### **RESEARCH ARTICLE**

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# New insights of the correlation between *AXIN2* polymorphism and cancer risk and susceptibility: evidence from 72 studies



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#### **Abstract**

**Background:** Numerous studies have reported the correlation between *AXIN2* polymorphism and cancer risk, but the results seem not consistent. In order to get an overall, accurate and updated results about *AXIN2* polymorphism and cancer risk, we conducted this study.

**Methods:** An updated analysis was performed to analyze the correlation between *AXIN2* polymorphisms and cancer risk. Linkage disequilibrium (LD) analysis was also used to show the associations.

**Results:** Seventy-two case-control studies were involved in the study, including 22,087 cases and 18,846 controls. The overall results showed rs11079571 had significant association with cancer risk (allele contrast model: OR = 0.539, 95%Cl = 0.478–0.609, PAdjust = 0.025; homozygote model: OR = 0.22, 95% Cl = 0.164–0.295, PAdjust < 0.001; heterozygote model: OR = 0.292, 95% Cl = 0.216–0.394, PAdjust < 0.001; dominant model: OR = 0.249, 95% Cl = 0.189–0.33, PAdjust < 0.001). The same results were obtained with rs1133683 in homozygote and recessive models (PAdjust < 0.05), and in rs35285779 in heterozygote and dominant models (PAdjust < 0.05). LD analysis revealed significant correlation between rs7210356 and rs9915936 in the populations of CEU, CHB&CHS:  $r^2 = 0.74$ ; ESN:  $r^2 = 0.62$ , JPT:  $r^2 = 0.57$ ), and a significant correlation between rs9915936 and rs7224837 in the populations of CHB&CHS, ESN and JPT ( $r^2 > 0.5$ ), between rs35285779 in the populations of CEU, CHB&CHS, JPT ( $r^2 > 0.5$ ), between rs35285779 in the populations of CEU, CHB&CHS and JPT ( $r^2 > 0.5$ ).

**Conclusions:** AXIN2 rs11079571, rs1133683 and rs35285779 polymorphisms have significant correlations with overall cancer risk. What's more, two or more polymorphisms such as rs7210356 and rs9915936, rs9915936 and rs7224837, rs7224837 and rs7210356, rs35435678 and rs35285779 have significant correlation with cancer susceptibility in different populations.

Keywords: AXIN2, Polymorphism, Cancer, Analysis, Correlation

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#### **Background**

Cancer is currently one of the most important health problems across the world, and it has been well known as the second most common cause of death in the US. According to reports, the estimated data of Cancer Statistics show that 1,762,450 new cases of cancers will be diagnosed in the US in 2019, and 606,880 deaths will be confirmed [1]. Among which, prostate cancer, lung cancer, bronchus cancer and colorectal cancer will account for the top 4 common types in male cases, and breast, lung and colorectal cancers will be the top 3 most common types in female cases [1]. The data from National Central Cancer Registry of China reported that in 2015, 4292,000 new cancer cases and 2814,000 cancer deaths occurred in China, with lung cancer being the most common incident cancer and the leading cause of cancer death. Stomach, esophageal, and liver cancers were also commonly diagnosed and were identified as leading causes of cancer death [2]. In Europe, there were an estimated 3.91 million new cases of cancer and 1.93 million deaths from cancer in 2018, among which, the female breast, colorectal, lung and prostate cancer were the most common cancer sites [3]. In recent years, many studies have pointed out that genomic types may be closely related to the carcinogenic effects of cancers, one of which is the Axin-related protein, AXIN2 [4–7].

The AXIN2 gene locates at chromosome 17q23-24, which belongs to a heterozygosity region that frequently loss in neuroblastoma, breast cancer, and other cancers [8, 9]. For the biological function, AXIN2 is a critical regulator in Wnt/β-catenin signaling, especially for the stability of β-catenin, which plays an important role in cell growth, genesis of a number of malignancies, tumor progression and so on. For example, Chen et al. [10] reported that miR-183 could regulate bladder cancer cells growth and apoptosis via targeting AXIN2. A recent report by Chen et al. pointed out that down regulating AXIN2 expression could promote human osteosarcoma cell proliferation [11]. Another paper showed that targeting AXIN2 axis could suppress tumor growth and metastasis in colorectal cancer [12]. As the expression or protein structure may be influenced by gene polymorphism, some studies have taken insights in the correlation between AXIN2 and cancer susceptibility. Otero L et al. reported that rs2240308 polymorphism was associated with colorectal cancer (CRC) and the CRC patients who carried this variation in the AXIN2 gene always had a worse prognosis [13]. Zhong et al. showed that the Axin2–148 C/T polymorphism was significantly associated with a decreased risk of cancer, particularly lung cancer, in Asians and population-based controls [14]. Liu et al. showed that rs11655966, rs3923086 and rs7591 of AXIN2 showed significant associations with papillary thyroid carcinoma (PTC) [15]. However the available results remain inconsistent. For example, E•Pinarbasi et al. [16] reported that *rs2240308* polymorphism had no significant correlation with the susceptibility of prostate cancer in the Turkish population, whereas Xu et al. [17] revealed that *AXIN2 rs2240308* variants may be associated with decreased cancer susceptibility. At the same time, Dai et al. [18] concluded that *AXIN2 rs2240308* polymorphism might decrease the susceptibility of lung and prostate cancers. Thus, we designed this metanalysis to obtain updated and accurate insight to assess the association between *AXIN2* polymorphism and cancer susceptibility.

#### Methods

#### Literature retrieval strategy and eligibility criteria

Wanfang, CNKI, CBM, EMBASE, Web of Science and PubMed databases were used to search the published papers before July, 2020 by using the keywords and MeSH terms of 'Axin OR *AXIN-2*' AND 'carcinoma OR cancer OR tumor' AND 'SNP OR mutation OR polymorphism OR variant'. All publications in English and Chinese were involved, references were also evaluated manually to get more comprehensive studies.

The studies that met the following criteria would be included: (1) case-control studies that were related to the correlation of *AXIN-2* polymorphism and cancer susceptibility; (2) English or Chinese publications, and (3) genotype frequency were provided directly or indirectly. Conversely, the studies that met the following criteria would be excluded: (1) meta-analysis, reviews, case reports or duplicate publications; (2) data of genotype frequency was not informed; (3) data from cell lines or animals.

#### Data extraction

All data were examined by two independent researchers (Li X and Li YM). From which, the first author's name, published data, total number of participants, subtypes like cancer type, source of control and ethnicity, genotyping method, and genotype frequency of the *AXIN2* gene polymorphisms in all cases and controls were labeled and calculated. Any disagreement would be reexamined and discussed by the other researchers (Liu G and Wu W) and, if necessary, the author of the publications would be requested to provide more data.

#### Statistical analysis

In our study, we used five genetic models to evaluate the correlation of *AXIN2* gene polymorphisms and cancer risk, including allele contrast model (B vs. A), homozygote comparison model (BB vs. AA), heterozygote comparison model (BA vs. AA), dominant comparison model (BB + BA vs. AA), and recessive comparison model (BB vs. BA+AA). The strength of the association

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was checked by OR with 95% CI, and the significant statistics was confirmed by Z-test and adjusted by Bonferroni corrections,  $P_{Adjust} = P_z$  \* 5 genetic models [19]. Subtypes like ethnicity, type of cancer and source of control were also evaluated by stratified analysis. The  $\chi 2$ -test was assessed to analyze the heterogeneity between studies.

P < 0.1 meant a significant heterogeneity, and if so, we used the random effects model (DerSimonian and Laird methods) to summarize the data [20]; if not, the fixed effect model (Mantel-Haenszel method) was selected [21]. Hardy—Weinberg equilibrium (HWE) was performed for sensitivity analysis [22]. Begg's funnel plots and Egger's line regression test [23, 24] were performed to assess the potential publication bias. STATA software system v12.0 was used to perform statistical analysis.  $P \le 0.05$  was considered as a statistically significant difference.

#### Linkage disequilibrium (LD) analysis

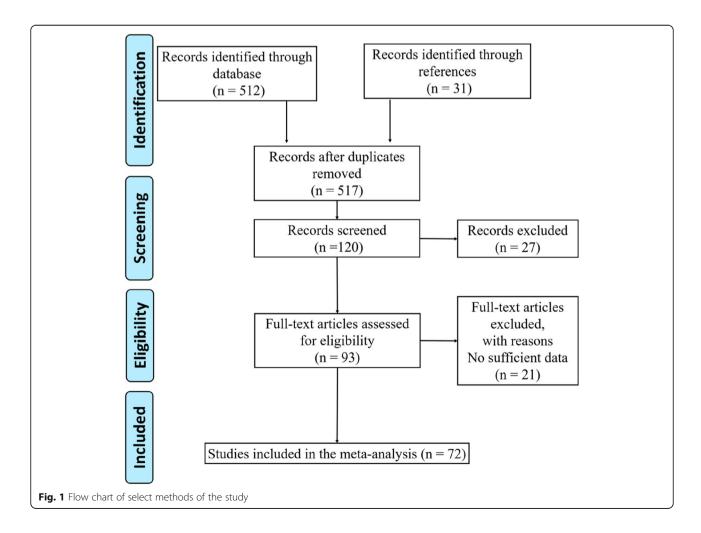
The data was acquired from 1000 Genomes Project which contains *AXIN2* polymorphisms in the present research. Six groups including CEU (Utah residents with

Northern and Western European ancestry from the CEPH collection), CHS (southern Han Chinese, China), CHB (Han Chinese in Beijing, China), ESN (Esan in Nigeria), YRI (Yoruba in Ibadan, Nigeria) and JPT (Japanese in Tokyo, Japan) were involved in the program. Haploview software was performed to analyze the data, and LD analysis was performed by r² statistics.

#### Results

#### Details of included studies

Totally, 24 articles were included in this analysis, which contained 72 case-control studies (Fig. 1). Among which, three studies related to the linkage between *rs11079571* polymorphism and cancer susceptibility [25–27], six studies focused on *rs1133683* [16, 28–32], six studies concerned about *rs2240307* [16, 28–30, 33, 34], 20 studies focused on *rs2240308* [15, 16, 28–30], four studies focused on *rs35285779* [16, 28–30], four studies focused on *rs35415678* [16, 28–30], five studies focused on *rs3923086* [15, 25, 26, 34, 45], five studies focused on *rs4072245* [16, 28, 30], five studies focused on *rs4072245* [16, 28, 30], five studies focused on *rs4791171* 



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 Table 1 Characteristics of the enrolled studies on AXIN2 Polymorphism and cancer

Polymorphism	First author	Year	Ethnicity	Genotyping	Source	Cancer Type	Cases			Controls			
				Method	of Control		PAA	PAB	PBB	НАА	НАВ	НВВ	HWE
rs11079571	Wang et al.	2008	Caucasion	GoldenGate	PB	Breast Cancer	32	233	533	16	221	606	Υ
rs11079571	Alanazi et al.	2013	Asian	TaqMan	PB	Breast Cancer	182	194	55	11	37	45	Υ
rs11079571	Zhang et al.	2015	Asian	PCR PB		Acute Leukemia	196	180	201	42	170	189	Υ
rs1133683	Gunes et al.	2009	Asian	PCR	PB	Lung Cancer	172	204	10	42	50	8	Υ
rs1133683	Pinarbasi et al.	2010	Asian	PCR	HB	Prostate Cancer	724	872	6	44	48	8	Υ
rs1133683	Gunes et al.	2010	Asian	PCR	HB	Astrocytoma	70	306	20	42	50	8	Υ
rs1133683	Davoodi et al.	2015	Asian	PCR-RFLP	PB	Ovarian Cancer	386	1210	6	58	34	8	Υ
rs1133683	Rosales-Reynoso et al.	2016	Caucasion	PCR-RFLP	PB	Colorectal Cancer	124	252	19	22	57	21	Υ
rs1133683	Bahl et al.	2017	Asian	PCR-RFLP	PB	Lung Cancer	190	1406	37	103	169	33	Ν
rs2240307	Gunes et al.	2009	Asian	PCR	PB	Lung Cancer	96	4	0	95	5	0	Υ
rs2240307	Pinarbasi et al.	2010	Asian	PCR	HB	Prostate Cancer	81	3	0	98	2	0	Υ
rs2240307	Gunes et al.	2010	Asian	PCR	НВ	Astrocytoma	93	7	0	95	5	0	Υ
rs2240307	Filho et al.	2011	Caucasion	TaqMan	НВ	Oral Cancer	PA = 182	PB = 194	HA =	212	HB=	238	NA
rs2240307	Han et al.	2016	Asian	PCR	PB	Lung Cancer	63	27	12	79	36	5	Υ
rs2240307	Bahl et al.	2017	Asian	PCR-RFLP	PB	Lung Cancer	342	34	0	289	16	0	Υ
rs2240308	Kanzaki et al.	2006	Asian	PCR-RFLP PB		Colorectal Cancer	54	44	15	42	52	15	Υ
rs2240308	Kanzaki et al.	2006	Asian	PCR-RFLP	РВ	Head and neck Cancer	25	29	9	42	52	15	Υ
rs2240308	Kanzaki et al.	2006	Asian	PCR-RFLP	РВ	Lung Cancer	81	71	8	42	52	15	Υ
rs2240308	Gunes et al.	2009	Asian	PCR	РВ	Lung Cancer	45	47	8	32	52	16	Υ
rs2240308	Gunes et al.	2010	Asian	PCR	НВ	Astrocytoma	39	45	16	32	52	16	Υ
rs2240308	Ferna'ndez- Rozadilla et al.	2010	Caucasion	MassARRAY	HB	Colorectal Cancer	252	423	168	290	442	152	Υ
rs2240308	Pinarbasi et al.	2010	Asian	PCR	HB	Prostate Cancer	30	35	19	34	48	18	Υ
rs2240308	Naghibalhossaini et al.	2011	Asian	PCR-RFLP	РВ	Colorectal Cancer	34	57	19	55	98	26	Υ
rs2240308	Filho et al.	2011	Caucasion	TaqMan	НВ	Oral Cancer	PA = 196	PB = 180	HA =	226	HB=	226	NA
rs2240308	Mostowska et al.	2013	Caucasion	PCR-RFLP	НВ	Ovarian Cancer	67	115	46	71	146	65	Υ
rs2240308	Liu et al.	2014	Asian	PCR	PB	Lung Cancer	235	216	47	211	255	67	Υ
rs2240308	Ma et al.	2014	Asian	PCR	НВ	Prostate Cancer	61	31	11	39	52	9	Υ
rs2240308	Aristizabal- Pachon et al.	2015	Caucasion	PCR-RFLP	РВ	Breast Cancer	20	58	24	44	55	3	Ν
rs2240308	Yadav et al.	2015	Asian	PCR-RFLP	РВ	Gallbladder Cancer	98	108	44	192	253	119	Ν
rs2240308	Rosales-Reynoso et al.	2016	Caucasion	PCR-RFLP	РВ	Colorectal Cancer	25	109	54	22	59	18	Υ
rs2240308	Kim et al.	2016	Asian	GoldenGate	HB	Hepatocellular Carcinoma	124	100	18	246	195	41	Υ
rs2240308	Han et al.	2016	Asian	PCR	PB	Lung Cancer	50	34	18	67	43	10	Υ
rs2240308	Kim et al.	2016	Asian	Dynamic 96.96 ArrayTM Assay	PB	Lung Cancer	169	142	47	562	436	124	N
rs2240308	Liu et al.	2016	Asian	MassARRAY	HB	Papillary Thyroid Carcinoma	27	24	2	17	29	4	Υ

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 Table 1 Characteristics of the enrolled studies on AXIN2 Polymorphism and cancer (Continued)

Polymorphism	First author	Year	Ethnicity		Source	Cancer Type	Cases			Controls			
				Method	of Control		PAA	PAB	PBB	HAA	HAB	НВВ	HWE
rs2240308	Bahl et al.	2017	Asian	PCR-RFLP	РВ	Lung Cancer	99	150	54	81	144	80	Υ
rs35285779	Gunes et al.	2009	Asian	PCR	PB	Lung Cancer	77	20	3	64	28	8	Υ
rs35285779	Pinarbasi et al.	2010	Asian	PCR	НВ	Prostate Cancer	69	15	0	61	32	7	Υ
rs35285779	Gunes et al.	2010	Asian	PCR	НВ	Astrocytoma	70	25	5	64	28	8	Υ
rs35285779	Bahl et al.	2017	Asian	PCR-RFLP	PB	Lung Cancer	255	46	2	248	55	2	Υ
rs35415678	Gunes et al.	2009	Asian	PCR	РВ	Lung Cancer	91	9	0	86	14	0	Υ
rs35415678	Pinarbasi et al.	2010	Asian	PCR	НВ	Prostate Cancer	83	1	0	99	1	0	Υ
rs35415678	Gunes et al.	2010	Asian	PCR	НВ	Astrocytoma	87	13	0	86	14	0	Υ
rs35415678	Bahl et al.	2017	Asian	PCR-RFLP	PB	Lung Cancer	257	46	0	261	44	0	Υ
rs3923086	Wang et al.	2008	Caucasion	GoldenGate	РВ	Breast Cancer	238	395	164	284	419	139	Υ
rs3923086	Filho et al.	2011	Caucasion	TaqMan	НВ	Oral Cancer	PA = 172	PB = 204	HA =	212	HB=	238	NA
rs3923086	Alanazi et al.	2013	Asian	TaqMan	PB	Breast Cancer	27	41	31	16	42	35	Υ
rs3923086	Liu et al.	2016	Asian	MassARRAY	НВ	Papillary Thyroid Carcinoma	47	8	0	34	15	1	Υ
rs3923086	Parine et al.	2019	Asian	TaqMan	РВ	Colorectal Cancer	48	52	21	41	50	19	Υ
rs3923087	Wang et al.	2008	Caucasion	GoldenGate	PB	Breast Cancer	47	292	458	39	278	525	Υ
rs3923087	Filho et al.	2011	Caucasion	TaqMan	НВ	Oral Cancer	PA = 70	PB = 306	HA =	: 130	HB=	320	NA
rs3923087	Mostowska et al.	2013	Caucasion	PCR-RFLP	HB	Ovarian Cancer	10	84	133	14	97	171	Υ
rs3923087	Alanazi et al.	2013	Asian	TaqMan	PB	Breast Cancer	45	35	18	24	50	19	Υ
rs3923087	Parine et al.	2019	Asian	TaqMan	РВ	Colorectal Cancer	35	56	32	37	50	23	Υ
rs4072245	Gunes et al.	2009	Asian	PCR	PB	Lung Cancer	73	27	0	80	20	0	Υ
rs4072245	Pinarbasi et al.	2010	Asian	PCR	HB	Prostate Cancer	73	11	0	78	22	0	Υ
rs4072245	Gunes et al.	2010	Asian	PCR	HB	Astrocytoma	82	18	0	80	20	0	Υ
rs4791171	Wang et al.	2008	Caucasion	GoldenGate	PB	Breast Cancer	83	332	383	61	349	433	Υ
rs4791171	Filho et al.	2011	Caucasion	TaqMan	НВ	Oral Cancer	PA = 124	PB = 252	HA =	136	HB=	316	NA
rs4791171	Alanazi et al.	2013	Asian	TaqMan	PB	Breast Cancer	34	44	21	22	44	17	Υ
rs4791171	Yadav et al.	2015	Asian	PCR-RFLP	РВ	Gallbladder Cancer	35	118	97	88	248	228	Υ
rs4791171	Parine et al.	2019	Asian	TaqMan	РВ	Colorectal Cancer	40	55	27	38	48	24	Υ
rs7219582	Gunes et al.	2009	Asian	PCR	PB	Lung Cancer	97	3	0	96	4	0	Υ
rs7219582	Pinarbasi et al.	2010	Asian	PCR	HB	Prostate Cancer	81	3	0	95	5	0	Υ
rs7219582	Gunes et al.	2010	Asian	PCR	НВ	Astrocytoma	91	9	0	96	4	0	Υ
rs7219582	Bahl et al.	2017	Asian	PCR-RFLP	PB	Lung Cancer	87	205	11	42	263	0	Ν
rs7224837	Filho et al.	2011	Caucasion	TaqMan	НВ	Oral Cancer	342	34		400	50		NA
rs7224837	Mostowska et al.	2013	Caucasion	PCR-RFLP	НВ	Ovarian Cancer	161	61	6	203	71	8	Υ
rs7224837	Jeanne et al.	2015	Caucasion	iSelect genotyping array	HB	Bladder Cancer	646	151	6	616	169	17	Υ
rs9915936	Gunes et al.	2000	Asian	PCR	PB	Lung Cancer	91	9	0	88	12	0	Υ

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**Table 1** Characteristics of the enrolled studies on AXIN2 Polymorphism and cancer (Continued)

Polymorphism	First author	Year	Ethnicity	Genotyping Method		Cancer Type	Cases			Controls			
					of Control		PAA	PAB	PBB	HAA	HAB	HBB	HWE
rs9915936	Pinarbasi et al.	2010	Asian	PCR	НВ	Prostate Cancer	77	7	0	92	8	0	Υ
rs9915936	Gunes et al.	2010	Asian	PCR	НВ	Astrocytoma	91	9	0	88	12	0	Υ
rs9915936	Bahl et al.	2017	Asian	PCR-RFLP	PB	Lung Cancer	268	29	6	249	51	5	Υ

HB Hospital Based, PB Population Based, HWE Hardy Weinberg Equilibrium, Y polymorphisms conformed to HWE in the control group, N polymorphisms didn't conform to HWE in the control group, NA not available

[25, 26, 34, 43, 45], four studies focused on *rs7219582* [16, 28–30], three studies focused on *rs7224837* [34, 41, 46], four studies focused on *rs9915936* [16, 28–30]. Table 1 showed all details of the involved studies. Newcastle-Ottawa Scale (NOS) [40] was performed to assess the quality of each included study, and the results were showed in Table S1.

#### AXIN-2 polymorphism and risk of cancers

Thirteen polymorphisms of AXIN-2 were analyzed in the study. For rs11079571 polymorphism, two studies were related to breast cancer and another was involved in acute leukemia. Among which, two were about Asian population and one was based on Caucasian. The sources of all three controls were population based. All of the three genotype distributions of controls of rs11079571 studies were conformed to HWE, For the rs1133683 polymorphism, six studies met the criteria, including two lung cancers and one prostate cancer, astrocytoma, ovarian cancer and colorectal cancer, respectively. Among them, five studies related to Asian and one study concerned about Caucasion population. As to rs2240307 polymorphism, six studies were involved, three of them were about lung cancer, and the other three were about oral cancer, prostate cancer, astrocytoma, respectively. For the rs2240308 polymorphism, 20 studies were connected, among which, six were about lung cancer, four were about colorectal cancer, two were about prostate cancer, and another eight were about head and neck cancer, astrocytoma, oral cancer, ovarian cancer, breast cancer, gallbladder cancer, papillary thyroid carcinoma and hepatocellular carcinoma, respectively. Fifteen studies were Asian population based and five were Caucasion based. For rs35285779 polymorphism, two studies were about lung cancer, another two were about prostate cancer and astrocytoma, respectively. All the four studies were Asian population based. For rs35415678 polymorphism, two studies were connected to lung cancer and another two were about prostate cancer and astrocytoma, respectively. For rs3923086 polymorphism, five studies were involved, two of which were about breast cancer and another three were oral cancer, papillary thyroid carcinoma and colorectal cancer, respectively. For rs3923087 polymorphism, five studies were involved, two of which were about breast cancer and another three were oral cancer, ovarian cancer and colorectal cancer, respectively. For *rs4072245* polymorphism, there studies were about lung cancer, prostate cancer and astrocytoma, respectively. For *rs4791171* polymorphism, five studies were involved, two of which were about breast cancer and another three were colorectal cancer, oral cancer and gall-bladder cancer, respectively. As to *rs7219582* polymorphism, four studies were included, two of which were about lung cancer, and another two were prostate cancer and astrocytoma, respectively. For *rs7224837* polymorphism, three studies were about oral cancer, ovarian cancer and bladder cancer, respectively. As to *rs9915936* polymorphism, four studies were included, two of which were focused on lung cancer, and another two were about prostate cancer and astrocytoma, respectively.

Table 2 and Table S2 showed the results about AXIN-2 polymorphisms and cancer susceptibility. There were significant associations in four genetic models between rs11079571 polymorphism and overall cancer risk, including allelic contrast model (B vs. A: OR = 0.539, 95%CI = 0.478-0.609, PAdjust = 0.025), homozygote comparison model (BB vs. AA: OR = 0.22, 95% CI = 0.164-0.295, PAdjust< 0.001), heterozygote comparison model (BA vs. AA: OR = 0.292, 95% CI = 0.216 - 0.394, PAdjust < 0.001) and dominant comparison model (BB + BA vs. AA: OR = 0.249, 95% CI = 0.189-0.33, PAdjust < 0.001), whereas, there was no significant association in recessive comparison model (BB vs. BA+AA: OR = 0.619, 95% CI = 0.531– 0.723, PAdjust = 0.11). What's more, the stratification analysis of ethnicity also reflected rs11079571 polymorphism risk to cancers in Asian population in B vs. A, BB vs. AA, BA vs. AA and BB + BA vs. AA models (PAdjust < 0.05). For cancer type analysis, rs11079571 polymorphism showed strong association with risk of breast cancer in BA vs. AA and BB + BA vs. AA models (PAdjust< 0.05) (Table 2, Figure S1). For rs1133683, which had significant association with overall cancer risk in BB vs. AA and BB vs. BA+AA models (PAdjust< 0.05), and with Asian population in BB vs. BA+AA model (PAdjust< 0.05), with population based (PB) source of control in BB vs. AA and BB vs. BA+AA models (PAdjust< 0.05) (Table 2, Figure S2). For rs2240308, which showed significant correlation with risk of Asian population in BA vs. AA and BB + BA vs. AA models (PAdjust< 0.05) (Table 2, Fig. 2). For

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 Table 2 Results of pooled analysis for AXIN2 Polymorphism and cancer susceptibility

Polymorphism	Comparison	Subgroup	N	P <sub>H</sub>	Pz	$P_{Adjust}$	OR & 95%CI (Random)	OR & 95%CI (Fixed)
rs11079571	B vs. A	Overall	3	< 0.001	0.005	0.025*	0.459(0.266-0.794)	0.539(0.478-0.609)
rs11079571	BB vs. AA	Overall	3	0.001	< 0.001	< 0.001*	0.2(0.085-0.469)	0.22(0.164-0.295)
rs11079571	BA vs. AA	Overall	3	0.081	< 0.001	< 0.001*	0.322(0.192-0.54)	0.292(0.216-0.394)
rs11079571	BB + BA vs. AA	Overall	3	0.08	< 0.001	< 0.001*	0.265(0.162-0.433)	0.249(0.189-0.33)
rs11079571	BB vs. BA+ AA	Overall	3	< 0.001	0.022	0.11	0.436(0.215-0.887)	0.619(0.531-0.723)
rs11079571	B vs. A	Asian	2	0.002	0.001	0.005*	0.351(0.191-0.646)	0.407(0.345-0.479)
rs11079571	BB vs. AA	Asian	2	0.007	< 0.001	< 0.001*	0.135(0.045-0.407)	0.178(0.127-0.251)
rs11079571	BA vs. AA	Asian	2	0.416	< 0.001	< 0.001*	0.246(0.174-0.346)	0.247(0.175-0.348)
rs11079571	BB + BA vs. AA	Asian	2	0.575	< 0.001	< 0.001*	0.216(0.157-0.297)	0.215(0.156-0.295)
rs11079571	BB vs. BA+ AA	Asian	2	< 0.001	0.083	0.415	0.311(0.083-1.166)	0.463(0.368-0.582)
rs11079571	B vs. A	Breast Cancer	2	< 0.001	0.148	0.74	0.446 (0.150-1.332)	0.594(0.507-0.697)
rs11079571	BB vs. AA	Breast Cancer	2	< 0.001	0.056	0.28	0.182(0.032-1.047)	0.209(0.133-0.329)
rs11079571	BA vs. AA	Breast Cancer	2	0.289	< 0.001	< 0.001*	0.419(0.255-0.689)	0.416(0.261-0.662)
rs11079571	BB + BA vs. AA	Breast Cancer	2	0.041	0.009	0.045*	0.294(0.118-0.734)	0.285(0.184-0.441)
rs11079571	BB vs. BA+ AA	Breast Cancer	2	< 0.001	0.202	1	0.356(0.073-1.74)	0.63(0.52-0.764)
rs1133683	B vs. A	Overall	6	< 0.001	0.664	1.000	1.076(0.773-1.498)	1.14(1.021-1.273)
rs1133683	BB vs. AA	Overall	6	< 0.001	0.005	0.025*	0.258(0.101-0.657)	0.391(0.284-0.539)
rs1133683	BA vs. AA	Overall	6	< 0.001	0.036	0.18	2.079(1.048-4.126)	2.298(1.948-2.71)
rs1133683	BB + BA vs. AA	Overall	6	< 0.001	0.1	0.5	1.78(0.895-3.538)	1.962(1.673-2.301)
rs1133683	BB vs. BA+ AA	Overall	6	< 0.001	< 0.001	< 0.001*	0.162(0.08-0.328)	0.206(0.152-0.278)
rs1133683	B vs. A	Asian	5	< 0.001	0.2	1.000	1.212(0.904–1.625)	1.25(1.11–1.408)
rs1133683	BB vs. AA	Asian	5	< 0.001	0.026	0.13	0.283(0.093-0.858)	0.469(0.329-0.67)
rs1133683	BA vs. AA	Asian	5	< 0.001	0.01	0.05	2.51(1.247-5.052)	2.627(2.203-3.132)
rs1133683	BB + BA vs. AA	Asian	5	< 0.001	0.025	0.125	2.186(1.105-4.322)	2.283(1.926-2.707)
rs1133683	BB vs. BA+ AA	Asian	5	< 0.001	< 0.001	< 0.001*	0.154(0.062-0.383)	0.21(0.15-0.295)
rs1133683	B vs. A	PB	4	< 0.001	0.828	1.000	1.051(0.67–1.651)	1.146(1.01-1.302)
rs1133683	BB vs. AA	PB	4	0.006	0.001	0.005*	0.256(0.113-0.584)	0.349(0.241-0.504)
rs1133683	BA vs. AA	PB	4	< 0.001	0.118	0.59	2.112(0.827-5.395)	2.541(2.093-3.084)
rs1133683	BB + BA vs. AA	PB	4	< 0.001	0.23	1.000	1.773(0.696-4.515)	2.142(1.777-2.582)
rs1133683	BB vs. BA+ AA	PB	4	0.045	< 0.001	< 0.001*	0.16(0.086-0.297)	0.184(0.13-0.259)
rs1133683	B vs. A	НВ	2	0.004	0.72	1.000	1.127(0.587-2.163)	1.12(0.895-1.401)
rs1133683	BB vs. AA	НВ	2	< 0.001	0.46	1.000	0.265(0.008-8.979)	0.556(0.291-1.062)
rs1133683	BA vs. AA	НВ	2	< 0.001	0.249	1.000	2.001(0.615-6.508)	1.788(1.305-2.45)
rs1133683	BB + BA vs. AA	НВ	2	< 0.001	0.361	1.000	1.782(0.515-6.161)	1.572(1.159–2.132)
rs1133683	BB vs. BA+ AA	НВ	2	< 0.001	0.186	0.93	0.166(0.012-2.381)	0.297(0.158-0.559)
rs1133683	B vs. A	Lung Cancer	2	0.016	0.767	1.000	1.071(0.68–1.687)	1.196(1.023-1.399)
rs1133683	BB vs. AA	Lung Cancer	2	0.228	0.008	0.04*	0.491(0.263-0.918)	0.53(0.333-0.845)
rs1133683	BA vs. AA	Lung Cancer	2	< 0.001	0.317	1.000	2.143(0.482-9.522)	2.695(2.109-3.442)
rs1133683	BB + BA vs. AA	Lung Cancer	2	< 0.001	0.387	1.000	1.888(0.448-7.959)	2.36(1.86-2.995)
rs1133683	BB vs. BA+ AA	Lung Cancer	2	0.39	< 0.001	< 0.001*	0.21(0.136-0.325)	0.212(0.138-0.328)
rs1133683	B vs. A	Υ	5	< 0.001	0.898	1.000	1.028(0.673-1.571)	1.036(0.899-1.193)
rs1133683	BB vs. AA	Υ	5	< 0.001	0.008	0.04*	0.211(0.067-0.666)	0.293(0.195-0.44)
rs1133683	BA vs. AA	Υ	5	< 0.001	0.14	0.7	1.767(0.83-3.762)	1.753(1.434–2.142)
rs1133683	BB + BA vs. AA	Υ	5	< 0.001	0.287	1.000	1.512(0.706-3.241)	1.499(1.236-1.818)

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 Table 2 Results of pooled analysis for AXIN2 Polymorphism and cancer susceptibility (Continued)

	Polymorphism	Comparison	Subgroup	N	P <sub>H</sub>	Pz	P <sub>Adjust</sub>	OR & 95%CI (Random)	OR & 95%CI (Fixed)
1.52240308   88 vs. AA   Overall   19   0.001   0.022   1.000   0.052(0.251-1248)   0.066(0.849-1.11)   1.52240308   84 vs. AA   Overall   19   0.016   0.038   0.445   0.887(0.773-1.018)   0.93(0.841-1.007)   1.52240308   88 vs. BA   AA   Overall   19   0.001   0.076   0.88   0.889(0.763-1.051)   0.93(0.851-1.074)   0.036(0.865-0.13)   1.52240308   88 vs. BA   AS   ASIan   15   0.01   0.071   0.085   0.657(0.772-0.974)   0.367(0.815-0.947)   0.72240308   88 vs. AA   ASIan   15   0.066   0.072   0.36   0.0759(0.676-1.021)   0.886(0.673-0.946)   0.874(0.734-0.934)   0.836(0.734-0.934)   0.836(0.734-0.934)   0.835(0.754-0.926)   0.72240308   88 vs. AA   ASIan   15   0.056   0.004   0.024   0.811(0.704-0.934)   0.855(0.754-0.926)   0.72240308   88 vs. AA   ASIan   15   0.055   0.073   1.000   0.889(0.731-0.039)   0.367(0.754-0.1036)   0.72240308   88 vs. AA   Caucasian   4   0.001   0.038   0.035(0.734-0.934)   0.857(0.754-0.1036)   0.72240308   88 vs. AA   Caucasian   4   0.001   0.038   0.735   0.036(0.854-0.11)   0.736(0.754-0.1036)   0.72240308   88 vs. AA   Caucasian   4   0.001   0.034   0.001   0.035(0.734-1.039)   0.367(0.754-1.036)   0.72240308   88 vs. BA   ASIA   0.001   0.001   0.034   0.001   0.034(0.854-1.036)   0.034(0.754-1.036)   0.03	rs1133683	BB vs. BA+ AA	Υ	5	< 0.001	< 0.001	< 0.001*	0.152(0.057-0.405)	0.215(0.146-0.315)
1.52240308   SA vs AA   Overall   19	rs2240308	B vs. A	Overall	20	< 0.001	0.402	1.000	0.949(0.841-1.072)	0.962(0.906-1.02)
rs22e0308         B8 + BA vs AA         Overall         19	rs2240308	BB vs. AA	Overall	19	< 0.001	0.722	1.000	0.952(0.726-1.248)	0.966(0.849-1.1)
rs2240308         Bs vs. AA         Overall         19         COOL         0.050         1.005 (0.811-1.246)         1.006 (0.895-1.17)           rs2240308         Bs vs. AA         Asian         15         0.01         0.077         0.05         0.857(0772-0.974)         0.879(0815-0.947)           rs2240308         Bs vs. AA         Asian         15         0.018         0.002         0.01*         0.2380(071-0.939)         0.840(073-0.937)           rs2240308         Bs vs. BA+ vs. AA         Asian         15         0.058         0.004         0.02*         0.811(0.704-0.934)         0.847(0734-0.036)           rs2240308         Bs vs. AA         Asian         15         0.051         0.023         0.024         0.002         0.811(0.704-0.934)         0.847(0734-0.036)           rs2240308         Bs vs. AA         Caucasian         4         0.001         0.082         0.11         2.280(090-1.692)         1.171(10-16-12-136)           rs2240308         Bs vs. AA         Caucasian         4         0.001         0.112         0.56         1.60(0.96-2.859)         1.277(10-31-144)           rs2240308         Bs vs. AA         Pa         12          0.01         0.12         0.50         1.60(0.96-2.859)         1.277(10-31-	rs2240308	BA vs. AA	Overall	19	0.016	0.089	0.445	0.887(0.773-1.018)	0.915(0.834-1.004)
rs.2240308         B vs. AA         Asian         15         0.01         0.017         0.085         0.8070772-0.974)         0.8790815-0.940           rs.2240308         B s vs. AA         Asian         15         0.019         0.072         0.36         0.7990626-1.021         0.0800636-0.040           rs.2240308         B s vs. AA         Asian         15         0.066         0.004         0.02*         0.8110,704-0.9341         0.8330754-0.930           rs.2240308         B s vs. AA         Asian         15         0.066         0.004         0.02*         0.8110,704-0.9341         0.8330754-0.920           rs.2240308         B s vs. AA         Caucasian         4         0.001         0.82         0.01         1.280939-1.46991         1.1910,106-1238           rs.2240308         B s Vs. AA         Caucasian         4         0.001         0.12         0.509912-1.46991         1.1910,109-173,109-174,110           rs.2240308         B vs. AA         Caucasian         4         0.001         0.12         0.569 (1.028)         1.271(1.05-1.128)         1.191(1.09-1.128)           rs.2240308         B vs. AA         PB         12         0.001         0.934         1.00         0.9340078-1.1951         0.9440077-1.037 <t< td=""><td>rs2240308</td><td>BB + BA vs. AA</td><td>Overall</td><td>19</td><td>&lt; 0.001</td><td>0.176</td><td>0.88</td><td>0.895(0.763-1.051)</td><td>0.923(0.846-1.007)</td></t<>	rs2240308	BB + BA vs. AA	Overall	19	< 0.001	0.176	0.88	0.895(0.763-1.051)	0.923(0.846-1.007)
r.2240308         Bs vs AA         Asian         15         0.019         0.072         0.36         0.7990626-1.021)         0.886(0.868-0.948)           r.0240308         Bs vs AA         Asian         15         0.06         0.012         0.012*0         0.028/0.731-0.0930         0.890755-0.9361           r.02240308         Bs vs AA         Asian         15         0.06         0.024         0.0110,070-03341         0.835(0.754-0.926)           r.02240308         Bs vs AA         Caucasian         4         < 0.001         0.138         0.69         1.288(0.936-1.61)         1.119(1.016-1.233)           r.02240308         Bs vs AA         Caucasian         4         0.001         0.012         0.11         2.08(0.912-4.692)         1.375(1.01-1.716)           r.02240308         Bs vs AA         Caucasian         4         0.001         0.112         0.001         1.238(0.982-1.801)         1.141(0.957-1.38)           r.02240308         Bs vs AA         PB         12         0.001         0.112         0.06         0.93(0.915-1.195)         0.94(0.957-1.361)           r.02240308         Bs vs AA         PB         12         0.001         0.05         1.001         0.10(0.957-1.283)         0.91(0.917-1.107)           r.02240	rs2240308	BB vs. BA+ AA	Overall	19	< 0.001	0.963	1.000	1.005(0.811-1.246)	1.006(0.895-1.13)
rs2240308         BA vs. AA         Asian         15         0.288         0.002         0.01*         0.828(0731-0939)         0.84(0753-0937)           rs2240308         BB + BA vs. AA         Asian         15         0.066         0.004         0.02*         0.811(0,704-0934)         0.835(0754-0296)           rs2240308         Bb vs. BA         Asian         15         0.001         0.130         0.889(0,71-10.97)         0.874(0,754-10.13)           rs2240308         Bb vs. AA         Caucasian         4         < 0.001         0.682         0.41         2.069(0.912-4.692)         1.375(1.101-1716)           rs2240308         Bb vs. AA         Caucasian         4         < 0.001         0.012         0.123         0.123(0.898-2.249)         1.375(1.101-1716)           rs2240308         Bb vs. BA vs. AA         Caucasian         4         0.002         0.143         0.715         1.421(0.888-2.249)         1.191(1014-114)           rs2240308         Bb vs. AA         PB         12         < 0.001         0.955         1.000         0.937(0.815-1.195)         0.944(0.871-102)           rs2240308         Bb vs. AA         PB         12         < 0.004         0.044         1.000         0.937(0.815-1.195)         0.944(0.871-102) <tr< td=""><td>rs2240308</td><td>B vs. A</td><td>Asian</td><td>15</td><td>0.01</td><td>0.017</td><td>0.085</td><td>0.867(0.772-0.974)</td><td>0.879(0.815-0.947)</td></tr<>	rs2240308	B vs. A	Asian	15	0.01	0.017	0.085	0.867(0.772-0.974)	0.879(0.815-0.947)
rc2240308         BB + BA vs. AA         Asian         15         0.064         0.024         0.0174         0.034	rs2240308	BB vs. AA	Asian	15	0.019	0.072	0.36	0.799(0.626-1.021)	0.806(0.686-0.946)
rs.2240308         88 vs. 8A+ AA         Asian         15         0.053         0.273         1.000         0.889(0.721-1.097)         0.874(0.754-1.013)           rs.2240308         8 vs. A         Caucasian         5         < 0.001         0.082         0.41         2.069(0.912-4.692)         1.375(1.101-7.176)           rs.2240308         8 Av s. AA         Caucasian         4         < 0.002         0.43         0.015         1.228(0.0874-1.801)         1.375(1.101-7.176)           rs.2240308         8 Br. Bar vs. AA         Caucasian         4         0.002         0.43         0.715         1.421(0.888-2.244)         1.198(1.014-1.141)           rs.2240308         8 Br. Sa. AA         Caucasian         4         0.001         0.112         0.56         1.60,896-2.858)         1.277(1.053-1.548)           rs.2240308         8 Br. Sa. AA         PB         12         < 0.001         0.955         1.000         0.987(0.815-1.195)         0.941(0.871-1.027)           rs.2240308         8 Br. Sa. AA         PB         12         < 0.001         0.943         1.000         0.924(0.871-1.95)         0.991(0.817-1.027)           rs.2240308         8 Br. Sa. AA         PB         12         < 0.001         0.833         1.000         0.924(0.781-1.95)	rs2240308	BA vs. AA	Asian	15	0.268	0.002	0.01*	0.828(0.731-0.939)	0.84(0.753-0.937)
rc2240308         B vs. A         Caucasian         5         < 0.001         0.138         0.69         1.228(0.96 = 1.61)         1.119(1.016-1.23)           rc2240308         BB vs. AA         Caucasian         4         < 0.001         0.082         0.41         2.069(0.912-4.692)         1.375(1.101-17.16)           rc2240308         BB + BA vs. AA         Caucasian         4         0.004         0.224         1.000         1.253(0.871-1.80)         1.141(0.957-1.36)           rc2240308         BB + BA vs. AA         Caucasian         4         0.001         0.112         0.56         1.00(0.896-2.858)         1.277(1.053-1.548)           rc2240308         B vs. AA         PB         12         < 0.001         0.955         1.000         0.937(0.815-1.195)         0.914(0.871-1.022)           rc2240308         Ba vs. AA         PB         12         < 0.001         0.955         1.000         0.924(0.78-1.095)         0.919(0.77-7.1687)           rc2240308         Ba vs. AA         PB         12         < 0.001         0.364         1.000         0.924(0.78-1.095)         0.919(0.87-1.027)           rc2240308         Ba vs. AA         PB         12         < 0.001         0.833         1.000         0.935(0.822-1.064)         0.984(0.901-1	rs2240308	BB + BA vs. AA	Asian	15	0.066	0.004	0.02*	0.811(0.704-0.934)	0.835(0.754-0.926)
rs2240308         BB vs. AA         Caucasian         4         c0.001         0.082         0.41         2.069(0.912-4.692)         1.375(1.101-1.716)           rs2240308         BB + BA vs. AA         Caucasian         4         0.004         0.224         1.000         1.253(0.871-1.801)         1.141(0.957-1.36)           rs2240308         BB + BA vs. AA         Caucasian         4         0.001         0.112         0.56         1.6(0.896-2.858)         1.277(1.053-1.548)           rs2240308         Bs vs. AA         PB         12         c.0001         0.894         1.000         0.997(0.815-1.195)         0.944(0.871-1.022)           rs2240308         Bs vs. AA         PB         12         c.0001         0.894         1.000         0.924(0.78-1.096)         0.913(0.81-1.028)           rs2240308         Bs vs. AA         PB         12         c.0001         0.844         1.000         0.924(0.78-1.096)         0.913(0.81-1.028)           rs2240308         Bs vs. AA         PB         12         c.0001         0.894         1.000         0.934(0.78-1.183)         0.914(0.81-1.028)           rs2240308         Bs vs. AA         HB         7         0.047         0.11         0.5         0.839(0.81-1.034)         0.919(0.808-1.046)     <	rs2240308	BB vs. BA+ AA	Asian	15	0.053	0.273	1.000	0.889(0.721-1.097)	0.874(0.754-1.013)
rs2240308         BA vs. AA         Caucasian         4         0.044         0.224         1.000         1.253(0.871-1.801)         1.141(0.957-1.361)           rs2240308         BB + BA vs. AA         Caucasian         4         0.002         0.143         0.715         1.421(0.888-2.274)         1.198(1.014-1.414)           rs2240308         BB vs. BA         Caucasian         4         0.001         0.112         0.56         1.6(0.896-2.858)         1.277(1.053-1.548)           rs2240308         BB vs. AA         PB         12         < 0.001         0.95         1.000         0.994(0.781-1.195)         0.941(0.871-1.028)           rs2240308         BA vs. AA         PB         12         < 0.004         0.364         1.000         0.994(0.781-1.036)         0.913(0.811-1.028)           rs2240308         BB vs. AA         PB         12         < 0.004         0.364         1.000         0.994(0.762-1.183)         0.911(0.814-1.019)           rs2240308         BB vs. AA         HB         12         < 0.001         0.019         0.023(0.734-1.425)         0.960(0.823-1.119)           rs2240308         BB vs. AA         HB         7         0.047         0.11         0.00         9.95(0.822-1.064)         0.994(0.901-1.075)	rs2240308	B vs. A	Caucasian	5	< 0.001	0.138	0.69	1.228(0.936-1.61)	1.119(1.016–1.233)
rs2240308         BB + BA vs. AA         Caucasian         4         0.002         0.143         0.715         1.421(0.888-2.274)         1.198(1.014-1.414)           rs2240308         BB vs. BA + AA         Caucasian         4         0.001         0.112         0.56         1.6(0.896-2.858)         1.277(1.053-1.548)           rs2240308         BS vs. AA         PB         12         < 0.001         0.955         1.000         0.987(0.815-1.195)         0.994(0.877-1.027)           rs2240308         BS vs. AA         PB         12         < 0.001         0.956         1.000         0.924(0.78-1.096)         0.919(0.777-1.0877)           rs2240308         BS vs. AA         PB         12         < 0.001         0.644         1.000         0.924(0.76-1.183)         0.911(0.814-1.019)           rs2240308         BS vs. AA         PB         12         < 0.001         0.833         1.000         1.023(0.734-1.425)         0.96(0.823-1.119)           rs2240308         BS vs. A         HB         7         0.047         0.71         0.00         0.935(0.822-1.064)         0.984(0.901-1.075)           rs2240308         BS vs. A         HB         7         0.047         0.11         0.5         0.839(0.681-1.27)         0.14(0.849-1.273) <td>rs2240308</td> <td>BB vs. AA</td> <td>Caucasian</td> <td>4</td> <td>&lt; 0.001</td> <td>0.082</td> <td>0.41</td> <td>2.069(0.912-4.692)</td> <td>1.375(1.101–1.716)</td>	rs2240308	BB vs. AA	Caucasian	4	< 0.001	0.082	0.41	2.069(0.912-4.692)	1.375(1.101–1.716)
rs.2240308         BB vs. BA+ AA         Caucasian         4         0.001         0.112         0.56         1.6/08/96-28581         1.277(1.053-1.548)           rs.2240308         B vs. A         PB         12         < 0.001         0.894         1.000         0.987(0.815-1.195)         0.944(0.871-1.022)           rs.2240308         BB vs. AA         PB         12         < 0.001         0.955         1.000         1.012(0.67-1.529)         0.913(0.877-1.087)           rs.2240308         BB vs. AA         PB         12         < 0.001         0.644         1.000         0.924(0.78-1.096)         0.93(0.81-1.028)           rs.2240308         BB vs. BA+ AA         PB         12         < 0.001         0.644         1.000         0.939(0.821-1.034)         0.91(0.81-1.019)           rs.2240308         BB vs. AA         HB         12         < 0.01         0.019         1.000         0.935(0.821-1.064)         0.984(0.901-1.075)           rs.2240308         BB vs. AA         HB         7         0.376         0.70         1.00         0.935(0.821-1.064)         0.994(0.901-1.075)           rs.2240308         BB vs. AA         HB         7         0.043         0.12         0.54         0.35(0.699-1.046)         0.937(0.8281-1.079)	rs2240308	BA vs. AA	Caucasian	4	0.044	0.224	1.000	1.253(0.871-1.801)	1.141(0.957-1.36)
rs2240308         B vs. AA         PB         12         < 0.001         0.894         1.000         0.997(0.815-1.195)         0.944(0.871-1.028)           rs2240308         BB vs. AA         PB         12         < 0.001         0.955         1.000         1.012(0.67-1.529)         0.919(0.777-1.087)           rs2240308         BA vs. AA         PB         12         0.004         0.644         1.000         0.924(0.78-1.096)         0.913(0.81-1.028)           rs2240308         BB vs. BA+ AA         PB         12         < 0.001         0.644         1.000         0.944(0.76-1.183)         0.911(0.814-1.019)           rs2240308         Bb vs. BA+ AA         PB         12         < 0.001         0.893         1.000         0.934(0.734-1.425)         0.96(0.823-1.119)           rs2240308         Bb vs. AA         HB         8         0.114         0.719         1.000         0.935(0.822-1.064)         0.994(0.901-1075)           rs2240308         Bb vs. AA         HB         7         0.047         0.1         0.5         0.839(0.881-1.034)         0.919(0.808-1.024)           rs2240308         Bb vs. AA         HB         7         0.684         0.444         1.000         1.075(0.897-1.287)         1.073(0.896-1.284)	rs2240308	BB + BA vs. AA	Caucasian	4	0.002	0.143	0.715	1.421(0.888-2.274)	1.198(1.014–1.414)
rs2240308         BB vs. AA         PB         12         cool         0.955         1.000         1.012(067-1.529)         0.919(0777-1087)           rs2240308         BA vs. AA         PB         12         0.064         0.364         1.000         0.924(0.78-1.096)         0.913(0.81-1.028)           rs2240308         BB b BA vs. AA         PB         12         color         0.644         1.000         0.949(0.762-1.183)         0.911(0.814-1.019)           rs2240308         BB vs. AA         HB         2         color         0.893         1.000         1.023(0.734-1.425)         0.96(0.823-1.119)           rs2240308         BB vs. AA         HB         3         0.114         0.719         1.000         0.935(0.822-1.064)         0.994(0.81-1.075)           rs2240308         BA vs. AA         HB         7         0.047         0.1         0.5         0.839(0.681-1.034)         0.991(0.828-1.045)           rs2240308         BB + BA vs. AA         HB         7         0.043         0.128         0.64         0.855(0.699-1.046)         0.993(0.828-1.046)           rs2240308         B vs. AA         Colorectal Cancer         4         0.15         0.056         0.28         1.108(0.918-1.336)         1.116(0.997-1.249)	rs2240308	BB vs. BA+ AA	Caucasian	4	0.001	0.112	0.56	1.6(0.896-2.858)	1.277(1.053-1.548)
rs2240308         BA vs. AA         PB         12         0.064         0.364         1.000         0.924(0.78-1.096)         0.913(0.81-1.028)           rs2240308         BB + BA vs. AA         PB         12         < 0.001         0.644         1.000         0.949(0.762-1.183)         0.911(0.814-1.019)           rs2240308         B8 vs. BA+ AA         PB         12         < 0.001         0.893         1.000         1.023(0.734-1.425)         0.96(0.823-1.119)           rs2240308         B vs. AA         HB         7         0.376         0.705         1.000         0.935(0.822-1.064)         0.984(0.901-1.075)           rs2240308         B vs. AA         HB         7         0.376         0.705         1.000         1.015(0.812-1.27)         1.04(0.849-1.273)           rs2240308         B vs. AA         HB         7         0.047         0.1         0.5         0.839(0.681-1.034)         0.919(0.881-1.045)           rs2240308         B vs. AA         HB         7         0.043         0.12         0.05         0.839(0.681-1.034)         0.991(0.881-1.026)           rs2240308         B vs. AA         Colorectal Cancer         4         0.192         0.031         0.175(0.897-1.287)         1.073(0.896-1.284)           rs22403	rs2240308	B vs. A	PB	12	< 0.001	0.894	1.000	0.987(0.815-1.195)	0.944(0.871-1.022)
rs2240308         BB + BA vs. AA         PB         12         < 0.001         0.644         1.000         0.949(0.762-1.183)         0.911(0.814-1.019)           rs2240308         BB vs. BA+ AA         PB         12         < 0.001         0.893         1.000         1.023(0.734-1.425)         0.96(0.823-1.119)           rs2240308         B vs. AA         HB         8         0.114         0.719         1.000         0.935(0.822-1.064)         0.984(0.901-1.075)           rs2240308         BA vs. AA         HB         7         0.376         0.705         1.000         1.015(0.812-1.27)         1.04(0.849-1.273)           rs2240308         BA vs. AA         HB         7         0.047         0.1         0.5         0.839(0.811-1.034)         0.919(0.808-1.045)           rs2240308         BB vs. BA+ AA         HB         7         0.043         0.128         0.64         0.855(0.699-1.046)         0.937(0.828-1.06)           rs2240308         B vs. AA         Colorectal Cancer         4         0.15         0.056         0.28         1.105(0.913-1.336)         1.116(0.997-1.249)           rs2240308         B vs. AA         Colorectal Cancer         4         0.192         0.54         1.000         1.031(0.799-1.363)         1.057(0.893-1.266) </td <td>rs2240308</td> <td>BB vs. AA</td> <td>PB</td> <td>12</td> <td>&lt; 0.001</td> <td>0.955</td> <td>1.000</td> <td>1.012(0.67-1.529)</td> <td>0.919(0.777-1.087)</td>	rs2240308	BB vs. AA	PB	12	< 0.001	0.955	1.000	1.012(0.67-1.529)	0.919(0.777-1.087)
rs2240308         BB vs. BA+ AA         PB         12         < 0.001         0.893         1.000         1.023(0.734-1.425)         0.96(0.823-1.119)           rs2240308         B vs. A         HB         8         0.114         0.719         1.000         0.935(0.822-1.064)         0.984(0.901-1.075)           rs2240308         BB vs. AA         HB         7         0.376         0.705         1.000         1.015(0.812-1.27)         1.04(0.849-1.273)           rs2240308         BA vs. AA         HB         7         0.047         0.1         0.5         0.839(0.681-1.034)         0.919(0.808-1.045)           rs2240308         BB + BA vs. AA         HB         7         0.043         0.128         0.64         0.855(0.699-1.046)         0.937(0.828-1.06)           rs2240308         BS vs. AA         HB         7         0.684         0.444         1.000         1.075(0.897-1.287)         1.073(0.896-1.284)           rs2240308         BV s. AA         Colorectal Cancer         4         0.129         0.031         0.155         1.314(0.903-1.911)         1.295(1.024-1.637)           rs2240308         BV s. AA         Colorectal Cancer         4         0.12         0.54         1.000         1.031(0.779-1.363)         1.05(0.981-1.313)	rs2240308	BA vs. AA	PB	12	0.064	0.364	1.000	0.924(0.78-1.096)	0.913(0.81-1.028)
rs2240308         B vs. A         HB         8         0.114         0.719         1.000         0.935(0.822-1.064)         0.984(0.901-1.075)           rs2240308         BB vs. AA         HB         7         0.376         0.705         1.000         1.015(0.812-1.27)         1.04(0.849-1.273)           rs2240308         BA vs. AA         HB         7         0.047         0.1         0.5         0.839(0.681-1.034)         0.919(0.808-1.045)           rs2240308         BB + BA vs. AA         HB         7         0.043         0.128         0.64         0.855(0.699-1.046)         0.937(0.828-1.06)           rs2240308         BB vs. BA+ AA         HB         7         0.684         0.444         1.000         1.075(0.897-1.287)         1.073(0.896-1.284)           rs2240308         B vs. AA         Colorectal Cancer         4         0.15         0.056         0.28         1.108(0.918-1.336)         1.116(0.997-1.249)           rs2240308         B vs. AA         Colorectal Cancer         4         0.192         0.031         0.155         1.314(0.903-1)11         1.295(1.024-1.637)           rs2240308         B vs. AA         Colorectal Cancer         4         0.22         0.548         1.000         1.083(0.794-1.478)         1.105(0.931-1.312)	rs2240308	BB + BA vs. AA	PB	12	< 0.001	0.644	1.000	0.949(0.762-1.183)	0.911(0.814–1.019)
rs2240308         BB vs. AA         HB         7         0.376         0.705         1.000         1.015(0.812-1.27)         1.04(0.849-1.273)           rs2240308         BA vs. AA         HBB         7         0.047         0.1         0.5         0.839(0.681-1.034)         0.919(0.808-1.045)           rs2240308         BB B BA vs. AA         HBB         7         0.043         0.128         0.64         0.855(0.699-1.046)         0.937(0.828-1.06)           rs2240308         BB vs. BA+ AA         HBB         7         0.684         0.444         1.000         1.075(0.897-1.287)         1.073(0.896-1.284)           rs2240308         B vs. A         Colorectal Cancer         4         0.15         0.056         0.28         1.108(0.918-1.336)         1.116(0.997-1.249)           rs2240308         B vs. AA         Colorectal Cancer         4         0.192         0.031         0.155         1.314(0.903-1.911)         1.295(1.024-1.637)           rs2240308         B B B B As vs. AA         Colorectal Cancer         4         0.22         0.548         1.000         1.031(0.779-1.363)         1.057(0.882-1.266)           rs2240308         B B Vs. BA+ AA         Colorectal Cancer         4         0.253         0.036         0.18         1.241(1.011-1.524) </td <td>rs2240308</td> <td>BB vs. BA+ AA</td> <td>PB</td> <td>12</td> <td>&lt; 0.001</td> <td>0.893</td> <td>1.000</td> <td>1.023(0.734-1.425)</td> <td>0.96(0.823-1.119)</td>	rs2240308	BB vs. BA+ AA	PB	12	< 0.001	0.893	1.000	1.023(0.734-1.425)	0.96(0.823-1.119)
rs2240308         BA vs. AA         HB         7         0.047         0.1         0.5         0.839(0.681-1.034)         0.919(0.808-1.045)           rs2240308         BB + BA vs. AA         HB         7         0.043         0.128         0.64         0.855(0.699-1.046)         0.937(0.828-1.06)           rs2240308         BB vs. BA + AA         HB         7         0.684         0.444         1.000         1.075(0.897-1.287)         1.073(0.896-1.284)           rs2240308         B vs. AA         Colorectal Cancer         4         0.15         0.056         0.28         1.108(0.918-1.336)         1.116(0.997-1.249)           rs2240308         BB vs. AA         Colorectal Cancer         4         0.192         0.031         0.155         1.314(0.903-1.911)         1.295(1.024-1.637)           rs2240308         BB vs. AA         Colorectal Cancer         4         0.2         0.548         1.000         1.031(0.779-1.363)         1.057(0.882-1.266)           rs2240308         BB vs. AA         Colorectal Cancer         4         0.563         0.036         0.18         1.241(1.011-1.524)         1.245(1.015-1.527)           rs2240308         BB vs. A         Prostate Cancer         2         0.099         0.452         1.000         0.828(0.597-1.353) </td <td>rs2240308</td> <td>B vs. A</td> <td>НВ</td> <td>8</td> <td>0.114</td> <td>0.719</td> <td>1.000</td> <td>0.935(0.822-1.064)</td> <td>0.984(0.901-1.075)</td>	rs2240308	B vs. A	НВ	8	0.114	0.719	1.000	0.935(0.822-1.064)	0.984(0.901-1.075)
rs2240308         BB + BA vs. AA         HB         7         0.043         0.128         0.64         0.855(0.699-1.046)         0.937(0.828-1.06)           rs2240308         BB vs. BA + AA         HB         7         0.684         0.444         1.000         1.075(0.897-1.287)         1.073(0.896-1.284)           rs2240308         BB vs. AA         Colorectal Cancer         4         0.15         0.056         0.28         1.108(0.918-1.336)         1.116(0.997-1.249)           rs2240308         BB vs. AA         Colorectal Cancer         4         0.192         0.031         0.155         1.314(0.903-1.911)         1.295(1.024-1.637)           rs2240308         BB vs. AA         Colorectal Cancer         4         0.2         0.548         1.000         1.083(0.794-1.478)         1.105(0.931-1.312)           rs2240308         BB vs. AA         Colorectal Cancer         4         0.513         0.252         1.000         1.083(0.794-1.478)         1.105(0.931-1.312)           rs2240308         BB vs. AA         Colorectal Cancer         4         0.563         0.036         0.18         1.241(1.011-1.524)         1.245(1.015-1.527)           rs2240308         BB vs. AA         Prostate Cancer         2         0.099         0.952         1.000 <th< td=""><td>rs2240308</td><td>BB vs. AA</td><td>НВ</td><td>7</td><td>0.376</td><td>0.705</td><td>1.000</td><td>1.015(0.812-1.27)</td><td>1.04(0.849-1.273)</td></th<>	rs2240308	BB vs. AA	НВ	7	0.376	0.705	1.000	1.015(0.812-1.27)	1.04(0.849-1.273)
rs2240308         BB vs. BA+ AA         HB         7         0.684         0.444         1.000         1.075(0.897-1.287)         1.073(0.896-1.284)           rs2240308         B vs. A         Colorectal Cancer         4         0.15         0.056         0.28         1.108(0.918-1.336)         1.116(0.997-1.249)           rs2240308         BB vs. AA         Colorectal Cancer         4         0.192         0.031         0.155         1.314(0.903-1.911)         1.295(1.024-1.637)           rs2240308         BB vs. AA         Colorectal Cancer         4         0.2         0.548         1.000         1.031(0.779-1.363)         1.057(0.882-1.266)           rs2240308         BB vs. AA         Colorectal Cancer         4         0.13         0.252         1.000         1.083(0.794-1.478)         1.105(0.931-1.312)           rs2240308         BB vs. AA         Colorectal Cancer         4         0.563         0.036         0.18         1.241(1.011-1.524)         1.245(1.015-1.527)           rs2240308         B vs. A         Prostate Cancer         2         0.099         0.452         1.000         0.828(0.507-1.353)         0.832(0.619-1.119)           rs2240308         B vs. AA         Prostate Cancer         2         0.088         0.127         0.635	rs2240308	BA vs. AA	НВ	7	0.047	0.1	0.5	0.839(0.681-1.034)	0.919(0.808-1.045)
rs2240308         B vs. A         Colorectal Cancer         4         0.15         0.056         0.28         1.108(0.918-1.336)         1.116(0.997-1.249)           rs2240308         BB vs. AA         Colorectal Cancer         4         0.192         0.031         0.155         1.314(0.903-1.911)         1.295(1.024-1.637)           rs2240308         BA vs. AA         Colorectal Cancer         4         0.2         0.548         1.000         1.031(0.779-1.363)         1.057(0.882-1.266)           rs2240308         BB + BA vs. AA         Colorectal Cancer         4         0.113         0.252         1.000         1.083(0.794-1.478)         1.105(0.931-1.312)           rs2240308         BB vs. BA+ AA         Colorectal Cancer         4         0.563         0.036         0.18         1.241(1.011-1.524)         1.245(1.015-1.527)           rs2240308         B vs. A         Prostate Cancer         2         0.099         0.452         1.000         0.828(0.507-1.353)         0.832(0.619-1.119)           rs2240308         B vs. AA         Prostate Cancer         2         0.099         0.452         1.000         0.633(0.305-1.313)         0.62(0.412-0.934)           rs2240308         B vs. BA+ AA         Prostate Cancer         2         0.072         0.372 <t< td=""><td>rs2240308</td><td>BB + BA vs. AA</td><td>НВ</td><td>7</td><td>0.043</td><td>0.128</td><td>0.64</td><td>0.855(0.699-1.046)</td><td>0.937(0.828-1.06)</td></t<>	rs2240308	BB + BA vs. AA	НВ	7	0.043	0.128	0.64	0.855(0.699-1.046)	0.937(0.828-1.06)
rs2240308         BB vs. AA         Colorectal Cancer         4         0.192         0.031         0.155         1.314(0.903-1.911)         1.295(1.024-1.637)           rs2240308         BA vs. AA         Colorectal Cancer         4         0.2         0.548         1.000         1.031(0.779-1.363)         1.057(0.882-1.266)           rs2240308         BB + BA vs. AA         Colorectal Cancer         4         0.113         0.252         1.000         1.083(0.794-1.478)         1.105(0.931-1.312)           rs2240308         BB vs. BA+ AA         Colorectal Cancer         4         0.563         0.036         0.18         1.241(1.011-1.524)         1.245(1.015-1.527)           rs2240308         B vs. A         Prostate Cancer         2         0.099         0.452         1.000         0.828(0.507-1.353)         0.832(0.619-1.119)           rs2240308         B vs. AA         Prostate Cancer         2         0.509         0.987         1.000         1.004(0.539-1.869)         1.005(0.54-1.871)           rs2240308         B vs. AA         Prostate Cancer         2         0.088         0.127         0.635         0.555(0.26-1.183)         0.542(0.35-0.84)           rs2240308         B vs. BA+ AA         Prostate Cancer         2         0.078         0.219	rs2240308	BB vs. BA+ AA	HB	7	0.684	0.444	1.000	1.075(0.897-1.287)	1.073(0.896-1.284)
rs2240308         BA vs. AA         Colorectal Cancer         4         0.2         0.548         1.000         1.031(0.779-1.363)         1.057(0.882-1.266)           rs2240308         BB + BA vs. AA         Colorectal Cancer         4         0.113         0.252         1.000         1.083(0.794-1.478)         1.105(0.931-1.312)           rs2240308         BB vs. BA+ AA         Colorectal Cancer         4         0.563         0.036         0.18         1.241(1.011-1.524)         1.245(1.015-1.527)           rs2240308         B vs. A         Prostate Cancer         2         0.099         0.452         1.000         0.828(0.507-1.353)         0.832(0.619-1.119)           rs2240308         BB vs. AA         Prostate Cancer         2         0.509         0.987         1.000         1.004(0.539-1.869)         1.005(0.54-1.871)           rs2240308         BA vs. AA         Prostate Cancer         2         0.088         0.127         0.635         0.555(0.26-1.183)         0.542(0.35-0.84)           rs2240308         BB + BA vs. AA         Prostate Cancer         2         0.078         0.219         1.000         0.633(0.305-1.313)         0.62(0.412-0.934)           rs2240308         B vs. A         Lung Cancer         6         <.0.001         0.176         0.8	rs2240308	B vs. A	Colorectal Cancer	4	0.15	0.056	0.28	1.108(0.918-1.336)	1.116(0.997-1.249)
rs2240308         BB + BA vs. AA         Colorectal Cancer         4         0.113         0.252         1.000         1.083(0.794-1.478)         1.105(0.931-1.312)           rs2240308         BB vs. BA+ AA         Colorectal Cancer         4         0.563         0.036         0.18         1.241(1.011-1.524)         1.245(1.015-1.527)           rs2240308         B vs. A         Prostate Cancer         2         0.099         0.452         1.000         0.828(0.507-1.353)         0.832(0.619-1.119)           rs2240308         BB vs. AA         Prostate Cancer         2         0.509         0.987         1.000         1.004(0.539-1.869)         1.005(0.54-1.871)           rs2240308         BA vs. AA         Prostate Cancer         2         0.088         0.127         0.635         0.555(0.26-1.183)         0.542(0.35-0.84)           rs2240308         BB + BA vs. AA         Prostate Cancer         2         0.078         0.219         1.000         0.633(0.305-1.313)         0.62(0.412-0.934)           rs2240308         BB vs. AA         Prostate Cancer         2         0.872         0.39         1.000         1.284(0.726-2.27)         1.284(0.726-2.27)           rs2240308         BB vs. AA         Lung Cancer         6         < 0.001         0.199         0.99	rs2240308	BB vs. AA	Colorectal Cancer	4	0.192	0.031	0.155	1.314(0.903-1.911)	1.295(1.024–1.637)
rs2240308 BB vs. BA+ AA Colorectal Cancer 4 0.563 0.036 0.18 1.241(1.011-1.524) 1.245(1.015-1.527) rs2240308 B vs. AA Prostate Cancer 2 0.099 0.452 1.000 0.828(0.507-1.353) 0.832(0.619-1.119) rs2240308 BB vs. AA Prostate Cancer 2 0.509 0.987 1.000 1.004(0.539-1.869) 1.005(0.54-1.871) rs2240308 BA vs. AA Prostate Cancer 2 0.088 0.127 0.635 0.555(0.26-1.183) 0.542(0.35-0.84) rs2240308 BB + BA vs. AA Prostate Cancer 2 0.078 0.219 1.000 0.633(0.305-1.313) 0.62(0.412-0.934) rs2240308 BB vs. BA+ AA Prostate Cancer 2 0.872 0.39 1.000 1.284(0.726-2.27) 1.284(0.726-2.27) rs2240308 B vs. A Lung Cancer 6 <0.001 0.176 0.88 0.854(0.678-1.074) 0.875(0.791-0.967) rs2240308 BB vs. AA Lung Cancer 6 <0.001 0.199 0.995 0.714(0.427-1.194) 0.776(0.626-0.962) rs2240308 BA vs. AA Lung Cancer 6 0.002 0.218 1.000 0.827(0.648-1.056) 0.857(0.747-0.983) rs2240308 BB vs. BA+ AA Lung Cancer 6 0.002 0.272 1.000 0.784(0.508-1.211) 0.817(0.669-0.998) rs2240308 BB vs. AA Lung Cancer 6 0.002 0.272 1.000 0.784(0.508-1.211) 0.817(0.669-0.998) rs2240308 BB vs. AA Y 16 0.001 0.099 0.495 0.899(0.792-1.02) 0.928(0.866-0.994) rs2240308 BB vs. AA Y 16 0.001 0.021 1.000 0.862(0.659-1.129) 0.904(0.78-1.048)	rs2240308	BA vs. AA	Colorectal Cancer	4	0.2	0.548	1.000	1.031(0.779–1.363)	1.057(0.882-1.266)
rs2240308 B vs. A Prostate Cancer 2 0.099 0.452 1.000 0.828(0.507-1.353) 0.832(0.619-1.119) rs2240308 BB vs. AA Prostate Cancer 2 0.509 0.987 1.000 1.004(0.539-1.869) 1.005(0.54-1.871) rs2240308 BA vs. AA Prostate Cancer 2 0.088 0.127 0.635 0.555(0.26-1.183) 0.542(0.35-0.84) rs2240308 BB + BA vs. AA Prostate Cancer 2 0.078 0.219 1.000 0.633(0.305-1.313) 0.62(0.412-0.934) rs2240308 BB vs. BA+ AA Prostate Cancer 2 0.872 0.39 1.000 1.284(0.726-2.27) 1.284(0.726-2.27) rs2240308 B vs. A Lung Cancer 6 <0.001 0.176 0.88 0.854(0.678-1.074) 0.875(0.791-0.967) rs2240308 BB vs. AA Lung Cancer 6 <0.001 0.199 0.995 0.714(0.427-1.194) 0.776(0.626-0.962) rs2240308 BA vs. AA Lung Cancer 6 0.317 0.069 0.345 0.868(0.736-1.023) 0.873(0.755-1.01) rs2240308 BB vs. BA+ AA Lung Cancer 6 0.002 0.218 1.000 0.827(0.648-1.056) 0.857(0.747-0.983) rs2240308 BB vs. BA+ AA Lung Cancer 6 0.002 0.272 1.000 0.784(0.508-1.211) 0.817(0.669-0.998) rs2240308 BB vs. AA Y 16 <0.001 0.099 0.495 0.899(0.792-1.02) 0.928(0.866-0.994) rs2240308 BB vs. AA Y 16 0.001 0.281 1.000 0.862(0.659-1.129) 0.904(0.78-1.048)	rs2240308	BB + BA vs. AA	Colorectal Cancer	4	0.113	0.252	1.000	1.083(0.794-1.478)	1.105(0.931-1.312)
rs2240308         BB vs. AA         Prostate Cancer         2         0.509         0.987         1.000         1.004(0.539-1.869)         1.005(0.54-1.871)           rs2240308         BA vs. AA         Prostate Cancer         2         0.088         0.127         0.635         0.555(0.26-1.183)         0.542(0.35-0.84)           rs2240308         BB + BA vs. AA         Prostate Cancer         2         0.078         0.219         1.000         0.633(0.305-1.313)         0.62(0.412-0.934)           rs2240308         BB vs. BA+ AA         Prostate Cancer         2         0.872         0.39         1.000         1.284(0.726-2.27)         1.284(0.726-2.27)           rs2240308         B vs. A         Lung Cancer         6         < 0.001	rs2240308	BB vs. BA+ AA	Colorectal Cancer	4	0.563	0.036	0.18	1.241(1.011-1.524)	1.245(1.015–1.527)
rs2240308 BA vs. AA Prostate Cancer 2 0.088 0.127 0.635 0.555(0.26-1.183) 0.542(0.35-0.84) rs2240308 BB + BA vs. AA Prostate Cancer 2 0.078 0.219 1.000 0.633(0.305-1.313) 0.62(0.412-0.934) rs2240308 BB vs. BA+ AA Prostate Cancer 2 0.872 0.39 1.000 1.284(0.726-2.27) 1.284(0.726-2.27) rs2240308 BB vs. A Lung Cancer 6 < 0.001 0.176 0.88 0.854(0.678-1.074) 0.875(0.791-0.967) rs2240308 BB vs. AA Lung Cancer 6 < 0.001 0.199 0.995 0.714(0.427-1.194) 0.776(0.626-0.962) rs2240308 BA vs. AA Lung Cancer 6 0.317 0.069 0.345 0.868(0.736-1.023) 0.873(0.755-1.01) rs2240308 BB + BA vs. AA Lung Cancer 6 0.022 0.218 1.000 0.827(0.648-1.056) 0.857(0.747-0.983) rs2240308 BB vs. BA+ AA Lung Cancer 6 0.002 0.272 1.000 0.784(0.508-1.211) 0.817(0.669-0.998) rs2240308 B vs. AA Y 16 < 0.001 0.099 0.495 0.899(0.792-1.02) 0.928(0.866-0.994) rs2240308 BB vs. AA Y 16 0.001 0.281 1.000 0.862(0.659-1.129) 0.904(0.78-1.048)	rs2240308	B vs. A	Prostate Cancer	2	0.099	0.452	1.000	0.828(0.507-1.353)	0.832(0.619-1.119)
rs2240308 BB + BA vs. AA Prostate Cancer 2 0.078 0.219 1.000 0.633(0.305-1.313) 0.62(0.412-0.934) rs2240308 BB vs. BA+ AA Prostate Cancer 2 0.872 0.39 1.000 1.284(0.726-2.27) 1.284(0.726-2.27) rs2240308 B vs. A Lung Cancer 6 <0.001 0.176 0.88 0.854(0.678-1.074) 0.875(0.791-0.967) rs2240308 BB vs. AA Lung Cancer 6 <0.001 0.199 0.995 0.714(0.427-1.194) 0.776(0.626-0.962) rs2240308 BA vs. AA Lung Cancer 6 0.317 0.069 0.345 0.868(0.736-1.023) 0.873(0.755-1.01) rs2240308 BB + BA vs. AA Lung Cancer 6 0.022 0.218 1.000 0.827(0.648-1.056) 0.857(0.747-0.983) rs2240308 BB vs. BA+ AA Lung Cancer 6 0.002 0.272 1.000 0.784(0.508-1.211) 0.817(0.669-0.998) rs2240308 B vs. AA Y 16 <0.001 0.099 0.495 0.899(0.792-1.02) 0.928(0.866-0.994) rs2240308 BB vs. AA Y 16 0.001 0.281 1.000 0.862(0.659-1.129) 0.904(0.78-1.048)	rs2240308	BB vs. AA	Prostate Cancer	2	0.509	0.987	1.000	1.004(0.539-1.869)	1.005(0.54-1.871)
rs2240308 BB vs. BA+ AA Prostate Cancer 2 0.872 0.39 1.000 1.284(0.726-2.27) 1.284(0.726-2.27) rs2240308 B vs. A Lung Cancer 6 <0.001 0.176 0.88 0.854(0.678-1.074) 0.875(0.791-0.967) rs2240308 BB vs. AA Lung Cancer 6 <0.001 0.199 0.995 0.714(0.427-1.194) 0.776(0.626-0.962) rs2240308 BA vs. AA Lung Cancer 6 0.317 0.069 0.345 0.868(0.736-1.023) 0.873(0.755-1.01) rs2240308 BB + BA vs. AA Lung Cancer 6 0.022 0.218 1.000 0.827(0.648-1.056) 0.857(0.747-0.983) rs2240308 BB vs. BA+ AA Lung Cancer 6 0.002 0.272 1.000 0.784(0.508-1.211) 0.817(0.669-0.998) rs2240308 B vs. AA Y 16 <0.001 0.099 0.495 0.899(0.792-1.02) 0.928(0.866-0.994) rs2240308 BB vs. AA Y 16 0.001 0.281 1.000 0.862(0.659-1.129) 0.904(0.78-1.048)	rs2240308	BA vs. AA	Prostate Cancer	2	0.088	0.127	0.635	0.555(0.26-1.183)	0.542(0.35-0.84)
rs2240308 BB vs. AA Lung Cancer 6 < 0.001 0.176 0.88 0.854(0.678-1.074) 0.875(0.791-0.967) 0.752240308 BB vs. AA Lung Cancer 6 < 0.001 0.199 0.995 0.714(0.427-1.194) 0.776(0.626-0.962) 0.752240308 BB vs. AA Lung Cancer 6 0.317 0.069 0.345 0.868(0.736-1.023) 0.873(0.755-1.01) 0.752240308 BB vs. AA Lung Cancer 6 0.022 0.218 1.000 0.827(0.648-1.056) 0.857(0.747-0.983) 0.752240308 BB vs. BA+ AA Lung Cancer 6 0.002 0.272 1.000 0.784(0.508-1.211) 0.817(0.669-0.998) 0.752240308 B vs. A Y 16 < 0.001 0.099 0.495 0.899(0.792-1.02) 0.928(0.866-0.994)	rs2240308	BB + BA vs. AA	Prostate Cancer	2	0.078	0.219	1.000	0.633(0.305-1.313)	0.62(0.412-0.934)
rs2240308 BB vs. AA Lung Cancer 6 < 0.001 0.199 0.995 0.714(0.427-1.194) 0.776(0.626-0.962)  rs2240308 BA vs. AA Lung Cancer 6 0.317 0.069 0.345 0.868(0.736-1.023) 0.873(0.755-1.01)  rs2240308 BB + BA vs. AA Lung Cancer 6 0.022 0.218 1.000 0.827(0.648-1.056) 0.857(0.747-0.983)  rs2240308 BB vs. BA+ AA Lung Cancer 6 0.002 0.272 1.000 0.784(0.508-1.211) 0.817(0.669-0.998)  rs2240308 B vs. A Y 16 < 0.001 0.099 0.495 0.899(0.792-1.02) 0.928(0.866-0.994)  rs2240308 BB vs. AA Y 16 0.001 0.281 1.000 0.862(0.659-1.129) 0.904(0.78-1.048)	rs2240308	BB vs. BA+ AA	Prostate Cancer	2	0.872	0.39	1.000	1.284(0.726-2.27)	1.284(0.726-2.27)
rs2240308         BA vs. AA         Lung Cancer         6         0.317         0.069         0.345         0.868(0.736-1.023)         0.873(0.755-1.01)           rs2240308         BB + BA vs. AA         Lung Cancer         6         0.022         0.218         1.000         0.827(0.648-1.056)         0.857(0.747-0.983)           rs2240308         BB vs. BA+ AA         Lung Cancer         6         0.002         0.272         1.000         0.784(0.508-1.211)         0.817(0.669-0.998)           rs2240308         B vs. A         Y         16         < 0.001	rs2240308	B vs. A	Lung Cancer	6	< 0.001	0.176	0.88	0.854(0.678-1.074)	0.875(0.791-0.967)
rs2240308 BB + BA vs. AA Lung Cancer 6 0.022 0.218 1.000 0.827(0.648-1.056) 0.857(0.747-0.983) rs2240308 BB vs. BA+ AA Lung Cancer 6 0.002 0.272 1.000 0.784(0.508-1.211) 0.817(0.669-0.998) rs2240308 B vs. A Y 16 < 0.001 0.099 0.495 0.899(0.792-1.02) 0.928(0.866-0.994) rs2240308 BB vs. AA Y 16 0.001 0.281 1.000 0.862(0.659-1.129) 0.904(0.78-1.048)	rs2240308	BB vs. AA	Lung Cancer	6	< 0.001	0.199	0.995	0.714(0.427-1.194)	0.776(0.626-0.962)
rs2240308 BB vs. BA+ AA Lung Cancer 6 0.002 0.272 1.000 0.784(0.508-1.211) 0.817(0.669-0.998) rs2240308 B vs. A Y 16 < 0.001 0.099 0.495 0.899(0.792-1.02) 0.928(0.866-0.994) rs2240308 BB vs. AA Y 16 0.001 0.281 1.000 0.862(0.659-1.129) 0.904(0.78-1.048)	rs2240308	BA vs. AA	Lung Cancer	6	0.317	0.069	0.345	0.868(0.736-1.023)	0.873(0.755-1.01)
rs2240308 B vs. A Y 16 < 0.001 0.099 0.495 0.899(0.792–1.02) 0.928(0.866–0.994) rs2240308 BB vs. AA Y 16 0.001 0.281 1.000 0.862(0.659–1.129) 0.904(0.78–1.048)	rs2240308	BB + BA vs. AA	Lung Cancer	6	0.022	0.218	1.000	0.827(0.648-1.056)	0.857(0.747-0.983)
rs2240308 BB vs. AA Y 16 0.001 0.281 1.000 0.862(0.659–1.129) 0.904(0.78–1.048)	rs2240308	BB vs. BA+ AA	Lung Cancer	6	0.002	0.272	1.000	0.784(0.508-1.211)	0.817(0.669-0.998)
	rs2240308	B vs. A	Υ	16	< 0.001	0.099	0.495	0.899(0.792-1.02)	0.928(0.866-0.994)
	rs2240308	BB vs. AA	Υ	16	0.001	0.281	1.000	0.862(0.659-1.129)	0.904(0.78-1.048)
rs2240308 BA vs. AA Y 16 0.097 0.018 0.09 0.843(0.732-0.972) 0.874(0.786-0.971)	rs2240308	BA vs. AA	Υ	16	0.097	0.018	0.09	0.843(0.732-0.972)	0.874(0.786-0.971)

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 Table 2 Results of pooled analysis for AXIN2 Polymorphism and cancer susceptibility (Continued)

rs/2240388         88 + 8 Av. S.A.         Y         16 (0.008)         0.03 (0.15)         0.8380(0.714-0.983)         0.5750(0.729-0.957)           rs/2740308         8 vs. A.         N         4 (0.001)         0.401         1.000         1.174(0.84-1.61)         0.156(0.94-1.187)           rs/2740308         8 vs. A.         N         3 (0.001)         0.211         1.000         1.174(0.84-1.618)         1.159(0.92-1.561)           rs/2240308         8 b vs. A.         N         3 (0.001)         0.447         1.000         1.174(0.86-1.29)         1.008-0.81-1.291           rs/2240308         8 b vs. A.         N         3 (0.001)         0.447         1.000         1.174(0.06-0.199)         1.008-0.81-1.291           rs/2240308         8 b vs. A.         N         N         V. Cwenill         4 (0.008)         0.011         0.005         1.048(0.71-2.265)         1.009(0.91-1.11)           rs/2240308         8 b vs. A.         Overall         4 (0.038)         0.011         0.001         0.048(0.71-2.265)         1.076(0.009)         0.011         0.001         0.004         0.001         0.001         0.004         0.001         0.004         0.001         0.004         0.001         0.004         0.001         0.004         0.001         0.004<	Polymorphism	Comparison	Subgroup	N	P <sub>H</sub>	Pz	P <sub>Adjust</sub>	OR & 95%CI (Random)	OR & 95%CI (Fixed)
1.00   1.00	rs2240308	BB + BA vs. AA	Υ	16	0.008	0.03	0.15	0.838(0.714-0.983)	0.875(0.792-0.967)
	rs2240308	BB vs. BA+ AA	Υ	16	0.011	0.604	1.000	0.945(0.761-1.172)	0.962(0.843-1.099)
rs.2240308         BA - May AA         N         3         0.022         0.488         1.000         1.171(0.765-1.793)         1.056(0.88-1.291)           rs.2240308         BB - Ba Vas AA         N         3         0.001         0.347         1.000         1.040(0.75-2.265)         1.055(0.915-1.31)           rs.22240308         BB Vas BA AA         N         3         0.001         0.243         1.000         1.044(0.75-2.855)         1.055(0.915-1.31)           rs.32285779         BA Vas AA         Overall         4         0.034         0.010         0.055         0.0310(0.090.099)         0.632(0.495 0.090)           rs.32285779         BB - BA Vas AA         Overall         4         0.034         0.017         0.085         0.473(0.219-1.025)         0.639(0.486-0.839)           rs.32285779         BB - BA Vas AA         PR         2         0.122         0.014         0.17         0.0810(442-1.088)         0.039(0.95-0.083)           rs.32285779         BA Vas AA         PB         2         0.122         0.014         0.17         0.0910(442-1.089)         0.048(0.161-1.452)           rs.32285779         BA Vas AA         PB         2         0.025         0.134         0.12         0.041(0.517-1.082)         0.71(0.519-0.092)	rs2240308	B vs. A	N	4	< 0.001	0.347	1.000	1.174(0.84–1.64)	1.056(0.944–1.182)
100   100	rs2240308	BB vs. AA	N	3	< 0.001	0.21	1.000	1.961(0.684-5.618)	1.199(0.922–1.561)
	rs2240308	BA vs. AA	N	3	0.022	0.468	1.000	1.171(0.765-1.793)	1.066(0.88-1.292)
r852285779         B vs. AA         Overall         4         0.068         0.011         0.055         0.603(0409-0.889)         0.632(0496-0.809)           r852285779         B8 vs. AA         Overall         4         0.378         0.098         0.19         0.43(0194-0.955)         0.368(0176-077)           r852285779         B8 +BA vs. AA         Overall         4         0.155         0.010         0.005*         0.63(0121-0.993)         0.63(01421-0.993)         0.63(01421-0.993)         0.63(01421-0.993)         0.63(01421-0.993)         0.63(01421-0.993)         0.63(01421-0.993)         0.63(01421-0.993)         0.63(01421-0.993)         0.63(01421-0.993)         0.63(01421-0.993)         0.63(01421-0.993)         0.63(01421-0.993)         0.63(01421-0.993)         0.63(01421-0.993)         0.63(01421-0.994)         0.71(05121-0.0925)         0.63(01421-0.993)         0.63(01421-0.993)         0.63(01421-0.994)         0.71(05121-0.0925)         0.63(01421-0.993)         0.63(01421-0.993)         0.63(01421-0.993)         0.63(01421-0.994)         0.71(05121-0.0925)         0.63(01421-0.993)         0.63(01421-0.993)         0.63(01421-0.993)         0.63(01421-0.993)         0.63(01421-0.994)         0.71(0519-0.995)         0.72(01421-0.993)         0.72(01421-0.993)         0.72(01421-0.993)         0.72(01421-0.993)         0.72(01421-0.993)         0.72(01421-0.993)         0.72(01421	rs2240308	BB + BA vs. AA	N	3	0.001	0.347	1.000	1.304(0.75-2.265)	1.095(0.915-1.31)
r832985779         BR vs. AA         Overall         4         0.378         0.038         0.19         0.43(0.194-0.055)         0.368(0.176-0.077)           r835285779         BR vs. AA         Overall         4         0.384         0.009         0.045*         0.685(0.513-0.015)         0.684(0.514-0.009)           r835285779         BR vs. AA         Overall         4         0.448         0.017         0.65         0.473(0.219-1.025)         0.498(0.195-0.833)           r835285779         BR vs. AA         PB         2         0.712         0.034         0.17         0.691(0.442-1.08)         0.711(0.519-0.975)           r835285779         BR vs. AA         PB         2         0.452         0.145         0.25         0.432(0.147-1.388)         0.443(0.148-1.323)           r835285779         BR vs. AA         PB         2         0.252         0.017         0.985         0.74(0.647-1.044)         0.711(0.519-0.075)           r835285779         BV vs. AA         PB         2         0.039         0.107         0.985         0.708(0.647-0.144)         0.337(0.116-0.804)           r835285779         BV vs. AA         HB         2         0.011         0.012         0.155         0.508(0.226-1.145)         0.357(0.346-1.452)	rs2240308	BB vs. BA+ AA	N	3	< 0.001	0.243	1.000	1.648(0.713-3.81)	1.176(0.919–1.504)
rs32285779         BA vs. AA         Overall         4         0.384         0.009         0.045*         0.688(0.513-0.915)         0.684(0.514-0.090)           rs32585779         BB + BA vs. AA         Overall         4         0.155*         0.010         0.005*         0.613(0.421-0.033)         0.639(0.486-0.839)           rs325285779         BB vs. BA         PB         2         0.172         0.034         0.17         0.601(0.442-1.08)         0.711(0.519-0.975)           rs325285779         BA vs. AA         PB         2         0.124         0.10         0.51         0.611(0.442-1.08)         0.711(0.517-1.062)           rs325285779         BA vs. AA         PB         2         0.352         0.10         0.05         0.241(0.517-1.062)         0.711(0.517-1.062)           rs325285779         BA vs. AA         PB         2         0.393         0.10         0.95         0.468(0.163-1.52)         0.448(0.163-1.52)           rs325285779         BA vs. AA         HB         2         0.041         0.10         0.15         0.508(0.226-1.145)         0.531(0.366-0.783)           rs325285779         BA vs. AA         HB         2         0.01         0.01         0.15         0.508(0.226-1.145)         0.371(0.166-0.868)	rs35285779	B vs. A	Overall	4	0.068	0.011	0.055	0.603(0.409-0.889)	0.632(0.496-0.806)
rs35285779         BB + BA vs. AA         Overall         4         0.155         0.01         0.005**         0.013(0.421-0.039)         0.639(0.486-0.839)           rs35285779         BS vs. A         PB         2         0.44         0.017         0.085         0.473(2.19-1.025)         0.408(0.190-0.053)           rs35285779         BS vs. AA         PB         2         0.352         0.145         0.725         0.414(0.517-1.062)         0.441(0.117-1.062)         0.441(0.117-1.062)         0.441(0.117-1.062)         0.441(0.117-1.062)         0.441(0.117-1.062)         0.441(0.117-1.062)         0.441(0.117-1.062)         0.441(0.117-1.062)         0.441(0.117-1.062)         0.441(0.117-1.062)         0.731(0.504-1.01)         0.7	rs35285779	BB vs. AA	Overall	4	0.378	0.038	0.19	0.43(0.194-0.955)	0.368(0.176-0.77)
rs.35285779         BB vs. BA+ M.         Overall         4         0.448         0.017         0.085         0.473(0.219-1.025)         0.408(0.195-0.825)           rs.35285779         BB vs. A         PB         2         0.127         0.034         0.17         0.691(0.442-1.08)         0.711(0.519-0.975)           rs.35285779         BB vs. AA         PB         2         0.434         0.12         0.51         0.741(0.517-1.062)         0.741(0.517-1	rs35285779	BA vs. AA	Overall	4	0.384	0.009	0.045*	0.685(0.513-0.915)	0.684(0.514-0.909)
rss32285779         B vs. A         PB         2         0.172         0.034         0.17         0.691(0.442-1.08)         0.711(0.519-0.975)           rs352285779         BB vs. AA         PB         2         0.4352         0.145         0.725         0.452(0.147-1.288)         0.443(0.148-1.323)           rs35285779         BB vs. BA vs. AA         PB         2         0.457         0.057         0.055         0.702(0.467-1.054)         0.713(0.504-1.01)           rs35285779         BB vs. BA vs. AA         PB         2         0.257         0.057         0.285         0.498(0.163-1.52)         0.488(0.164-1.452)           rs35285779         BB vs. AA         HB         2         0.011         0.013         0.515         0.508(0.226-1.145)         0.538(0.356-0.783)           rs35285779         BB vs. AA         HB         2         0.101         0.015         0.529(0.026-1.149)         0.558(0.357-0.964)           rs35285779         BB vs. AA         HB         2         0.161         0.031         0.155         0.599(0.236-1.149)         0.538(0.354-0.967)           rs35285779         BB vs. BA vs. AA         LIB         2         0.161         0.043         0.215         0.519(0.226-1.149)         0.538(0.314-0.343)	rs35285779	BB + BA vs. AA	Overall	4	0.155	0.001	0.005*	0.613(0.421-0.893)	0.639(0.486-0.839)
rss25285779         BB vs. AA         PB         2         0.352         0.145         0.725         0.452(0.147-1.288)         0.443(0.18-1.322)           rss25285779         BB vs. AA         PB         2         0.434         0.102         0.51         0.741(0.517-1.062)         0.741(0.517-1.062)           rss5285779         BB vs. BA+ AA         PB         2         0.257         0.057         0.285         0.720(0.467-1.054)         0.713(0.504-1.01)           rss5285779         B vs. A         HB         2         0.931         0.915         0.598(0.26-1.145)         0.355(0.365-0.783)           rss5285779         Ba vs. A         HB         2         0.131         0.025         0.155         0.598(0.26-1.145)         0.538(0.365-0.783)           rss5285779         Ba vs. AA         HB         2         0.161         0.031         0.155         0.592(0.36-1.149)         0.598(0.375-0.954)           rss5285779         Ba vs. AA         HB         2         0.161         0.043         0.215         0.5110(0.41-2.355)         0.354(0.31-0.967)           rss2285779         Ba vs. A         Lung Cancer         2         0.122         0.042         0.17         0.691(0.442-1.09)         0.711(0.517-1.062)         0.711(0.517-1.062)	rs35285779	BB vs. BA+ AA	Overall	4	0.448	0.017	0.085	0.473(0.219-1.025)	0.408(0.195-0.853)
rs35285799         BA vs. AAI         PB         2         0.434         0.102         0.51         0.741(0.517-1.062)         0.741(0.517-1.062)           rs35285779         BB + BA vs. AAI         PB         2         0.257         0.057         0.285         0.702(0.467-1.054)         0.713(0.504-1.01)           rs35285779         B vs. A         PB         2         0.339         0.197         0.985         0.498(0.163-1.52)         0.488(0.164-1.452)           rs35285779         B vs. A         HB         2         0.131         0.025         0.125         0.526(0.026-1.145)         0.535(0.365-0783)           rs35285779         B8 vs. AA         HB         2         0.161         0.031         0.155         0.590(0.351-0.149)         0.598(0.375-0.049)           rs35285779         B8 vs. AA         HB         2         0.011         0.014         0.25         0.519(0.236-1.144)         0.535(0.344-0.833)           rs35285779         B8 vs. AA         Lung Cancer         2         0.162         0.024         0.172         0.691(0.421-1.094)         0.711(0.519-0.975)           rs35285779         B8 vs. AA         Lung Cancer         2         0.434         0.102         0.51         0.712(0.141-1.388)         0.711(0.519-0.51) <td>rs35285779</td> <td>B vs. A</td> <td>PB</td> <td>2</td> <td>0.172</td> <td>0.034</td> <td>0.17</td> <td>0.691(0.442-1.08)</td> <td>0.711(0.519-0.975)</td>	rs35285779	B vs. A	PB	2	0.172	0.034	0.17	0.691(0.442-1.08)	0.711(0.519-0.975)
rs35285779         BB +BA vs. AA         PB         2         0.257         0.057         0.285         0.7020(A67-1.054)         0.713(0.504-1.01)           rs35285779         BB vs. BA+ AA         PB         2         0.393         0.197         0.985         0.498(0.163-1.52)         0.488(0.164-1.452)           rs35285779         B vs. A         HB         2         0.041         0.103         0.155         0.508(0.226-1.145)         0.535(0.365-0.783)           rs35285779         BA vs. AA         HB         2         0.131         0.025         0.125         0.520(0.028-2.443)         0.317(0.116-0.868)           rs35285779         BB + BA vs. AA         HB         2         0.014         0.52         0.519(0.236-1.144)         0.535(0.346-0.383)           rs35285779         BB vs. BA+         HB         2         0.016         0.043         0.215         0.311(0.041-2.355)         0.334(0.13-0.967)           rs35285779         Bv. A         Lung Cancer         2         0.172         0.034         0.172         0.691(0.442-1.08)         0.711(0.519-0.975)           rs35285779         Bv. S. A         Lung Cancer         2         0.142         0.12         0.724         0.724         0.724         0.724         0.724	rs35285779	BB vs. AA	PB	2	0.352	0.145	0.725	0.452(0.147-1.388)	0.443(0.148-1.323)
rs35285779         Bb vs. BA+ AA         PB         2         0.393         0.197         0.985         0.498(0.163-1.52)         0.488(0.164-1.452)           rs35285779         B vs. AA         HB         2         0.041         0.103         0.515         0.508(0.226-1.145)         0.535(0.365-0.783)           rs35285779         BB vs. AA         HB         2         0.161         0.031         0.155         0.592(0.305-1.149)         0.598(0.375-0.954)           rs35285779         BB + BA vs. AA         HB         2         0.161         0.041         0.155         0.592(0.305-1.149)         0.598(0.375-0.954)           rs35285779         BB vs. BA+ AA         HB         2         0.164         0.043         0.215         0.510(0.041-2.355)         0.354(0.131-0.967)           rs35285779         Bb vs. AA         Lung Cancer         2         0.172         0.034         0.17         0.691(0.442-1.08)         0.711(0.519-0.975)           rs35285779         Bb vs. AA         Lung Cancer         2         0.434         0.102         0.51         0.741(0.517-1.062)         0.741(0.517-1.062)           rs35285779         Bb vs. AA         Lung Cancer         2         0.434         0.102         0.51         0.741(0.517-1.062)         0.741(0.517-	rs35285779	BA vs. AA	PB	2	0.434	0.102	0.51	0.741(0.517-1.062)	0.741(0.517-1.062)
rs35285779         B vs. AA         HBB         2         0.041         0.103         0.515         0.508(0.226-1.145)         0.535(0.365-0.783)           rs35285779         BB vs. AA         HB         2         0.131         0.025         0.125         0.262(0.028-2.443)         0.317(0.116-0.868)           rs35285779         BB vs. AA         HB         2         0.614         0.031         0.155         0.592(0.305-1.149)         0.598(0.375-0.954)           rs35285779         BB vs. BA+ AA         HB         2         0.614         0.04         0.52         0.519(0.326-1.144)         0.556(0.344-0.833)           rs35285779         B vs. AA         Lung Cancer         2         0.162         0.034         0.17         0.691(0.442-1.08)         0.711(0.519-0.975)           rs35285779         BB vs. AA         Lung Cancer         2         0.432         0.15         0.721(0.6517-1.062)         0.741(0.517-1.062)         0.741(0.517-1.062)         0.741(0.517-1.062)         0.741(0.517-1.062)         0.741(0.517-1.062)         0.741(0.517-1.062)         0.741(0.517-1.062)         0.741(0.517-1.062)         0.741(0.517-1.062)         0.741(0.517-1.062)         0.741(0.517-1.062)         0.741(0.517-1.062)         0.741(0.517-1.062)         0.741(0.517-1.062)         0.741(0.517-1.062)         0.741(0.517-1.062) </td <td>rs35285779</td> <td>BB + BA vs. AA</td> <td>PB</td> <td>2</td> <td>0.257</td> <td>0.057</td> <td>0.285</td> <td>0.702(0.467-1.054)</td> <td>0.713(0.504-1.01)</td>	rs35285779	BB + BA vs. AA	PB	2	0.257	0.057	0.285	0.702(0.467-1.054)	0.713(0.504-1.01)
rs35285779         BB vs. AA         HB         2         0.131         0.025         0.125         0.262(0.028-2.443)         0.317(0.116-0.868)           rs35285779         BA vs. AA         HB         2         0.061         0.031         0.155         0.592(0.305-1.149)         0.598(0.375-0.954)           rs35285779         BB vs. BA vs. AA         HB         2         0.081         0.104         0.52         0.519(0.236-1.144)         0.535(0.344-0.833)           rs35285779         BB vs. BA         HB         2         0.16         0.043         0.215         0.311(0.041-2.355)         0.354(0.13-0.967)           rs35285779         BB vs. AA         Lung Cancer         2         0.172         0.034         0.17         0.691(0.42-1.08)         0.711(0.519-0.975)           rs35285779         BB vs. AA         Lung Cancer         2         0.352         0.145         0.725         0.452(0.147-1.388)         0.443(0.148-1.323)           rs35285779         BB vs. AA         Lung Cancer         2         0.257         0.057         0.285         0.72(0.467-1.054)         0.71(0.517-1.062)           rs35285779         BB vs. AA         Lung Cancer         2         0.257         0.057         0.285         0.72(0.467-1.054)         0.73(0.461-1	rs35285779	BB vs. BA+ AA	PB	2	0.393	0.197	0.985	0.498(0.163-1.52)	0.488(0.164-1.452)
rs         35285779         BA vs. AA         HB         2         0.161         0.031         0.155         0.592(0.305-1.149)         0.598(0.375-0.954)           rs         25265779         BB + BA vs. AA         HB         2         0.081         0.104         0.52         0.519(0.236-1.144)         0.535(0.344-0.833)           rs         25285779         BB vs. BA         HB         2         0.16         0.043         0.215         0.311(0.041-2.355)         0.554(0.13-0.967)           rs         35285779         BB vs. AA         Lung Cancer         2         0.172         0.034         0.17         0.691(0.442-1.08)         0.711(0.519-0.975)           rs         25285779         BB vs. AA         Lung Cancer         2         0.352         0.145         0.725         0.452(0.147-1.388)         0.443(0.148-1.323)           rs         35285779         BB vs. AA         Lung Cancer         2         0.257         0.057         0.285         0.72(0.0467-1.054)         0.71(0.517-1.062)           rs         2528779         BB vs. BA         Lung Cancer         2         0.257         0.257         0.285         0.72(0.467-1.054)         0.73(0.61-1.054)           rs         252825779         BB vs. A         Lung Cancer <td>rs35285779</td> <td>B vs. A</td> <td>HB</td> <td>2</td> <td>0.041</td> <td>0.103</td> <td>0.515</td> <td>0.508(0.226-1.145)</td> <td>0.535(0.365-0.783)</td>	rs35285779	B vs. A	HB	2	0.041	0.103	0.515	0.508(0.226-1.145)	0.535(0.365-0.783)
rs         525285779         BB + BA vs. AA         HB         2         0.081         0.104         0.52         0.519(0.236-1.144)         0.535(0.344-0.833)           rs         525285779         BB vs. BA+ AA         HB         2         0.16         0.043         0.215         0.311(0.041-2.355)         0.354(0.13-0.967)           rs         35285779         BB vs. AA         Lung Cancer         2         0.172         0.034         0.17         0.691(0.442-1.08)         0.711(0.519-0.975)           rs         35285779         BB vs. AA         Lung Cancer         2         0.344         0.102         0.51         0.741(0.517-1.062)         0.741(0.517-1.062)           rs         25285779         BB vs. BA+ AA         Lung Cancer         2         0.257         0.057         0.285         0.720(0.467-1.054)         0.741(0.517-1.062)           rs         2719582         BV s. A         Ung Cancer         2         0.334         0.197         0.885         0.720(0.467-1.054)         0.741(0.517-1.062)           rs         219582         BV s. A         Overall         4         0.336         0.077         0.385         0.220(6.45-1.048)         0.820(6.659-1.021)           rs         219582         BV s. A         Lung Canc	rs35285779	BB vs. AA	НВ	2	0.131	0.025	0.125	0.262(0.028-2.443)	0.317(0.116-0.868)
rs35285779         BB vs. BA+ AA         HB         2         0.16         0.043         0.215         0.311(0.041-2.355)         0.354(0.13-0.967)           rs35285779         B vs. A         Lung Cancer         2         0.172         0.034         0.17         0.691(0.442-1.08)         0.711(0.519-0.975)           rs35285779         BB vs. AA         Lung Cancer         2         0.352         0.145         0.725         0.452(0.147-1.388)         0.443(0.148-1.323)           rs35285779         BB vs. AA         Lung Cancer         2         0.434         0.102         0.51         0.741(0.517-1.062)         0.741(0.517-1.062)           rs35285779         BB vs. BA vs. AA         Lung Cancer         2         0.257         0.057         0.285         0.702(0.467-1.054)         0.713(0.504-1.01)           rs3219582         B vs. A         Overall         4         0.386         0.077         0.385         0.498(0.163-1.52)         0.488(0.164-1.452)           rs7219582         B vs. A         Overall         4         0.035         0.538         1.000         0.75(0.31-1.873)         0.491(0.344-0.7)           rs7219582         B vs. A         Ung Cancer         2         0.941         0.041         0.205         0.789(0.629-0.99)         0.78	rs35285779	BA vs. AA	HB	2	0.161	0.031	0.155	0.592(0.305-1.149)	0.598(0.375-0.954)
rs35285779         B vs. A         Lung Cancer         2         0.172         0.034         0.17         0.691(0.442-1.08)         0.711(0.519-0.975)           rs35285779         BB vs. AA         Lung Cancer         2         0.352         0.145         0.725         0.452(0.147-1.388)         0.443(0.148-1.323)           rs35285779         BB + BA vs. AA         Lung Cancer         2         0.434         0.102         0.51         0.741(0.517-1.062)         0.741(0.517-1.062)           rs35285779         BB + BA vs. AA         Lung Cancer         2         0.257         0.057         0.285         0.702(0.467-1.054)         0.713(0.504-1.01)           rs35285779         BB + BA vs. AA         Lung Cancer         2         0.393         0.197         0.855         0.498(0.163-1.52)         0.488(0.164-1.452)           rs7219582         B vs. A         Overall         4         0.386         0.077         0.385         0.822(0.645-1.048)         0.82(0.659-1.021)           rs7219582         B s B A vs. AA         Overall         4         0.035         0.538         1.000         0.75(0.31-1.873)         0.491(0.344-0.7)           rs7219582         B vs. A         Lung Cancer         2         0.941         0.041         0.001         0.58(0.629-0.99)<	rs35285779	BB + BA vs. AA	НВ	2	0.081	0.104	0.52	0.519(0.236-1.144)	0.535(0.344-0.833)
rs35285779         BB vs. AA         Lung Cancer         2         0.352         0.145         0.725         0.452(0.147–1.388)         0.443(0.148–1.328)           rs35285779         BA vs. AA         Lung Cancer         2         0.434         0.102         0.51         0.741(0.517–1.062)         0.741(0.517–1.062)           rs35285779         BB + BA vs. AA         Lung Cancer         2         0.257         0.057         0.285         0.702(0.467–1.054)         0.713(0.504–1.01)           rs3285779         BB vs. BA+ AA         Lung Cancer         2         0.393         0.197         0.985         0.498(0.163–1.52)         0.488(0.164–1.452)           rs7219582         B vs. A         Overall         4         0.386         0.077         0.385         0.822(0.645–1.048)         0.82(0.659–1.021)           rs7219582         B s BA vs. AA         Overall         4         0.035         0.538         1.000         0.758(0.31–1.873)         0.491(0.344–0.7)           rs7219582         B s BA vs. AA         Cung Cancer         2         0.941         0.041         0.205         0.789(0.629–0.99)         0.789(0.629–0.99)           rs7219582         B s BA vs. AA         Lung Cancer         2         0.349         < 0.001*         0.001*         0.341(0.2	rs35285779	BB vs. BA+ AA	НВ	2	0.16	0.043	0.215	0.311(0.041-2.355)	0.354(0.13-0.967)
rs35285779         BA vs. AA         Lung Cancer         2         0.434         0.102         0.51         0.741(0.517-1.062)         0.741(0.517-1.062)           rs35285779         BB + BA vs. AA         Lung Cancer         2         0.257         0.057         0.285         0.702(0.467-1.054)         0.713(0.504-1.01)           rs35285779         BB vs. BA + AA         Lung Cancer         2         0.393         0.197         0.985         0.498(0.163-1.52)         0.488(0.164-1.452)           rs7219582         B vs. A         Overall         4         0.386         0.077         0.385         0.822(0.645-1.048)         0.82(0.659-1.021)           rs7219582         BA vs. AA         Overall         4         0.035         0.538         1.000         0.75(0.3-1.873)         0.491(0.344-0.7)           rs7219582         BB + BA vs. AA         Overall         4         0.045         0.538         1.000         0.75(0.3-1.873)         0.491(0.344-0.7)           rs7219582         BA vs. AA         Lung Cancer         2         0.941         0.041         0.205         0.789(0.629-0.99)         0.789(0.629-0.99)           rs7219582         BA + BA vs. AA         Lung Cancer         2         0.934         <0.001         <0.001*         0.414(0.278-0.614) <td>rs35285779</td> <td>B vs. A</td> <td>Lung Cancer</td> <td>2</td> <td>0.172</td> <td>0.034</td> <td>0.17</td> <td>0.691(0.442-1.08)</td> <td>0.711(0.519-0.975)</td>	rs35285779	B vs. A	Lung Cancer	2	0.172	0.034	0.17	0.691(0.442-1.08)	0.711(0.519-0.975)
rs35285779         BB + BA vs. AA         Lung Cancer         2         0.257         0.057         0.285         0.702(0.467-1.054)         0.713(0.504-1.01)           rs35285779         BB vs. BA + AA         Lung Cancer         2         0.393         0.197         0.985         0.498(0.163-1.52)         0.488(0.164-1.452)           rs7219582         B vs. A         Overall         4         0.386         0.077         0.385         0.822(0.645-1.048)         0.82(0.659-1.021)           rs7219582         BA vs. AA         Overall         4         0.035         0.538         1.000         0.75(0.31-873)         0.491(0.344-0.7)           rs7219582         BB + BA vs. AA         Overall         4         0.045         0.538         1.000         0.758(0.313-1.833)         0.51(0.358-0.272)           rs7219582         B vs. A         Lung Cancer         2         0.941         0.041         0.205         0.789(0.629-0.99)         0.789(0.629-0.99)           rs7219582         BA vs. AA         Lung Cancer         2         0.941         0.001*         0.001*         0.394(0.265-0.586)         0.394(0.265-0.585)           rs7219582         BB + BA vs. AA         Lung Cancer         2         0.436         < 0.001*	rs35285779	BB vs. AA	Lung Cancer	2	0.352	0.145	0.725	0.452(0.147-1.388)	0.443(0.148-1.323)
rs35285779         BB vs. BA+ AA         Lung Cancer         2         0.393         0.197         0.985         0.498(0.163-1.52)         0.488(0.164-1.452)           rs7219582         B vs. A         Overall         4         0.386         0.077         0.385         0.822(0.645-1.048)         0.82(0.659-1.021)           rs7219582         BA vs. AA         Overall         4         0.035         0.538         1.000         0.75(0.3-1.873)         0.491(0.344-0.7)           rs7219582         BB + BA vs. AA         Overall         4         0.045         0.538         1.000         0.758(0.313-1.833)         0.51(0.358-0.727)           rs7219582         B vs. A         Lung Cancer         2         0.941         0.041         0.205         0.789(0.629-0.99)         0.789(0.629-0.99)           rs7219582         BA vs. AA         Lung Cancer         2         0.399         < 0.001	rs35285779	BA vs. AA	Lung Cancer	2	0.434	0.102	0.51	0.741(0.517-1.062)	0.741(0.517-1.062)
rs7219582         B vs. A         Overall         4         0.386         0.077         0.385         0.822(0.645-1.048)         0.82(0.659-1.021)           rs7219582         BA vs. AA         Overall         4         0.035         0.538         1.000         0.75(0.3-1.873)         0.491(0.344-0.7)           rs7219582         BB + BA vs. AA         Overall         4         0.045         0.538         1.000         0.758(0.313-1.833)         0.51(0.358-0.727)           rs7219582         B vs. A         Lung Cancer         2         0.941         0.041         0.205         0.789(0.629-0.99)         0.789(0.629-0.99)           rs7219582         BA vs. AA         Lung Cancer         2         0.399         < 0.001         < 0.001*         0.394(0.265-0.586)         0.394(0.265-0.585)           rs7219582         BB + BA vs. AA         Lung Cancer         2         0.436         < 0.001         < 0.001*         0.144(0.278-0.614)         0.413(0.278-0.614)           rs9915936         B vs. A         Overall         4         0.873         0.038         0.19         0.708(0.51-0.981)         0.707(0.51-0.981)           rs9915936         BA vs. AA         Overall         4         0.668         0.014         0.07         0.667(0.469-0.94)         0.	rs35285779	BB + BA vs. AA	Lung Cancer	2	0.257	0.057	0.285	0.702(0.467-1.054)	0.713(0.504-1.01)
rs7219582         BA vs. AA         Overall         4         0.035         0.538         1.000         0.75(0.3-1.873)         0.491(0.344-0.7)           rs7219582         BB+ BA vs. AA         Overall         4         0.045         0.538         1.000         0.758(0.313-1.833)         0.51(0.358-0.727)           rs7219582         B vs. A         Lung Cancer         2         0.941         0.041         0.205         0.789(0.629-0.99)         0.789(0.629-0.99)           rs7219582         BA vs. AA         Lung Cancer         2         0.399         < 0.001	rs35285779	BB vs. BA+ AA	Lung Cancer	2	0.393	0.197	0.985	0.498(0.163-1.52)	0.488(0.164-1.452)
rs7219582         BB + BA vs. AA         Overall         4         0.045         0.538         1.000         0.758(0.313-1.833)         0.51(0.358-0.727)           rs7219582         B vs. A         Lung Cancer         2         0.941         0.041         0.205         0.789(0.629-0.99)         0.789(0.629-0.99)           rs7219582         BA vs. AA         Lung Cancer         2         0.399         < 0.001         < 0.001*         0.394(0.265-0.586)         0.394(0.265-0.585)           rs7219582         BB + BA vs. AA         Lung Cancer         2         0.436         < 0.001*         < 0.001*         0.414(0.278-0.614)         0.413(0.278-0.614)           rs9915936         B vs. A         Overall         4         0.873         0.038         0.19         0.708(0.51-0.981)         0.707(0.51-0.981)           rs9915936         BA vs. AA         Overall         4         0.668         0.014         0.07         0.634(0.44-0.914)         0.633(0.44-0.91)           rs9915936         BA vs. AA         PB         2         0.806         0.034         0.17         0.667(0.459-0.971)         0.667(0.459-0.97)           rs9915936         BA vs. AA         PB         2         0.649         0.016         0.08         0.607(0.404-0.913)         0.607(0.	rs7219582	B vs. A	Overall	4	0.386	0.077	0.385	0.822(0.645-1.048)	0.82(0.659-1.021)
rs7219582 B vs. A Lung Cancer 2 0.941 0.041 0.205 0.789(0.629-0.99) 0.789(0.629-0.99) rs7219582 BA vs. AA Lung Cancer 2 0.399 < 0.001 < 0.001* 0.394(0.265-0.586) 0.394(0.265-0.585) rs7219582 BB + BA vs. AA Lung Cancer 2 0.436 < 0.001 < 0.001* 0.414(0.278-0.614) 0.413(0.278-0.614) rs9915936 BA vs. AA Coverall 4 0.873 0.038 0.19 0.708(0.51-0.981) 0.707(0	rs7219582	BA vs. AA	Overall	4	0.035	0.538	1.000	0.75(0.3-1.873)	0.491(0.344-0.7)
rs7219582         BA vs. AA         Lung Cancer         2         0.399         < 0.001         < 0.001*         0.394(0.265-0.586)         0.394(0.265-0.585)           rs7219582         BB + BA vs. AA         Lung Cancer         2         0.436         < 0.001         < 0.001*         0.414(0.278-0.614)         0.413(0.278-0.614)           rs9915936         B vs. A         Overall         4         0.873         0.038         0.19         0.708(0.51-0.981)         0.707(0.51-0.981)           rs9915936         BA vs. AA         Overall         4         0.668         0.014         0.07         0.634(0.44-0.914)         0.633(0.44-0.91)           rs9915936         BB + BA vs. AA         Overall         4         0.775         0.021         0.105         0.662(0.466-0.94)         0.661(0.466-0.939)           rs9915936         B vs. A         PB         2         0.806         0.034         0.17         0.667(0.459-0.971)         0.666(0.369-0.87)           rs9915936         BB + BA vs. AA         PB         2         0.548         0.009         0.045*         0.567(0.404-0.913)         0.607(0.404-0.912)           rs9915936         BVs. A         HB         2         0.619         0.646         1.000         0.855(0.436-1.677)         0.854(0.425-	rs7219582	BB + BA vs. AA	Overall	4	0.045	0.538	1.000	0.758(0.313-1.833)	0.51(0.358-0.727)
rs7219582 BB + BA vs. AA Lung Cancer 2 0.436 < 0.001 < 0.001* 0.414(0.278-0.614) 0.413(0.278-0.614) rs9915936 B vs. A Overall 4 0.873 0.038 0.19 0.708(0.51-0.981) 0.707(0.51-0.981) 0.79915936 BB + BA vs. AA Overall 4 0.668 0.014 0.07 0.634(0.44-0.914) 0.633(0.44-0.91) 0.759915936 BV vs. AA Overall 4 0.775 0.021 0.105 0.662(0.466-0.94) 0.661(0.466-0.939) 0.759915936 B vs. A PB 2 0.806 0.034 0.17 0.667(0.459-0.971) 0.667(0.459-0.97) 0.566(0.369-0.87) 0.59915936 BA vs. AA PB 2 0.548 0.009 0.045* 0.567(0.369-0.871) 0.566(0.369-0.87) 0.56915936 BV vs. A PB 2 0.669 0.016 0.08 0.607(0.404-0.913) 0.607(0.404-0.912) 0.759915936 B vs. A HB 2 0.608 0.637 0.646 0.000 0.855(0.436-1.677) 0.854(0.436-1.674) 0.759915936 BA vs. AA HB 2 0.608 0.637 0.607 0.000 0.848(0.425-1.692) 0.847(0.425-1.689) 0.759915936 BV vs. A Lung Cancer 2 0.806 0.034 0.17 0.667(0.459-0.971) 0.667(0.459-0.97)	rs7219582	B vs. A	Lung Cancer	2	0.941	0.041	0.205	0.789(0.629-0.99)	0.789(0.629-0.99)
rs9915936 B vs. AA Overall 4 0.873 0.038 0.19 0.708(0.51-0.981) 0.707(0.51-0.981) rs9915936 BA vs. AA Overall 4 0.668 0.014 0.07 0.634(0.44-0.914) 0.633(0.44-0.91) rs9915936 B vs. AA Overall 4 0.775 0.021 0.105 0.662(0.466-0.94) 0.661(0.466-0.939) rs9915936 B vs. A PB 2 0.806 0.034 0.17 0.667(0.459-0.971) 0.667(0.459-0.97) rs9915936 BA vs. AA PB 2 0.548 0.009 0.045* 0.567(0.369-0.871) 0.566(0.369-0.87) rs9915936 B vs. A PB 2 0.669 0.016 0.08 0.607(0.404-0.913) 0.607(0.404-0.912) rs9915936 B vs. A HB 2 0.619 0.646 1.000 0.855(0.436-1.677) 0.854(0.436-1.674) rs9915936 BA vs. AA HB 2 0.608 0.637 1.000 0.848(0.425-1.692) 0.847(0.425-1.689) rs9915936 B vs. A HB 0.008 0.637 1.000 0.848(0.425-1.692) 0.847(0.425-1.689) rs9915936 B vs. A Lung Cancer 2 0.806 0.034 0.17 0.667(0.459-0.971) 0.667(0.459-0.97)	rs7219582	BA vs. AA	Lung Cancer	2	0.399	< 0.001	< 0.001*	0.394(0.265-0.586)	0.394(0.265-0.585)
rs9915936 BA vs. AA Overall 4 0.668 0.014 0.07 0.634(0.44-0.914) 0.633(0.44-0.91) rs9915936 BB + BA vs. AA Overall 4 0.775 0.021 0.105 0.662(0.466-0.94) 0.661(0.466-0.939) rs9915936 BA vs. AA PB 2 0.806 0.034 0.17 0.667(0.459-0.971) 0.667(0.459-0.97) rs9915936 BB + BA vs. AA PB 2 0.548 0.009 0.045* 0.567(0.369-0.871) 0.566(0.369-0.87) rs9915936 BB + BA vs. AA PB 2 0.669 0.016 0.08 0.607(0.404-0.913) 0.607(0.404-0.912) rs9915936 BA vs. AA HB 2 0.619 0.646 1.000 0.855(0.436-1.677) 0.854(0.436-1.674) rs9915936 BB + BA vs. AA HB 2 0.608 0.637 1.000 0.848(0.425-1.692) 0.847(0.425-1.689) rs9915936 BB + BA vs. AA HB 2 0.608 0.637 1.000 0.848(0.425-1.692) 0.847(0.425-1.689) rs9915936 BB vs. A Lung Cancer 2 0.806 0.034 0.17 0.667(0.459-0.971) 0.667(0.459-0.97)	rs7219582	BB + BA vs. AA	Lung Cancer	2	0.436	< 0.001	< 0.001*	0.414(0.278-0.614)	0.413(0.278-0.614)
rs9915936 BB + BA vs. AA Overall 4 0.775 0.021 0.105 0.662(0.466-0.94) 0.661(0.466-0.939) rs9915936 B vs. A PB 2 0.806 0.034 0.17 0.667(0.459-0.971) 0.667(0.459-0.97) rs9915936 BA vs. AA PB 2 0.548 0.009 0.045* 0.567(0.369-0.871) 0.566(0.369-0.87) rs9915936 B vs. A PB 2 0.669 0.016 0.08 0.607(0.404-0.913) 0.607(0.404-0.912) rs9915936 B vs. A HB 2 0.619 0.646 1.000 0.855(0.436-1.677) 0.854(0.436-1.674) rs9915936 BA vs. AA HB 2 0.608 0.637 1.000 0.848(0.425-1.692) 0.847(0.425-1.689) rs9915936 B vs. A Lung Cancer 2 0.806 0.034 0.17 0.667(0.459-0.971) 0.667(0.459-0.97)	rs9915936	B vs. A	Overall	4	0.873	0.038	0.19	0.708(0.51-0.981)	0.707(0.51-0.981)
rs9915936 B vs. AA PB 2 0.806 0.034 0.17 0.667(0.459-0.971) 0.667(0.459-0.97) rs9915936 BB + BA vs. AA PB 2 0.548 0.009 0.045* 0.567(0.369-0.871) 0.566(0.369-0.87) rs9915936 B vs. A PB 2 0.669 0.016 0.08 0.607(0.404-0.913) 0.607(0.404-0.912) rs9915936 B vs. A HB 2 0.619 0.646 1.000 0.855(0.436-1.677) 0.854(0.436-1.674) rs9915936 BA vs. AA HB 2 0.608 0.637 1.000 0.848(0.425-1.692) 0.847(0.425-1.689) rs9915936 B vs. A Lung Cancer 2 0.806 0.034 0.17 0.667(0.459-0.971) 0.667(0.459-0.97)	rs9915936	BA vs. AA	Overall	4	0.668	0.014	0.07	0.634(0.44-0.914)	0.633(0.44-0.91)
rs9915936 BA vs. AA PB 2 0.548 0.009 0.045* 0.567(0.369-0.871) 0.566(0.369-0.87) rs9915936 BB + BA vs. AA PB 2 0.669 0.016 0.08 0.607(0.404-0.913) 0.607(0.404-0.912) rs9915936 B vs. A HB 2 0.619 0.646 1.000 0.855(0.436-1.677) 0.854(0.436-1.674) rs9915936 BA vs. AA HB 2 0.608 0.637 1.000 0.848(0.425-1.692) 0.847(0.425-1.689) rs9915936 B vs. A Lung Cancer 2 0.806 0.034 0.17 0.667(0.459-0.971) 0.667(0.459-0.97)	rs9915936	BB + BA vs. AA	Overall	4	0.775	0.021	0.105	0.662(0.466-0.94)	0.661 (0.466-0.939)
rs9915936 BB + BA vs. AA PB 2 0.669 0.016 0.08 0.607(0.404-0.913) 0.607(0.404-0.912) rs9915936 B vs. A HB 2 0.619 0.646 1.000 0.855(0.436-1.677) 0.854(0.436-1.674) rs9915936 BA vs. AA HB 2 0.608 0.637 1.000 0.848(0.425-1.692) 0.847(0.425-1.689) rs9915936 BB + BA vs. AA HB 2 0.608 0.637 1.000 0.848(0.425-1.692) 0.847(0.425-1.689) rs9915936 B vs. A Lung Cancer 2 0.806 0.034 0.17 0.667(0.459-0.971) 0.667(0.459-0.97)	rs9915936	B vs. A	РВ	2	0.806	0.034	0.17	0.667(0.459-0.971)	0.667(0.459-0.97)
rs9915936 B vs. A HB 2 0.619 0.646 1.000 0.855(0.436-1.677) 0.854(0.436-1.674) rs9915936 BA vs. AA HB 2 0.608 0.637 1.000 0.848(0.425-1.692) 0.847(0.425-1.689) rs9915936 B vs. A HB 2 0.608 0.637 1.000 0.848(0.425-1.692) 0.847(0.425-1.689) rs9915936 B vs. A Lung Cancer 2 0.806 0.034 0.17 0.667(0.459-0.971) 0.667(0.459-0.97)	rs9915936	BA vs. AA	РВ	2	0.548	0.009	0.045*	0.567(0.369-0.871)	0.566(0.369-0.87)
rs9915936 BA vs. AA HB 2 0.608 0.637 1.000 0.848(0.425-1.692) 0.847(0.425-1.689) rs9915936 BB + BA vs. AA HB 2 0.608 0.637 1.000 0.848(0.425-1.692) 0.847(0.425-1.689) rs9915936 B vs. A Lung Cancer 2 0.806 0.034 0.17 0.667(0.459-0.971) 0.667(0.459-0.97)	rs9915936	BB + BA vs. AA	РВ	2	0.669	0.016	0.08	0.607(0.404-0.913)	0.607(0.404-0.912)
rs9915936 BB + BA vs. AA HB 2 0.608 0.637 1.000 0.848(0.425-1.692) 0.847(0.425-1.689) rs9915936 B vs. A Lung Cancer 2 0.806 0.034 0.17 0.667(0.459-0.971) 0.667(0.459-0.97)	rs9915936	B vs. A	НВ	2	0.619	0.646	1.000	0.855(0.436-1.677)	0.854(0.436-1.674)
rs9915936 B vs. A Lung Cancer 2 0.806 0.034 0.17 0.667(0.459-0.971) 0.667(0.459-0.97)	rs9915936	BA vs. AA	НВ	2	0.608	0.637	1.000	0.848(0.425-1.692)	0.847(0.425-1.689)
	rs9915936	BB + BA vs. AA	НВ	2	0.608	0.637	1.000	0.848(0.425-1.692)	0.847(0.425-1.689)
rs9915936 BA vs. AA Lung Cancer 2 0.548 0.009 0.045* 0.567(0.369–0.871) 0.566(0.369–0.87)	rs9915936	B vs. A	Lung Cancer	2	0.806	0.034	0.17	0.667(0.459-0.971)	0.667(0.459-0.97)
	rs9915936	BA vs. AA	Lung Cancer	2	0.548	0.009	0.045*	0.567(0.369–0.871)	0.566(0.369-0.87)

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**Table 2** Results of pooled analysis for AXIN2 Polymorphism and cancer susceptibility (Continued)

Polymorphism	Comparison	Subgroup	N	$P_{H}$	$P_{Z}$	$P_{Adjust}$	OR & 95%CI (Random)	OR & 95%CI (Fixed)
rs9915936	BB + BA vs. AA	Lung Cancer	2	0.669	0.016	0.08	0.607(0.404-0.913)	0.607(0.404-0.912)

 $P_H$  P value of Q test for heterogeneity test,  $P_Z$  P value of meta-analysis,  $P_{Adjust}$  Adjust  $P_Z$  value by Bonferroni corrections,  $P_{Adjust} = P_Z * 5$ , P-B Population based, HWE Hardy Weinberg Equilibrium, Y polymorphisms conformed to HWE in the control group, N polymorphisms didn't conform to HWE in the control group \* P value less than 0.05 was considered as statistically significant

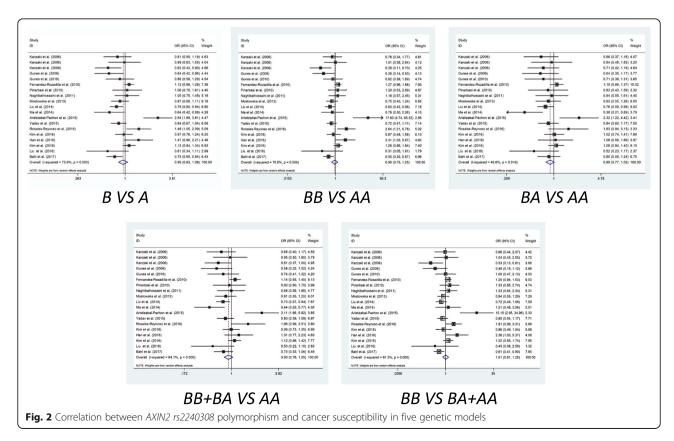
rs35285779, it was revealed significant association with overall cancer risk in BA vs. AA and BB + BA vs. AA models (PAdjust<0.05) (Table 2, Figure S4). For rs7219582, it showed significant relationship with lung cancer risk in BA vs. AA and BB + BA vs. AA models (PAdjust<0.05) (Table 2, Figure S10). For rs9915936, which also informed significant association with risk of PB source and lung cancer in BA vs. AA model (PAdjust<0.05), respectively (Table 2, Figure S12). As to rs2240307, rs35415678, rs3923086, rs3923087, rs4072245, rs4791171 and rs7224837 polymorphisms, the pooled analysis data didn't show any correlation with cancers, not only in overall risk, but also in cancer type, ethnicity or source of control (Table S2, Figure S3, S5, S6, S7, S8, S9, S11).

#### Sensitivity analysis and publication bias

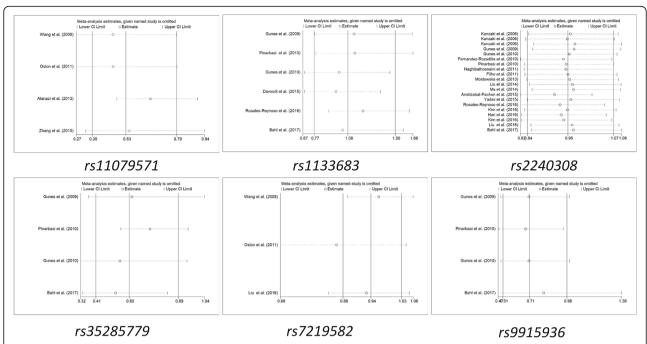
To check the influence of individual study on overall data, we applied sensitivity analysis, and the results of the pooled analysis proved that the OR value was not influenced by individual study (Fig. 3, S13 and Table S3). At the same time, to evaluate the publication bias, Begg's funnel plot and Egger's test were performed, and the results didn't show asymmetric evidence (Fig. 4, S14 and Table S4).

## Linkage disequilibrium (LD) analysis of AXIN-2 polymorphisms

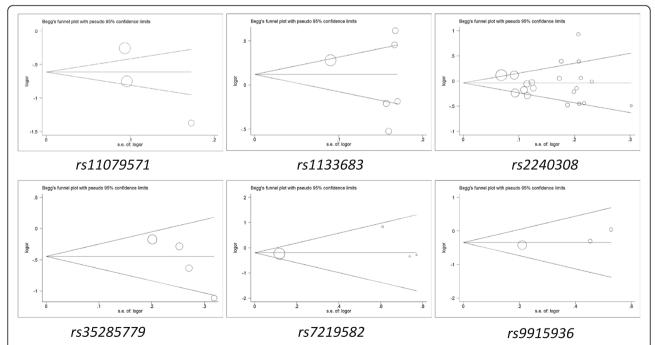
LD analysis was assessed to evaluate the inner interaction of each AXIN-2 polymorphism and the results were shown in Fig. 5. Obviously, there was significant LD between rs7224837 and rs7210356 in CEU populations ( $r^2$  = 0.91), the same as between rs7210356 and rs9915936 ( $r^2$  = 0.91), rs1133683 and rs4791171 ( $r^2$  = 0.85), rs35415678 and rs35285779 ( $r^2$  = 0.84). There was significant LD between rs7224837 and rs9915936 in CHB&CHS populations ( $r^2$  = 0.93), the same as between rs1133683 and rs4791171 ( $r^2$  = 0.93), rs1133683 and rs3923087 ( $r^2$  = 0.83). There was significant LD between



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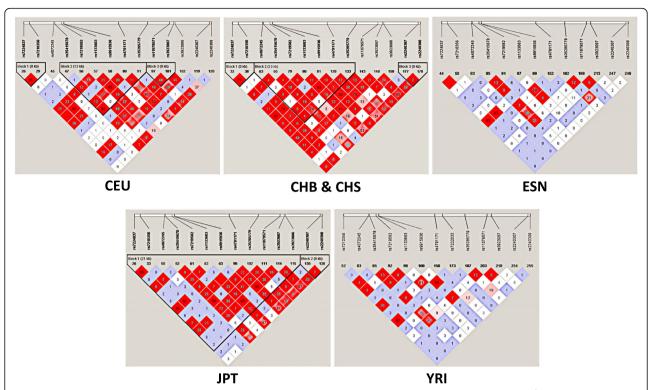


**Fig. 3** Sensitivity analysis of *AXIN2* polymorphisms and overall cancers (**B vs. A**). The results of *rs11079571*, *rs1133683*, *rs2240308*, *rs35285779*, *rs7219582*, *rs9915936* were presented in this figure. The dotted area represents the 95% confidence interval



**Fig. 4** Begg's plot for publication bias of *AXIN2* polymorphisms and overall cancers (**B vs. A**). The results of *rs11079571*, *rs1133683*, *rs2240308*, *rs35285779*, *rs7219582*, *rs9915936* were presented in this figure. The x-axis stands for the value of log (OR), and the y-axis stands for the value of natural logarithm of OR. The horizontal line stands for the overall estimated value of log (OR). The two diagonal lines in the figure represent the pseudo 95% confidence limits of the effect estimate

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**Fig. 5** LD analysis for *AXIN-2* polymorphisms in different populations acquired from 1000 Genomes Project. The value of r<sup>2</sup> is showed in each square, and white colors represent no significant LD between different polymorphisms. CEU: Utah residents with Northern and Western European ancestry from the CEPH collection; CHB: Han Chinese in Beijing, China; CHS: Southern Han Chinese, China; ESN: Esan in Nigeria; JPT: Japanese in Tokyo, Japan; YRI: Yoruba in Ibadan, Nigeria

rs7224837 and rs9915936 in ESN populations ( $r^2 = 0.62$ ), the same as between rs7210356 and rs9915936 ( $r^2 = 0.62$ ), rs1133683 and rs4791171 ( $r^2 = 0.66$ ). There was significant LD between rs7224837 and rs9915936 in JPT populations ( $r^2 = 0.95$ ), the same as between rs35415678 and rs35285779 ( $r^2 = 0.90$ ), rs1133683 and rs3923087 ( $r^2 = 0.95$ ), rs4791171 and rs3923087 ( $r^2 = 0.95$ ). There was significant LD between rs7210356 and rs7222033 in YRI populations ( $r^2 = 0.67$ ), the same as between rs9915936 and rs7222033 ( $r^2 = 0.54$ ).

#### Discussion

AXIN2 plays an important role as a negative regulator in regulating  $\beta$ -catenin stability. As  $\beta$ -catenin was well studied as an important gene related to many cancers [47–50], the correlation between AXIN2 and tumor progression and metastasis have also been well reported by many studies in the past few decades. Xie et al. [51] reported AXIN2 can be targeted by miR143HG/miR-1275 to regulate breast cancer progression by modulating the Wnt/β-catenin pathway. Ren et al. [52] revealed that AXIN2 was a target of miR-454-3p and was involved in the activation of Wnt/β-catenin signaling, which can be suppressed by miR-454-3p to promote metastasis and the stemness of breast cancer. Chen et al. [11]

demonstrated that *AXIN2* could be down-regulated by miR-544, thus to promote human osteosarcoma cell proliferation. Lu et al. [53] reported that *AXIN2* was identified to be a functional downstream target of miR-374a, and decreased expression of Axin2 could promote OS cell proliferation.

Previous studies have also demonstrated the association between AXIN2 and cancer risk and susceptibility. Liu et al. [15] reported that AXIN2 rs11655966 and rs3923086 polymorphism had significant associations with papillary thyroid carcinoma. Aristizabal-Pachon et al. [42] showed significant association between AXIN2 rs151279728 and rs2240308 polymorphisms and breast cancer susceptibility. Ma et al. [40] concluded that there was a significant correlation between rs2240308 polymorphism and the susceptibility of prostate cancer, while E-Pinarbasi et al. [16] reported that there was no significant correlation between prostate cancer susceptibility and rs2240308 polymorphism in population.

Judge from the studies related to *AXIN2* polymorphism and cancer risk and susceptibility, the results seem not consistent. So, we preformed this meta-analysis to the current evidence for *AXIN2* polymorphism to cancer risk. As the results showed in Figures and Tables, we

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concluded that AXIN2 rs11079571 had significant correlation with overall cancers and Asian population subtype. As for other polymorphisms, like rs1133683 and rs35285779 had significant correction with overall cancers in two genetic models (rs1133683, BB vs. AA and BB vs. BA+ AA) (rs35285779, BA vs. AA and BB+BA vs. AA), however, the others had no strong relationship with overall cancer risk. As to subtype cancers, rs11079571 showed significant correlation with breast cancer, rs1133683, rs7219582 and rs9915936 indicated significant correlation with lung cancer. What's more, the LD analysis showed a significant LD between rs7224837 and rs7210356/rs9915936, as well as between rs9915936 and rs7210356/rs7224837, which means that maybe we should combine two or more polymorphisms to analysis the correlation between AXIN2 and cancer risk and susceptibility in future.

At the same time, we must realize the limitations that exist in this study. Firstly, an enlarged numbers of articles that involved are needed in the analysis, especially for *AXIN2 rs7224837* polymorphism. Secondly, when we searched the articles, we only involved the studies in English and Chinese, which may also cause bias for not involving other languages. Thirdly, for subtype analysis, we didn't analyze every cancer for each polymorphism, which may lead to some shortcomings. Fourthly, geneenvironment interactions were ignored in this study because of lack necessary data.

#### **Conclusions**

In conclusion, our updated study suggests that *AXIN2 rs11079571*, *rs1133683* and *rs35285779* polymorphisms are associated with overall cancer susceptibility, which may provide a new insight to understand the correlation between AXIN2 gene and cancer risk. What's more, the combination of two or more polymorphisms may benefit us to better understand the function of AXIN2 polymorphisms in different populations. Future large scale and well-designed research are required to validate these effects in more detail.

#### **Abbreviations**

LD: Linkage disequilibrium; HWE: Hardy–Weinberg equilibrium; NOS: Newcastle-Ottawa Scale; PB: Population based; CHS: Southern Han Chinese, China; CHB: Han Chinese in Beijing, China; ESN: Esan in Nigeria; YRI: Yoruba in Ibadan, Nigeria; JPT: Japanese in Tokyo, Japan; CRC: Colorectal Cancer; PTC: Papillary Thyroid Carcinoma

#### **Supplementary Information**

The online version contains supplementary material available at https://doi.org/10.1186/s12885-021-08092-0.

**Additional file 1**: **Table S1.** Methodological quality of the included studies according to the Newcastle-Ottawa Scale. **Table S2.** Results of pooled analysis for AXIN2 Polymorphism and cancer susceptibility. **Table S3.** Details of the sensitivity analyses for AXIN2 polymorphism and urinary

cancer risk. **Table S4.** *P* values of the Egger's test for AXIN2 polymorphism.

**Additional file 2**: **Figure S1.** Meta-analysis of AXIN2-rs11079571 polymorphism and overall cancer risk in 5 genetic models.

**Additional file 3 : Figure S2.** Meta-analysis of AXIN2-rs1133683 polymorphism and overall cancer risk in 5 genetic models.

**Additional file 4**: **Figure S3.** Meta-analysis of AXIN2-rs2240307 polymorphism and overall cancer risk in 3 genetic models.

**Additional file 5**: **Figure S4.** Meta-analysis of AXIN2-rs35285779 polymorphism and overall cancer risk in 5 genetic models.

**Additional file 6**: **Figure S5.** Meta-analysis of AXIN2-rs35415678 polymorphism and overall cancer risk in 3 genetic models.

**Additional file 7**: **Figure S6.** Meta-analysis of AXIN2-rs3923086 polymorphism and overall cancer risk in 5 genetic models.

**Additional file 8 : Figure S7.** Meta-analysis of AXIN2-rs3923087 polymorphism and overall cancer risk in 5 genetic models.

**Additional file 9 : Figure S8.** Meta-analysis of AXIN2-rs4072245 polymorphism and overall cancer risk in 3 genetic models.

**Additional file 10 : Figure S9.** Meta-analysis of AXIN2-rs4791171 polymorphism and overall cancer risk in 5 genetic models.

Additional file 11: Figure S10. Meta-analysis of AXIN2-rs7219582 polymorphism and overall cancer risk in 5 genetic models.

**Additional file 12**: **Figure S11.** Meta-analysis of AXIN2-rs7224837 polymorphism and overall cancer risk in 5 genetic models.

**Additional file 13**: **Figure S12.** Meta-analysis of AXIN2-rs9915936 polymorphism and overall cancer risk in 5 genetic models.

**Additional file 14**: **Figure S13.** Sensitivity analysis of AXIN2 polymorphism and overall cancer (Bvs.A). The results of *rs2240307*, *rs35415678*, *rs3923086*, *rs3923087*, *rs4072245*, *rs4791171*, *rs7210356*, *rs7224837* were presented in this figure. The dotted area represents the 95% confidence interval.

**Additional file 15**: **Figure S14.** Begg'splot ofAXIN2 polymorphism and overall cancer (Bvs.A). The results of *rs2240307*, *rs35415678*, *rs3923086*, *rs3923087*, *rs4072245*, *rs4791171*, *rs7224837* were presented in this figure. The x-axis stands for the value of log (OR), and the y-axis stands for the value of natural logarithm of OR. The horizontal line stands for the overall estimated value of log (OR). The two diagonal lines in the figure represent the pseudo 95% confidence limits of the effect estimate.

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#### Authors' contributions

GL and WW ensured the integrity of the entire study. XL and YL performed the whole experiments and was a major contributor in writing the manuscript. GL and XL were in charge of data analysis. YL, GL and WW were responsible for revising the manuscript and checking all data. All authors read and approved the final manuscript.

#### Fundina

Not applicable.

#### Availability of data and materials

All data are presented in the figures, tables and supplementary files.

#### **Declarations**

**Ethics approval and consent to participate** Not applicable.

#### Consent for publication

Not applicable.

#### Competing interests

The authors declare that they have no competing interests.

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