclear. Accordingly, we decided to investigate whether the *TAB2* gene polymorphism has an impact on EC. We selected the three SNPs located on the intron of the *TAB2* gene, may influence the regulation of gene expression. In the present study, we first confirmed that the rs521845 polymorphism in *TAB2* is significantly associated with EC susceptibility. Our data showed that the decrease in EC risk was related to the T allele of rs521845. Moreover, in both codominant and dominant models, the TT genotype of rs521845 was correlated with a lower EC risk. Therefore, TAB2 might be a potential protective factor for EC. However, the other two SNPs (rs237028, rs652921) had no significant link with EC.

### Conclusion

According to the degree of differentiation of EC tissue, EC tissue differentiation can be classified as the grade 1 (highly differentiated, G1), the grade 2 (moderately differentiated, G2), and the grade 3 (poorly differentiated, G3). The lower the degree of differentiation, the more malignancy is exhibited. For rs237028, patients with A/G genotype had lower-grade tumours (G1), compared to patients with genotype A/A or G/G. Stratified analysis of the three SNP genotypes of the TAB2 gene showed no significant differences in age, BMI, family history, and menopause history. Although rs521845 variation in TAB2 was associated with EC susceptibility, there were no significant differences in the clinicopathological features of EC such as pathological stage, histological grade, and histological type among patients with different genotypes.

Table 3. Distribution of SNPs in TAB2 between patients and controls as well as their association with endometrial cancer risk

		4					I		
						Logistic regression			
		Genotyne	Cases		Controls n=294	Cases vs. controls		EA vs. control	
			Total n=270 (%)	EA n=228 (%)	(%)	OR (95% CI)	d	OR (95% CI)	d
rs237028									
		A/A	142 (55.9%)	116 (54%)	177 (60.2%)	1.00	0.36	1.00	0.15
	Codominant	A/G	(%68) 66	89 (41.4%)	98 (33.3%)	0.79 (0.56-1.13)		0.72 (0.50-1.05)	
		G/G	13 (5.1%)	10 (4.7%)	19 (6.5%)	1.17 (0.56-2.46)		1.25 (0.56-2.77)	
		A/A	142 (55.9%)	116 (54%)	177 (60.2%)	1.00	0.31	1.00	0.16
Genetic model	Dominant	A/G-G/G	112 (44.1%)	99 (46%)	117 (39.8%)	0.84 (0.60-1.18)		0.77 (0.54-1.11)	
		A/A-A/G	241 (94.9%)	205 (95.3%)	275 (93.5%)	1.00	0.50	1.00	0.38
	Kecessive	G/G	13 (5.1%)	10 (4.7%)	19 (6.5%)	1.28 (0.62-2.65)		1.42 (0.64-3.11)	
		A/A-G/G	155 (61%)	126 (58.6%)	196 (66.7%)	1.00	0.17	1.00	0.06
	Overdominant	A/G	(%68) 66	89 (41.4%)	98 (33.3%)	0.78 (0.55-1.11)		0.71 (0.49-1.02	
1.114		А	383 (75%)	321 (75%)	452 (77%)	1.00	0.57	1.00	0.41
Allele		G	125 (25%)	109 (25%)	136 (23%)	0.92 (0.70-1.22)		0.89 (0.66-1.18)	
rs521845									
		T/T	86 (32.1%)	72 (31.7%)	128 (43.5%)	1.00	0.017	1.00	0.017
	Codominant	T/G	140 (52.2%)	118 (52%)	132 (44.9%)	0.63 (0.44-0.91)		0.63 (0.43-0.92)	
		G/G	42 (15.7%)	37 (16.3%)	34 (11.6%)	0.54 (0.32-0.92)		0.52 (0.30-0.89)	
		T/T	86 (32.1%)	72 (31.7%)	128 (43.5%)	1.00	0.0051	1.00	0.0057
Genetic model	Dominant	T/G-G/G	182 (67.9%)	155 (68.3%)	166 (56.5%)	0.61 (0.43-0.87)		0.60 (0.42-0.87)	
		T/T-T/G	226 (84.3%)	190 (83.7%)	260 (88.4%)	1.00	0.16	1.00	0.12
	Kecessive	G/G	42 (15.7%)	37 (16.3%)	34 (11.6%)	0.70 (0.43-1.14)		0.67 (0.41-1.11)	
		T/T-G/G	128 (47.8%)	109 (48%)	162 (55.1%)	1.00	0.17	1.00	0.11
	Overdominant	T/G	140 (52.2%)	118 (52%)	132 (44.9%)	0.78 (0.55-1.11)		0.75 (0.53-1.07)	
A 11 - 1 - 1		Н	312 (58%)	262 (58%)	388 (66%)	1.00	0.008	1.00	0.007
Allele		Ŋ	224 (42%)	192 (42%)	200 (34%)	0.72 (0.56-0.91)		0.70 (0.55-0.91)	

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Table 3: Communed	7								
						Logistic regression			
		Genotyne	Cases		Controls n=294	Cases vs. controls		EA vs. control	
			Total n=270 (%)	EA n=228 (%)	(%)	OR (95% CI)	d	OR (95% CI)	d
rs652921									
		T/T	74 (29.5%)	59 (28.1%)	98 (33.3%)	1.00	09.0	1.00	0.45
	Codominant	C/I	126 (50.2%)	104 (49.5%)	137 (46.6%)	0.82 (0.56-1.21)		0.79 (0.53-1.20)	
		C/C	51 (20.3%)	47 (22.4%)	59 (20.1%)	0.87 (0.54-1.41)		0.76 (0.46-1.25)	
		T/T	74 (29.5%)	59 (28.1%)	98 (33.3%)	1.00	0.33	1.00	0.21
Genetic model	Dominant	C/T-C/C	177 (70.5%)	151 (71.9%)	196 (66.7%)	0.84 (0.58-1.20)		0.78 (0.53-1.15)	
		T/T-C/T	200 (79.7%)	163 (77.6%)	235 (79.9%)	1.00	0.94	1.00	0.53
	Kecessive	C/C	51 (20.3%)	47 (22.4%)	59 (20.1%)	0.98 (0.65-1.50)		0.87 (0.57-1.34)	
		T/T-C/C	125 (49.8%)	106 (50.5%)	157 (53.4%)	1.00	0.40	1.00	0.52
	Overdominant	CT	126 (50.2%)	104 (49.5%)	137 (46.6%)	0.87 (0.62-1.21)		0.89 (0.62-1.27)	
4.11.11.		T	274 (55.0%)	222 (53.0%)	333 (57.0%)	1.00	0.50	1.00	0.25
Allele		C	228 (45.0%)	198 (47.0%)	255 (43.0%)	0.92 (0.72-1.17)		0.86 (0.67-1.10)	
SNP: Single nucleotide	polymorphism, TAB2: T	Fransforming growth	factor-β-activated kinase	1 binding protein 2, EA.	: Endometrioid adenocarcin	SNP: Single nucleotide polymorphism, TAB2: Transforming growth factor-β-activated kinase 1 binding protein 2, EA: Endometrioid adenocarcinoma, OR: Odds ratio, CI: Confidence interval	nfidence interv	al	

Table 4. Association between the genotype distribution of rs237028 polymorphism of TAB2 gene and clinical features

Age   Age			Genotype	type		Genetic model							
Secondary Colore   Secondary Color   Secondary	Clinical characteristics		AA	AG	99	Codominant (AA vs. AG vs. GG)		Dominant (AA vs. AG/GG)		Recessive (AA/AG vs. GG)		Overdominant (AA/GG vs. AG)	
Signature   Sign						OR (95% CI)	b	OR (95% CI)	Ь	OR (95% CI)	d	OR (95% CI)	d
250   250   250   250   250   260   260   251   261   262   265   262   263	•	<50	57			AG: 0.95 (0.56-1.60)	1	(1)	6	\(\frac{1}{2}\)	7	() () () ()	1
ct7         112         81         11         AG: 0.83 (0.43-1.59)         0.78         0.81 (0.43-1.52)         0.51         0.73 (0.16-3.41)         0.68           227         30         18         2         GG: 0.08 (0.143.23)         0.11         1.89 (0.70-5.14)         0.51         4.86 (1.20-19.70)         0.049           Permenopausal         13         92         10         AG: 0.49 (0.56-1.57)         0.75         0.99 (0.60-1.62)         0.96         1.51 (0.48-4.75)         0.49           Permenopausal         68         40         5         AG: 0.94 (0.56-1.57)         0.75         0.99 (0.60-1.62)         0.96         1.51 (0.48-4.75)         0.49           Posimenopausal         74         50         8         GG: 1.47 (0.46-4.71)         0.75         0.99 (0.60-1.62)         0.96         1.51 (0.48-4.75)         0.49           Ann-EA         116         89         10         AG: 0.77 (0.45-1.30)         0.75         0.99 (0.60-1.62)         0.71         1.71 (0.45-6.51)         0.44           G1-G2-G3         9         38         12         AG: 0.77 (0.45-1.30)         0.79         0.91 (0.54-1.52)         0.71         7.28 (0.93-56.84)         0.04           G1-IV         30         41         41         <	Age	>50	85	58	6	GG: 1.51 (0.44-5.13)	0.70	1.00 (0.60-1.65)	1:00	1.54 (0.46-5.15)	0.47	0.92 (0.55-1.53)	0.74
vector         30         18         2         GG. 0.68 (0.14.3.23)         0.78         0.81 (0.45-1.22)         0.51 (0.10-5.41)         0.09           Negative         135         9.2         10         AG: 1.47 (0.50-4.32)         0.11         1.89 (0.70-5.14)         0.21         4.86 (1.20-19.70)         0.049           Permenopausal         68         49         5         AG: 0.94 (0.56-1.57)         0.75         0.99 (0.60-1.62)         0.96         1.51 (0.48-4.75)         0.48           Postmenopausal         7         7         3         GG: 1.47 (0.46-4.71)         0.75         0.99 (0.60-1.62)         0.96         1.51 (0.48-4.75)         0.48           Postmenopausal         7         7         3         GG: 0.94 (0.56-1.57)         0.75         0.99 (0.60-1.62)         0.96         1.51 (0.48-4.75)         0.48           Non-EA         16         8         GG: 1.47 (0.46-4.71)         0.15         0.59 (0.29-1.20)         0.14         1.71 (0.45-6.51)         0.45           G1         GG: 0.50 (0.23-1.25)         0.031         0.91 (0.54-1.52)         0.71         7.28 (0.93-5.684)         0.014           I-I-V         3         GG: 0.80 (0.44-1.49)         0.79         0.82 (0.45-1.52)         0.71         7.28 (0.93-5.684)	79.64	<27	112	81	11	AG: 0.83 (0.43-1.59)	1	0,000		(17 ( ) ( ) ( ) ( ) ( ) ( ) ( ) ( ) ( ) (	0	7 0 0	
roce protect         Negative         135         92         10         AG: 1.47 (0.50-4.32)         0.11         1.89 (0.70-5.14)         0.21         4.86 (1.20-19.70)         0.049           Premenopausal obstitive         7         7         3         GG: 5.79 (1.29-25.86)         0.15         0.99 (0.60-1.62)         0.96         1.51 (0.48-4.75)         0.48           Premenopausal 74         50         8         GG: 1.47 (0.46-4.71)         0.75         0.99 (0.60-1.62)         0.96         1.51 (0.48-4.75)         0.48           Bostmenopausal 74         50         8         GG: 1.47 (0.46-4.71)         0.75         0.99 (0.60-1.62)         0.79         1.51 (0.48-4.75)         0.48           Non-EA         26         10         3         GG: 1.47 (0.46-4.71)         0.15         0.59 (0.29-1.20)         0.14         1.71 (0.45-6.51)         0.45           Ann-EA         26         10         3         GG: 1.47 (0.46-4.71)         0.15         0.90 (0.29-1.20)         0.71         1.71 (0.45-6.51)         0.45           G1         GG: 3         10         3         GG: 0.77 (0.45-1.49)         0.79         0.82 (0.45-1.56)         0.71         7.72 (0.95-2.68)         0.01           H-I-V         3         2         1	BMI	>27	30	18	2	GG: 0.68 (0.14-3.23)	0.78	0.81 (0.43-1.32)	0.51	0.75 (0.16-5.41)	0.08	0.83 (0.43-1.62)	0.03
rect         Positive         7         7         3         GG: 5.79 (1.29-25.86)         0.11         LB9 (0.70-2.14)         0.21         +86 (1.20-19.70)         0.049           Premenopausal         68         49         5         AG: 0.94 (0.56-1.57)         0.75         0.99 (0.60-1.62)         0.96         1.51 (0.48-4.75)         0.48           Postmenopausal         74         50         8         GG: 1.47 (0.46-4.71)         0.75         0.99 (0.60-1.62)         0.96         1.51 (0.48-4.75)         0.48           EA         116         89         10         AG: 0.50 (0.25-1.09)         0.15         0.59 (0.29-1.20)         0.14         1.71 (0.45-6.51)         0.45           Mon-EA         26         10         3         GG: 1.34 (0.34-5.1.30)         0.031         0.91 (0.54-1.52)         0.71         1.71 (0.45-6.51)         0.45           G1         3         41         1         AG: 0.83 (0.44-1.49)         0.79         0.82 (0.45-1.52)         0.71         1.71 (0.45-6.51)         0.94           I-I-V         3         2         1         AG: 0.81 (0.44-1.49)         0.79         0.82 (0.45-1.52)         0.71         1.71 (0.45-6.51)         0.94           I-I-V         3         2         1	:	Negative	135	92	10	AG: 1.47 (0.50-4.32)	-		7			0000	ŗ
Premenopausal   68   49   5   AG; 0.94 (0.56-1.57)   O.75   O.99 (0.60-1.62)   O.96   I.51 (0.48-4.75)   O.48     Postmenopausal   74   50   8   GG; 1.47 (0.46-4.71)   O.15   O.59 (0.29-1.20)   O.14   I.71 (0.48-4.75)   O.45     EA	Family history of cancer	Positive	7	7	3	GG: 5.79 (1.29-25.86)	0.11	1.89 (0.70-5.14)	0.21	4.86 (1.20-19.70)		1.10 (0.41-5.00)	0.85
Postmenopausa  74   50   8   GG: 1.47 (0.46-4.71)   0.75   0.599 (0.29-1.202)   0.14   1.71 (0.45-6.51)   0.45     EA	, , , , , , , , , , , , , , , , , , ,	Premenopausal	89	49	5	AG: 0.94 (0.56-1.57)	77	(2) 1 (2) (0) (0)	900	(77 7 0 0 0) [7]	0,4	, n n 0) 10 0	7
EAA   116   89   10   AG: 0.50 (0.23-1.09)   0.15   0.59 (0.29-1.20)   0.14   1.71 (0.45-6.51)   0.45   0	Menopausai status	Postmenopausal	74	20	8	GG: 1.47 (0.46-4.71)	0.73	0.99 (0.00-1.02)	0.90	1.31 (0.48-4.73)	0.40	0.91 (0.33-1.30)	0.71
Non-EA   26   10   3   GG; 1.34 (0.34-5.21)   0.13   0.031   0.034   0.14   1.11 (0.75-0.31)   0.74   0.14   1.11 (0.75-0.31)   0.14   0.15	, n	EA	116	89	10	AG: 0.50 (0.23-1.09)	7		7	7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	2 7	0,000	, d
G1         50         41         1         AG: 0.77 (0.45-1.30)         0.031         0.91 (0.54-1.52)         0.71         7.28 (0.93-56.84)         0.014           G2-G3         92         58         12         GG: 6.52 (0.83-51.55)         0.79         0.82 (0.45-1.48)         0.50         0.98 (0.26-3.69)         0.98           11-IV         35         21         3         GG: 0.90 (0.23-3.46)         0.79         0.82 (0.45-1.48)         0.50         0.98 (0.26-3.69)         0.98           <11/2	ratnological type	Non-EA	26	10	3	GG: 1.34 (0.34-5.21)	0.13	0.39 (0.29-1.20)	0.14	1.71 (0.43-0.31)	0.40	0.49 (0.23-1.03)	0.00
C2-G3   92   58   12   GG: 6.52 (0.83-51.55)   C.031 (0.94-11.94)   C.79   C.20 (0.45-1.48)   C.79   C.20 (0.45-1.48)   C.79   C.26 (0.45-1.48)   C.79   C.26 (0.45-1.48)   C.79   C.26 (0.45-1.48)   C.70   C.26 (0.26-3.69)   C.30   C.20 (0.23-3.46)   C.70   C.20 (0.41-1.41)   C.20 (0.26-3.69)   C.20 (0.26-3.69)   C.20 (0.20-2.51)   C.20 (0.20-2.28)   C.20 (0.20-2.51)   C.20 (0.20-2.28)   C.20 (0.20-2.51)   C.20 (0.20-2.28)   C.20 (0.20-2.51)   C.20 (0.20-2.28)   C		G1	50	41	1	AG: 0.77 (0.45-1.30)		() () ()	7	000000000000000000000000000000000000000		0000	1
1.1   105   78   10   AG: 0.81 (0.44-1.49)   0.79   0.82 (0.45-1.48)   0.50   0.98 (0.26-3.69)   0.98   11-1V   35   21   3   GG: 0.90 (0.23-3.46)   0.58   0.76 (0.41-1.41)   0.38   0.56 (0.12-2.63)   0.94   0.51   0.54   0.55 (0.12-2.63)   0.54   0.56 (0.12-2.63)   0.54   0.56 (0.12-2.63)   0.54   0.56 (0.12-2.63)   0.54   0.56 (0.12-2.63)   0.54   0.56 (0.12-2.63)   0.54   0.56 (0.12-2.63)   0.54   0.56 (0.12-2.63)   0.54   0.56 (0.12-2.63)   0.54   0.56 (0.12-2.63)   0.54   0.56 (0.12-2.63)   0.55   0.56 (0.12-2.63)   0.56 (0.12-2.63)   0.56   0.56 (0.12-2.63)   0.56   0.56 (0.12-2.63)   0.56 (0.12-2.63)   0.56 (0.12-2.63)   0.56 (0.12-2.63)   0.56 (0.12-2.63)   0.56 (0.12-2.63)   0.56 (0.12-2.63)   0.56 (0.12-2.63)   0.56 (0.12-2.63)   0.56 (0.12-2.63)   0	FIGU grade	G2-G3	92	58		GG: 6.52 (0.83-51.55)	0.031	0.91 (0.54-1.52)	0.71	7.28 (0.93-56.84)		0.69 (0.41-1.17)	0.17
II-IV   35   21   3   GG: 0.90 (0.23-3.46)   0.79   0.82 (0.49-1.48)   0.50   0.90 (0.29-3.09)   0.95		I	105	78		AG: 0.81 (0.44-1.49)	1	7 0 0	ŗ		C	0 0 0	į
<1/2         117         84         12         AG: 0.80 (0.42-1.51)         0.58         0.76 (0.41-1.41)         0.38         0.56 (0.12-2.63)         0.44           >1/2         84         64         10         GG: 0.51 (0.11-2.45)         0.61         0.76 (0.41-1.41)         0.38         0.56 (0.12-2.63)         0.44           Negative         125         92         12         AG: 0.63 (0.25-1.62)         0.61         0.64 (0.26-1.57)         0.32         0.82 (0.10-6.62)         0.85           Negative         119         82         11         AG: 1.17 (0.58-2.36)         0.90         1.16 (0.59-2.28)         0.67         0.96 (0.20-4.51)         0.96           Negative         117         84         12         AG: 0.91 (0.45-1.84)         0.66         0.85 (0.42-1.70)         0.64         0.44 (0.06-3.49)         0.39           Negative         112         80         10         AG: 0.42 (0.05-3.42)         0.44         0.71 (0.29-1.77)         0.46         1.92 (0.39-9.38)         0.45           Positive         14         6         2         GG: 1.60 (0.32-8.06)         0.71 (0.29-1.77)         0.46         1.92 (0.39-9.38)         0.45	FIGU stage	VI-II	35	21	3	GG: 0.90 (0.23-3.46)	0.79	0.82 (0.43-1.48)	0.50	0.98 (0.20-5.09)	0.98	0.81 (0.44-1.49)	0.51
Section   125   92   12   AG: 0.63 (0.25-1.62)   0.50   0.70 (0.71-1.71)   0.50   0.50 (0.12-2.05)   0.74     Negative   12   7   1   GG: 0.69 (0.08-5.72)   0.61   0.64 (0.26-1.57)   0.59   0.90   0.10 (0.59-2.28)   0.67   0.96 (0.20-4.51)   0.96     Negative   117   84   12   AG: 0.91 (0.45-1.84)   0.66   0.85 (0.42-1.70)   0.64   0.71 (0.29-1.77)   0.64   0.71 (0.29-1.77)   0.44 (0.06-3.49)   0.45     Negative   112   80   10   AG: 0.60 (0.22-1.63)   0.44   0.71 (0.29-1.77)   0.46   1.92 (0.39-9.38)   0.45     Positive   14   6   2   GG: 1.60 (0.32-8.06)   0.44   0.71 (0.29-1.77)   0.46   1.92 (0.39-9.38)   0.45     October   1.92 (0.39-9.38)   0.45   0.45   0.45     October   1.92 (0.39-9.38)   0.45   0.45     October   1.92 (0.39-9.38)   0.45   0.45   0.45   0.45   0.45     October   1.92 (0.39-9.38)   0.45   0.45   0.45   0.45     October   1.92 (0.39-9.38)   0.45   0.45   0.45   0.45   0.45     October   1.92 (0.39-9.38)   0.45   0.45   0.45   0.45   0.45   0.45   0.45   0.45     October   1.92 (0.39-9.38)   0.45   0.4		<1/2	117	84		AG: 0.80 (0.42-1.51)	ה ה	0.76 (0.41.1.41)	000	(6) 6 6 6 0 0 9 3 0	2	0 0 0 0	n O
Negative         125         92         12         AG: 0.63 (0.25-1.62)         0.61         0.64 (0.26-1.57)         0.32         0.82 (0.10-6.62)         0.85           Positive         15         7         1         GG: 0.69 (0.08-5.72)         0.61         0.64 (0.26-1.57)         0.32         0.82 (0.10-6.62)         0.85           Negative         119         82         11         AG: 1.17 (0.58-2.36)         0.90         1.16 (0.59-2.28)         0.67         0.96 (0.20-4.51)         0.96           Negative         117         84         12         AG: 0.91 (0.45-1.84)         0.66         0.85 (0.42-1.70)         0.64         0.44 (0.06-3.49)         0.39           Negative         112         80         10         AG: 0.60 (0.22-1.63)         0.44         0.71 (0.29-1.77)         0.46         1.92 (0.39-9.38)         0.45           Positive         14         6         2         GG: 1.60 (0.32-8.06)         0.71 (0.29-1.77)         0.46         1.92 (0.39-9.38)         0.45	Myometriai myasion	>1/2	84	64	10	GG: 0.51 (0.11-2.45)	000	0.70 (0.41-1.41)	000	0.30 (0.12-2.03)	0.7	0.64 (0.44-1.36)	0.09
Positive         15         7         1         GG: 0.69 (0.08-5.72)         U.01         U.04 (0.20-1.37)         U.32         U.32 (0.10-0.02)         U.33           Negative         119         82         11         AG: 0.17 (0.58-2.36)         0.90         1.16 (0.59-2.28)         0.67         0.96 (0.20-4.51)         0.96           Negative         117         2         AG: 0.91 (0.45-1.84)         0.66         0.85 (0.42-1.70)         0.64         0.44 (0.06-3.49)         0.39           Negative         112         80         10         AG: 0.60 (0.22-1.63)         0.44         0.71 (0.29-1.77)         0.46         1.92 (0.39-9.38)         0.45           Positive         14         6         2         GG: 1.60 (0.32-8.06)         0.44         0.71 (0.29-1.77)         0.46         1.92 (0.39-9.38)         0.45		Negative	125	95		AG: 0.63 (0.25-1.62)	5	0000	ć	(6) ) 01 0) 60 0	Ç	1000 m	Ç
Negative         119         82         11         AG: 1.17 (0.58-2.36)         0.90         1.16 (0.59-2.28)         0.67         0.96 (0.20-4.51)         0.96           Positive         117         84         12         AG: 0.91 (0.45-1.84)         0.66         0.85 (0.42-1.70)         0.64         0.44 (0.06-3.49)         0.39           Positive         23         15         1         GG: 0.42 (0.05-3.42)         0.44         0.71 (0.29-1.77)         0.46         1.92 (0.39-9.38)         0.45           Positive         14         6         2         GG: 1.60 (0.32-8.06)         0.44         0.71 (0.29-1.77)         0.46         1.92 (0.39-9.38)         0.45	rarametriai invasion	Positive	15	7	П	GG: 0.69 (0.08-5.72)	0.01	0.07 (0.20-1.37)	0.32	0.62 (0.10-0.02)	0.00	0.03 (0.20-1.03)	0.33
Positive         21         17         2         GG: 1.03 (0.21-4.98)         0.50         1.10 (0.35-2.26)         0.57         0.50 (0.20-4.31)         0.59           Negative         117         84         12         AG: 0.91 (0.45-1.84)         0.66         0.85 (0.42-1.70)         0.64         0.44 (0.06-3.49)         0.39           Negative         112         80         10         AG: 0.60 (0.22-1.63)         0.44         0.71 (0.29-1.77)         0.46         1.92 (0.39-9.38)         0.45           Positive         14         6         2         GG: 1.60 (0.32-8.06)         0.44         0.71 (0.29-1.77)         0.46         1.92 (0.39-9.38)         0.45		Negative	119	82	11	AG: 1.17 (0.58-2.36)		(0000) 911	700	(17 4 00 0) 20 0	900	(((((((((((((((((((((((((((((((((((((((	מ
Negative         117         84         12         AG: 0.91 (0.45-1.84)         0.66         0.85 (0.42-1.70)         0.64         0.44 (0.06-3.49)         0.39           Positive         12         80         10         AG: 0.60 (0.22-1.63)         0.44         0.71 (0.29-1.77)         0.46         1.92 (0.39-9.38)         0.45           Positive         14         6         2         GG: 1.60 (0.32-8.06)         0.44         0.71 (0.29-1.77)         0.46         1.92 (0.39-9.38)         0.45	Cervical invasion	Positive	21	17	2	GG: 1.03 (0.21-4.98)	0.90	1.10 (0.39-2.28)	0.07	0.90 (0.20-4.31)	0.90	1.17 (0.39-2.32)	0.00
Positive 23 15 1 GG: 0.42 (0.05-3.42) 0.00 0.03 (0.72-1.70) 0.04 0.71 (0.29-1.77) 0.04 0.71 (0.29-1.77) 0.46 1.92 (0.39-9.38) 0.45 0.45 0.45		Negative	117	84		AG: 0.91 (0.45-1.84)	99.0	(07 1 07 0) 30 0	7	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	000	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	5
Negative         112         80         10         AG: 0.60 (0.22-1.63)         0.44         0.71 (0.29-1.77)         0.46         1.92 (0.39-9.38)         0.45           Positive         14         6         2         GG: 1.60 (0.32-8.06)         0.44         0.71 (0.29-1.77)         0.46         1.92 (0.39-9.38)         0.45	vascular invasion	Positive	23	15	П	GG: 0.42 (0.05-3.42)	0.00	0.63 (0.42-1.70)	0.04	0.44 (0.00-5.44)	60.0	0.90 (0.40-1.94)	0.91
Positive 14 6 2 GG: 1.60 (0.32-8.06) U.74 U.71 (0.29-1.77 U.40 1.92 (0.39-9.38) U.43	1	Negative	112	80	10	AG: 0.60 (0.22-1.63)	2	77 1 00 0) 12 0	4	(00000000000000000000000000000000000000	ر بر	(5) 1 10 0) 23 0	, ,
	Lympn node status	Positive	14	9	7	GG: 1.60 (0.32-8.06)	0.44	0.71 (0.29-1.77	0.40	1.92 (0.39-9.36)	0.40	0.37(0.21-1.32)	0.23

Table 5. Association between the genotype distribution of rs652921 polymorphism of TAB2 gene and clinical features

Chinical characteristics   Continue and Age   Con			l	ı	ı		)	ı	I	ı	I	ı	
Conformation   Conf			Geno	type		Genetic model							
Second	Clinical characteristics		t t	( H	(	Codominant (TT vs. TG vs. GG)		Dominant (TT vs. TG/GG)		Recessive (TT/TG vs. GG)		Overdominant (TT/GG vs.TG)	
Secondary Common   Secondary C			=	ופ	55	OR (95% CI)	ď	OR (95% CI)	d	OR (95% CI)	Ь	OR (95% CI)	Ь
250   261   262		<50	36	56	16	TG: 1.08 (0.63-1.86)	0		1		l I		(
277         67         117         32         TG: 0.69 (0.35-1.37)         0.43         0.78 (0.41-1.47)         0.45         1.37 (0.62-3.00)         0.44         0.67 (0.36-1.23)           Positive         19         23         10         GG: 1.10 (0.46-2.64)         0.88         1.20 (0.45-3.20)         0.72         1.29 (0.41-4.06)         0.67         1.01 (0.41-2.46)           Positive         6         11         4         GG: 1.40 (0.37-5.27)         0.89         1.20 (0.45-3.20)         0.72         1.29 (0.41-4.06)         0.67         1.01 (0.41-2.46)           Positive         6         11         4         GG: 1.40 (0.37-5.27)         0.97         1.02 (0.61-1.70)         0.94         0.93 (0.46-1.80)         0.87         1.00 (0.41-2.46)           Non-EA         11         21         GG: 0.64 (0.20.00)         0.73         1.02 (0.61-1.70)         0.94         0.93 (0.46-1.10)         0.83         1.00 (0.65-1.71)           Acta         11         21         1.10 (0.61-1.20)         0.75         0.90 (0.44-1.18)         0.76         0.71 (0.26-1.94)         0.93         0.86 (0.44-1.11)           Acta         11         12         2         GG: 0.60 (0.15-1.12)         0.75         0.90 (0.44-1.18)         0.71         0.91 (0.91-1.18) <th>Age</th> <td>&gt;50</td> <td>50</td> <td>84</td> <td>26</td> <td>GG: 1.17 (0.55-2.49)</td> <td>0.92</td> <td>1.10 (0.65-1.85)</td> <td>0.72</td> <td>1.12 (0.57-2.20)</td> <td>0.75</td> <td>1.03 (0.63-1.67)</td> <td>0.92</td>	Age	>50	50	84	26	GG: 1.17 (0.55-2.49)	0.92	1.10 (0.65-1.85)	0.72	1.12 (0.57-2.20)	0.75	1.03 (0.63-1.67)	0.92
2277         19         23         10         GG. 1.10 (0.46-2.64)         0.45         0.43 (0.41-1.47)         0.45         1.37 (0.02-3.00)         0.74         0.00 (0.30-1.23)           Negative         80         129         38         TG. 1.14 (0.40-3.19)         0.88         1.20 (0.45-3.20)         0.72         1.29 (0.41-4.06)         0.67         1.01 (0.41-2.46)           Permenopausal         42         67         21         TG. 1.04 (0.61-1.78)         0.97         1.02 (0.61-1.70)         0.94         0.93 (0.48-1.80)         0.67         1.01 (0.41-2.46)           Posimenopausal         42         67         21         TG. 0.40 (0.46-1.99)         0.79         1.02 (0.61-1.70)         0.94         0.93 (0.48-1.80)         0.67         1.01 (0.41-2.46)           Non-EA         12         1.02 (0.46-1.99)         0.79         0.90 (0.44-1.81)         0.76         0.71 (0.26-1.94)         0.49         1.07 (0.55-2.08)           G1         25         16         16         26         0.50 (0.46-1.99)         0.79         0.90 (0.44-1.81)         0.71         0.71 (0.26-1.94)         0.49         0.70 (0.55-2.08)           G1         25         15         TG. 0.60 (0.33-1.27)         0.14         0.64 (0.37-1.13)         0.11         0.71 (0.5	T) rd	<27	29	117	32	TG: 0.69 (0.35-1.37)	2	0,000	, ,	(00 6 6) 0) 16 1	2	(() () () ()	Ć
Noegative         80         129         38         TG.1.14(0.40-3.19)         0.88         1.20 (0.45-3.20)         0.77         1.29 (0.41-4.06)         0.67         1.01 (0.41-2.46)           Positive         6         11         4         GG.1.40 (0.37-3.27)         0.97         1.20 (0.45-3.20)         0.79         1.20 (0.41-4.06)         0.79         1.00 (0.41-4.06)         0.70         1.01 (0.41-2.46)         0.70         0.70 (0.41-1.06)         0.70         0.71 (0.26-1.94)         0.70         0.71 (0.26-1.94)         0.70         0.71 (0.26-1.94)         0.70         0.71 (0.26-1.94)         0.70         0.71 (0.26-1.94)         0.70         0.71 (0.26-1.94)         0.70         0.71 (0.26-1.94)         0.70         0.71 (0.26-1.94)         0.70         0.71 (0.26-1.94)         0.70         0.71 (0.26-1.94)         0.70         0.71 (0.26-1.94)         0.70         0.71 (0.26-1.94)         0.70         0.71 (0.26-1.94)         0.70         0.71 (0.26-1.94)         0.70         0.71 (0.26-1.74)         0.70         0.71 (0.26-1.74)         0.70         0.71 (0.26-1.74)         0.70         0.71 (0.26-1.74)         0.70         0.71 (0.26-1.74)         0.70         0.71 (0.26-1.74)         0.70         0.71 (0.26-1.74)         0.70         0.71 (0.26-1.74)         0.70         0.71 (0.26-1.74)         0.70         0	BMI	>27	19	23	10	GG: 1.10 (0.46-2.64)	0.43	0.78 (0.41-1.47)	0.45	1.37 (0.62-3.00)	44.0	0.67 (0.36-1.23)	7:0
Positive         6         11         4         GG. 1.40 (0.375-2.27)         COSO         1.20 (0.71-1.4.00)         0.34         1.25 (0.71-1.4.00)         0.05         1.00 (0.75-2.10)           Positive         42         67         21         TG. 1.04 (0.61-1.78)         0.97         1.02 (0.61-1.70)         0.94         0.93 (0.48-1.80)         0.83         1.06 (0.65-1.71)           Positive morphausal         44         73         21         GG. 0.95 (0.45-2.08)         0.79         1.02 (0.61-1.70)         0.94         0.93 (0.48-1.80)         0.83         1.06 (0.65-1.71)           RA         72         118         37         TG. 0.66 (0.45-1.99)         0.79         0.70 (0.44-1.81)         0.76         0.71 (0.26-1.94)         0.83         1.06 (0.65-1.71)           GG-GG         14         22         5         GG. 0.74 (0.45-1.62)         0.25         0.64 (0.37-1.11)         0.11         0.10 (0.51-1.13)         0.19         0.75 (0.26-1.13)         0.76         0.71 (0.26-1.94)         0.76         0.71 (0.56-1.13)         0.71         0.70 (0.51-1.13)         0.71         0.70 (0.51-1.13)         0.71         0.71 (0.56-1.13)         0.71         0.71 (0.56-1.13)         0.71         0.71 (0.56-1.13)         0.71         0.71 (0.56-1.13)         0.71         0.72 (0.71-1	,	Negative	80	129	38	TG: 1.14 (0.40-3.19)	o c	0,000 E	7	(30 4 14 0) 00 1	7	0,10,10	
Premenopausal   42   67   21   TG: 1.04 (0.61-1.78)   C:97   C:06.01-1.70   C:94   C:93 (0.48-1.80)   C:95   C:06.05-1.71   Posimenopausal   44   73   21   GG: 0.55 (0.46-2.00)   C:75   C:06.06 (0.23-2.08)   C:75   C	ramily nistory of cancer	Positive	9	11	4	GG: 1.40 (0.37-5.27)	0.00	1.20 (0.43-3.20)	0.72	1.29 (0.41-4.00)	0.07	1.01 (0.41-2.40)	99.O
Posimenopausal   44   73   21   GG: 0.95 (0.46-2.00)   0.57   1.02 (0.01-1.70)   0.57   0.59 (0.46-1.80)   0.57   1.02 (0.02-1.71)   0.50		Premenopausal	42	29	21	TG: 1.04 (0.61-1.78)	7	100000	2	(00 1 07 0) 60 0	C	(17 1 29 0) 90 1	C
EA         72         118         37         TG: 0.96 (0.46-1.99)         0.79         0.044-1.81         0.76         0.71 (0.26-1.94)         0.49         1.07 (0.55-2.08)           Non-EA         14         22         5         GG: 0.69 (0.23-2.08)         0.25         0.64 (0.37-1.11)         0.11         1.01 (0.51-2.00)         0.99         0.68 (0.41-1.13)           G2-G3         61         84         27         GG: 0.74 (0.34-1.62)         0.14         0.05 (0.20-1.25)         0.19         0.68 (0.37-1.13)           11-V         25         31         6         GG: 0.40 (0.15-1.07)         0.14         0.62 (0.24-1.11)         0.11         0.50 (0.20-1.25)         0.11         0.89 (0.55-1.13)           All2         3         3         TG: 0.69 (0.37-1.27)         0.14         0.68 (0.37-1.26)         0.23         0.51 (0.20-1.25)         0.11         0.09 (0.56-1.57)           All2         3         3         TG: 0.77 (0.41-1.47)         0.24         0.68 (0.37-1.26)         0.23         0.51 (0.20-1.25)         0.11         0.09         0.48 (0.37-1.26)         0.23         0.51 (0.20-1.27)         0.14         0.09         0.48 (0.37-1.26)         0.23         0.51 (0.20-1.27)         0.14         0.09         0.48 (0.37-1.27)         0.14	Menopausai status	Postmenopausal	44	73	21	GG: 0.95 (0.46-2.00	76.0	1.02 (0.61-1.70)	0.94	0.93 (0.48-1.80)	0.83	1.06 (0.65-1.71)	0.87
Non-EA   14   22   5   GG: 0.69 (0.23-2.08)   0.77   0.79   0.79 (0.747-1.51)   0.70   0.71 (0.20-1.54)   0.79   1.07 (0.23-2.08)   0.77 (0.74 (0.34-1.62)   0.25   0.74 (0.34-1.62)   0.25   0.74 (0.34-1.62)   0.25   0.64 (0.37-1.11)   0.11   0.10   0.50 (0.20-1.25)   0.11   0.89 (0.50-1.57)   0.89 (0.50-1.57)   0.14   0.80 (0.37-1.28)   0.14   0.80 (0.37-1.28)   0.15   0.80 (0.37-1.28)   0.15   0.80 (0.37-1.28)   0.15   0.80 (0.37-1.28)   0.15   0.80 (0.37-1.28)   0.15   0.80 (0.37-1.28)   0.15   0.80 (0.37-1.28)   0.15   0.80 (0.37-1.28)   0.15   0.80 (0.37-1.28)   0.15   0.80 (0.37-1.28)   0.15   0.80 (0.37-1.28)   0.15   0.80 (0.37-1.28)   0.15   0.80 (0.37-1.28)   0.85 (0.43-1.78)   0.85 (0.43-1.78)   0.85 (0.43-1.78)   0.85 (0.43-1.78)   0.85 (0.43-1.78)   0.85 (0.43-1.88)   0.85 (0.43-1.78)   0.85 (0.43-1.78)   0.85 (0.43-1.88)   0.85 (0.83-1.88)	n.t. 1	EA	72	118	37	TG: 0.96 (0.46-1.99)	7	0000	27.0	(70 1 90 0) 12 0	4	(00 C 77 0) 70 L	0
G1         25         56         15         TG: 0.61 (0.35-1.09) GG: 0.74 (0.34-1.62)         0.25         0.64 (0.37-1.11) 0.14         0.11         1.01 (0.51-2.00) 0.50 (0.20-1.25)         0.99         0.68 (0.41-1.13)           1         60         108         36         TG: 0.69 (0.37-1.27) 0.60 (0.37-1.20)         0.14         0.62 (0.34-1.11)         0.11         0.50 (0.20-1.25)         0.11         0.89 (0.50-1.57)           11-IV         25         31         6         GG: 0.44 (0.15-1.07)         0.24         0.68 (0.37-1.26)         0.23         0.51 (0.20-1.25)         0.11         0.89 (0.50-1.57)           Negative         74         129         40         TG: 0.52 (0.21-1.29)         0.24         0.48 (0.20-1.13)         0.09         0.48 (0.11-2.14)         0.3         0.68 (0.24-1.11)         0.11         0.99         0.48 (0.11-2.14)         0.3         0.68 (0.20-1.57)         0.11         0.14         0.99 (0.15-1.59)         0.21         0.48 (0.20-1.13)         0.09         0.48 (0.11-2.14)         0.3         0.68 (0.20-1.51)         0.18         0.18 (0.11-2.14)         0.3         0.69 (0.20-1.21)         0.19         0.85 (0.43-1.75)         0.19         0.88 (0.22-1.29)         0.11         0.19 (0.12-1.29)         0.11         0.11         0.11 (0.38-2.74)         0.1	ratnological type	Non-EA	14	22	50	GG: 0.69 (0.23-2.08)	0.79	0.90 (0.44-1.61)	0.70	0.71 (0.20-1.94)	0.49	1.07 (0.33-2.08)	0.04
C2-G3   61   84   27   GG: 0.74 (0.34-1.62)   C.22   C.034-1.11   C.11   C.01 (0.21-2.00)   C.39   C.03 (0.71-1.1.15)   C.11   C.01 (0.21-2.00)   C.39   C.03 (0.50-1.57)   C.11   C.03 (0.20-1.25)   C.13   C.03 (0.37-1.27)   C.14   C.03 (0.37-1.27)   C.14   C.03 (0.37-1.27)   C.15   C.33 (0.37-1.27)   C.34   C.034-1.11   C.35 (0.20-1.25)   C.33   C.33 (0.37-1.29)   C.34   C.34 (0.37-1.29)   C.34   C.34 (0.37-1.29)   C.34   C.34 (0.37-1.29)   C.34   C.34 (0.37-1.29)   C.34 (0.37-1.29	EI/O ceso do	G1	25	99	15	TG: 0.61 (0.35-1.09)	ر بر ر	0 64 (0 27 1 11)		(00 6 13 0) 10 1	000	0 69 (0 41 1 13)	0.12
1.1   60   108   36   TG: 0.69 (0.37-1.27)   0.14   0.62 (0.34-1.11)   0.11   0.50 (0.20-1.25)   0.11   0.89 (0.50-1.57)   0.14   0.15 (0.77 (0.41-1.47)   0.24   0.24   0.24   0.24   0.15 (0.21-1.29)   0.24   0.24   0.25 (0.244 (0.15-1.07)   0.24   0.24   0.24   0.25 (0.24-1.129   0.24	rigo grade	G2-G3	61	84	27	GG: 0.74 (0.34-1.62)	0.23	0.07 (0.37-1.11)	0.11	1.01 (0.31-2.00)	66.0	0.00 (0.41-1.13)	0.13
H-IV   25   31   6   GG: 0.40 (0.15-1.07)   0.14   0.052 (0.23+1.11)   0.11   0.20 (0.20-1.25)   0.11   0.30 (0.20-1.25)   0.11   0.30 (0.20-1.27)   0.11   0.30 (0.20-1.27)   0.11   0.30 (0.20-1.21)   0.24   0.68 (0.37-1.26)   0.23   0.51 (0.20-1.30)   0.14   0.97 (0.53-1.75)   0.20 (0.20-1.21)   0.23   0.51 (0.20-1.20)   0.14   0.97 (0.53-1.75)   0.20 (0.20-1.21)   0.23   0.51 (0.20-1.21)   0.24   0.68 (0.20-1.12)   0.24   0.68 (0.37-1.26)   0.24   0.68 (0.37-1.26)   0.24   0.68 (0.20-1.13)   0.09   0.48 (0.20-1.13)   0.09   0.48 (0.20-1.13)   0.09   0.48 (0.20-1.13)   0.09   0.48 (0.20-1.13)   0.09   0.48 (0.20-1.13)   0.09   0.48 (0.20-1.13)   0.09   0.48 (0.20-1.13)   0.09   0.15 (0.20-2.29)   0.21		I	09	108	36	TG: 0.69 (0.37-1.27)	-		-		-	0 0 0	0
Action   A	FIGU stage	II-IV	25	31	9	GG: 0.40 (0.15-1.07)	0.I4	0.62 (0.34-1.11)	0.11	0.50 (0.20-1.25)	0.11	0.89 (0.50-1.57)	0.08
Negative   74   129   40   TG: 0.52 (0.21-1.29   0.21   0.08 (0.20-1.13)   0.09   0.48 (0.11-2.14)   0.5   0.59 (0.29-1.61)   0.50 (0.20-1.30)   0.14   0.57 (0.29-1.61)   0.50 (0.20-1.20)   0.14   0.57 (0.29-1.61)   0.15   38   TG: 0.37 (0.48-1.98)   0.40   0.85 (0.43-1.70)   0.65   0.50 (0.17-1.48)   0.18   1.19 (0.62-2.29)   0.21   0.85 (0.43-1.70)   0.65   0.50 (0.17-1.48)   0.18   1.19 (0.62-2.29)   0.15   1.20 (0.49-2.93)   0.69   0.75 (0.33-1.48)   0.18   35   TG: 0.43 (0.17-1.54)   0.13   0.14 (0.17-0.98)   0.14 (0.17-0.98)   0.048   0.51 (0.11-2.30)   0.35   0.57 (0.23-1.39)   0.50   0.50 (0.23-1.39)   0.50   0.50 (0.23-1.39)   0.50   0.50 (0.23-1.39)   0.50   0.50 (0.23-1.39)   0.50 (0.23-1.39)   0.50   0.50 (0.23-1.39)   0.50 (0.23-		<1/2	53	83	30	TG: 0.77 (0.41-1.47)	2	(961, 260) 090	,,	(0) (1) (0) (1)	-	(37 1 22 0) 10 0	5
On         Negative         74         129         40         TG: 0.52 (0.21-1.29)         0.21         0.48 (0.20-1.13)         0.09         0.48 (0.11-2.14)         0.3         0.68 (0.29-1.61)           Negative         11         10         2         GG: 0.34 (0.07-1.59)         0.40         0.85 (0.43-1.70)         0.65         0.50 (0.17-1.48)         0.18         1.19 (0.62-2.29)           Positive         15         24         4         GG: 0.49 (0.15-1.58)         0.71         0.81 (0.40-1.66)         0.57         1.20 (0.49-2.93)         0.69         0.75 (0.38-1.48)           Positive         14         18         7         GG: 1.01 (0.38-2.74)         0.71         0.81 (0.40-1.66)         0.57         1.20 (0.49-2.93)         0.69         0.75 (0.33-1.48)           Negative         62         118         35         TG: 0.43 (0.17-1.09)         0.13         0.41 (0.17-0.98)         0.048         0.51 (0.11-2.30)         0.35         0.57 (0.23-1.39)	Myometriai invasion	≥1/2	24	29	9	GG: 0.44 (0.16-1.20	0.24	0.08 (0.37-1.20)	0.23	0.31 (0.20-1.30)	0.14	0.97 (0.33-1.73)	0.91
Out         Positive         11         10         2         GG: 0.34 (0.07-1.59)         0.21         0.40 (0.20-1.15)         0.09         0.740 (0.11-2.14)         0.05         0.740 (0.11-2.14)         0.05         0.740 (0.11-2.14)         0.05         0.740 (0.11-2.14)         0.05         0.740 (0.11-2.14)         0.05         0.740 (0.11-2.14)         0.05         0.740 (0.11-2.14)         0.05         0.740 (0.11-2.14)         0.05         0.740 (0.11-2.14)         0.05         0.750 (0.11-2.14)         0.18         1.19 (0.62-2.29)           Positive         71         121         35         TG: 0.75 (0.35-1.61)         0.71         0.81 (0.40-1.66)         0.57         1.20 (0.49-2.93)         0.69         0.75 (0.38-1.48)           Positive         62         118         7         GG: 1.01 (0.38-2.74)         0.13         0.41 (0.17-0.98)         0.048         0.51 (0.11-2.30)         0.35         0.57 (0.23-1.39)		Negative	74	129	40	TG: 0.52 (0.21-1.29		(21 1 00 0) 00 0	6	(7) (7) (7)	C	(191000)090	000
Negative         70         115         38         TG: 0.97 (0.48-1.98)         0.40         0.85 (0.43-1.70)         0.65         0.50 (0.17-1.48)         0.18         1.19 (0.62-2.29)           Positive         15         24         4         GG: 0.49 (0.15-1.58)         0.71         0.81 (0.40-1.66)         0.57         1.20 (0.49-2.93)         0.69         0.75 (0.38-1.48)           Positive         14         18         7         GG: 1.01 (0.38-2.74)         0.71         0.81 (0.40-1.66)         0.57         1.20 (0.49-2.93)         0.69         0.75 (0.38-1.48)           Negative         62         118         35         TG: 0.43 (0.17-1.09)         0.13         0.41 (0.17-0.98)         0.048         0.51 (0.11-2.30)         0.35         0.57 (0.23-1.39)	r araineurar invasion	Positive	11	10	7	GG: 0.34 (0.07-1.59)	0.21	0.70 (0.20-1.13)	60.0	0.70 (0.11-2.17)	C.O	0.00 (0.29-1.01)	00
Positive         15         24         4         GG: 0.49 (0.15-1.58)         0.71         0.03 (0.75-1.70)         0.05 (0.75-1.70)         0.05 (0.17-1.76)         0.10 (0.17-1.76)         0.11 (0.15 (0.22.2.29)           Negative         71         121         35         TG: 0.75 (0.35-1.61)         0.71         0.81 (0.40-1.66)         0.57         1.20 (0.49-2.93)         0.69         0.75 (0.38-1.48)           Positive         62         118         35         TG: 0.43 (0.17-1.09)         0.13         0.41 (0.17-0.98)         0.048         0.51 (0.11-2.30)         0.35 (0.57 (0.23-1.39)		Negative	70	115	38	TG: 0.97 (0.48-1.98)	2	0 0 0 0 0 0	, n	(0) (171 0) (190)	0	(0) (0) (0) (1) (1)	120
Negative         71         121         35         TG: 0.75 (0.35-1.61)         0.71         0.81 (0.40-1.66)         0.57         1.20 (0.49-2.93)         0.69         0.75 (0.38-1.48)           Positive         14         18         7         GG: 1.01 (0.38-2.74)         0.13         0.41 (0.17-0.98)         0.048         0.51 (0.11-2.30)         0.35         0.57 (0.23-1.39)	Cervical invasion	Positive	15	24	4	GG: 0.49 (0.15-1.58)	0.40	0.83 (0.43-1.70)	0.00	0.30 (0.17-1.48)	0.18	1.19 (0.02-2.29)	0.01
Positive 14 18 7 GG: 1.01 (0.38-2.74) 0.11 S TG: 0.43 (0.17-1.09) 0.13 0.41 (0.17-0.98) 0.048 0.51 (0.11-2.30) 0.35 0.57 (0.23-1.39) 0.13 0.41 (0.17-0.98) 0.048 0.51 (0.11-2.30) 0.35 0.57 (0.23-1.39)		Negative	71	121	35	TG: 0.75 (0.35-1.61)	7	(99 1 07 0) 10 0	7 1	(50 0 0) 00 1		0000	-
Negative         62         118         35         TG: 0.43 (0.17-1.09)         0.13         0.41 (0.17-0.98)         0.048         0.51 (0.11-2.30)         0.35         0.57 (0.23-1.39)           Positive         11         9         2         GG: 0.32 (0.07-1.54)         0.13         0.41 (0.17-0.98)         0.048         0.51 (0.11-2.30)         0.35         0.57 (0.23-1.39)	vasculai ilivasioli	Positive	14	18	7	GG: 1.01 (0.38-2.74)	0.71	0.01 (0.40-1.00)	70.0	1.20 (0.79-2.90)	0.0	0.73 (0.30-1.70)	1 1 1
Positive 11 9 2 GG: 0.32 (0.07-1.54) 0.11 0.11 0.11 0.11 0.11 0.11 0.11 0.1	I romah nodo etetue	Negative	62	118	35	TG: 0.43 (0.17-1.09)	213	(80 0 17 0 08)	040	(05 6 11 0) 15 0	7 2 0	(02120)	1,00
	Lympn noue status	Positive	11	6	7	GG: 0.32 (0.07-1.54)	0.13	0.41 (0.11-0.90)	0.040	0.31 (0.11-2.30)	0.33	0.51 (0.53-1.59)	0.21

TAB2: Transforming growth factor-flactivated kinase 1 binding protein 2, OR: Odds ratio, Cl. Confidence interval, BMI: Body mass index, EA: Endometrioid adenocarcinoma, FIGO: International Federation of Gynecology and Obstetrics

Table 6. Association between the genotype distribution of rs5652921 polymorphism of TAB2 gene and clinical features

	168		ı		J	0	0	ı		ı		
		Genotype	type		Genetic model							
Clinical characteristics			( H	(	Codominant (TT vs.TC vs.CC)		Dominant (TT vs. TC/CC)		Recessive (TT/TC vs. CC)		Overdominant (TT/CC vs. TC)	
		=		)	OR (95% CI)	р	OR (95% CI)	р	OR (95% CI)	ф	OR (95% CI)	Ь
4	<50				TC: 1.08 (0.60-1.95)		(()	90	(0) (1) (0)	0	(00 1 07 0) 00 1	6
Age	>50	45	62	28	CC: 0.78 (0.38-1.62)	0.03	0.99 (0.57-1.72)	0.70	0.75 (0.40-1.59)	0.30	1.20 (0.72-1.99)	0.49
7) (4	<27	58	105	39	TC: 0.72 (0.35-1.50)	ŗ		ŗ	000000000000000000000000000000000000000	6	700000000000000000000000000000000000000	Ç
BMI	>27	16	21	12	CC: 1.12 (0.48-2.61)	0.50	0.83 (0.42-1.62)	0.59	1.36 (0.65-2.84)	0.43	0.69 (0.37-1.30)	0.75
	Negative	69	118	46	TC: 0.94 (0.29-2.97)	1	(01 0 00 0)	1	7 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	6	000000000000000000000000000000000000000	7
ramily history of cancer	Positive	5	8	5	CC: 1.50 (0.41-5.47)	0.73	1.09 (0.38-5.19)	0.87	1.30 (0.33-4.01)	0.43	0.78 (0.30-2.03)	0.01
	Premenopausal	35	57	28	TC: 1.09 (0.61-1.93)	ı,	(1) 1 0 2 0 0 0 0	C	000000000000000000000000000000000000000	0	7 0 00	7
Menopausai status	Postmenopausal	39	69	23	CC: 0.74 (0.36-1.51)	0.0	0.97 (0.30-1.07)	0.92	0.70 (0.38-1.30)	0.70	1.23 (U.73-2.02)	0.41
n.d1 1	EA	59	104	47	TC: 0.83 (0.40-1.73)	,	(40 1 700) 09 0	000	(11 1 61 0) 26 0	2	(10000001	0
ratnological type	Non-EA	15	22	4	CC: 0.33 (0.10-1.08	0.13	0.08 (0.34-1.37)	0.28	0.57 (0.15-1.11)	0.049	1.18 (0.60-2.51)	0.03
TI CO 12	G1	25	47	18	TC: 0.86 (0.47-1.57)	00	(37 1 07 0) 00 0	990	(30,1 43,0) 50,1	0	000000000000000000000000000000000000000	6
FIGU grade	G2-G3	49	62	33	CC: 0.94 (0.44-1.98)	0.00	0.88 (0.30-1.30)	0.00	1.03 (0.34-1.90)	0.90	0.88 (0.33-1.48)	0.00
	I	54	92	45	TC: 1.02 (0.53-1.97)	ć	(1)	7	(00 1 100) 00 0	0	(0) (0) (0) (0)	0
FIGU stage	II-IV	19	33	6	CC: 0.61 (0.25-1.48)	0.47	0.89 (0.48-1.67)	0.72	0.60 (0.27-1.32)	0.19	1.23 (0.09-2.19)	0.48
	<1/2	46	69	35	TC: 1.42 (0.70-2.87)	5	(17 ( ( ( ( ( ( ( ( ( ( ( ( ( ( ( ( ( (	, ,	(0) 0 0	90	(11)	0
Myometriai invasion	≥1/2	16	32	10	CC: 0.87 (0.36-2.16)	0.41	1.24 (0.03-2.41)	0.33	0.70 (0.32-1.33)	0.30	1.30 (0.82-2.73)	0.19
Domont Lines	Negative	9	114	47	TC: 0.78 (0.30-2.05)	6	(27 6 0 6 0) 0 9 0	n n	(77 ( 900) 000	090	(21 0 30 0)	100
r atamethat myasion	Positive	00	11	4	CC: 0.69 (0.20-2.43)	0.07	0.09 (0.20-2.13)	U.J.	0.00 (0.20-2.47)	0.0	0.30 (0.30-2.13)	0.01
	Negative	62	101	4+	TC: 1.34 (0.61-2.92)	9	(77 (77 0) 10 1	()	(021176)	6	(67 6 67 0) 07 1	ć
Cervical invasion	Positive	11	24	7	CC: 0.90 (0.32-2.50)	0.0	1.21 (0.37-2.33)	0.07	0.74 (0.31-1.76)	0.49	1.40 (0.72-2.73)	0.32
	Negative	62	107	4	TC: 0.95 (0.42-2.14)	00	(10 6 42 0) 60 0	90	(366,050)	0 0	(10 0 0 0	00
vasculai ilivasioli	Positive	11	18	_	CC: 0.90 (0.32-2.50)	0.70	0.93 (0.43-2.01)	0.00	0.33 (0.30-2.20)	70.0	0.39 (0.19-2.01)	06.0
I rmmh nodo ctotuc	Negative	26	100	43	TC: 0.77 (0.29-2.03)	0 10	0.43 (0.40.1.83)	7 7	(986300) 940	0 63	(51 6 85 0) 100	0 03
Lympu noue status	Positive	8	11	4	CC: 0.65 (0.18-2.31)	0.70	0.10	U.O.1	0.10 (0.27-4.30)	0.0	10.75-00.00	0.00
						r.				-		

In summary, polymorphisms found in the rs521845 site of the TAB2 gene may serve as a novel genetic marker of susceptibility to EC in Chinese women. The findings of other independent research groups suggest that the TAB2 gene may play an essential role in EC's molecular pathogenesis. However, the function and the underlying signal transduction mechanisms of TAB2 in EC development need to be clarified. This study has certain limitations. Although these deficiencies were random, due to incomplete clinical information of some patients, they may affect the accuracy and objectivity of stratified analysis results. Therefore, these findings need to be further confirmed in a larger cohort. Secondly, the functions of the three SNPs studied in this research and the potential mechanism of rs521845 SNP in the development of EC are still unclear. Further investigations are warranted.

### **Ethics**

**Ethics Committee Approval:** The present study was approved by the Medical Ethical Review Committee of West China Second Hospital of Sichuan University (approval number: 038, date: 03.03.2022).

**Informed Consent:** Informed consent was obtained from all participants.

#### Footnotes

### **Authorship Contributions**

Concept: Y.W., Design: Y.W., Data Collection or Processing: S.L., Analysis or Interpretation: S.L., Literature Search: S.L., Writing: S.L.

**Conflict of Interest:** No conflict of interest was declared by the authors.

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