Supplementary tables and figures

Genetic Association between Interleukin-4 Receptor Polymorphisms and Cancer Susceptibility: A Meta-Analysis based on 53 Case-Control Studies

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Running Title: Association between IL4R Polymorphisms and Cancer Risk

Supplementary table 1. Methodological quality of the included studies according to the Newcastle-Ottawa Scale

Variants	Author	Year	Source of Control	Adequacy of Case Definition	Representativeness of the Cases	Selection of Controls	Definition of Controls	Comparability Cases/Controls	Ascertainment of Exposure	Same Method of Ascertainment	Non-response rate
rs1801275	Zambon *et al.*	2008	HB	*	*		*	*	*	*	NA
rs1801275	Scola *et al.*	2009	HB	*	*		*	**	*	*	NA
rs1801275	Mohan *et al.*	2009	PB	*	*	*	*	**	*	*	NA
rs1801275	Schwartzbaum *et al.*	2005	PB	*	*	*	*	**	*	*	NA
rs1801275	Jin *et al.*	2013	PB	*	*	*	*	**	*	*	NA
rs1801275	Landi *et al.*	2007	HB	*	*		*	**	*	*	NA
rs1801275	Sousa *et al.*	2015	PB	*	*	*	*	*	*	*	NA
rs1801275	Calhoun *et al.*	2002	PB	*	*		*	*	*	*	NA
rs1801275	Nakamura *et al.*	2002	HB	*	*		*	*	*	*	NA
rs1801275	Olson *et al.*	2007	PB	*	*	*	*	*	*	*	NA
rs1801275	Landi *et al.*	2007	HB	*	*		*	**	*	*	NA
rs1801275	Gu *et al.*	2008	PB	*	*		*	**	*	*	NA
rs1801275	Lee *et al.*	2009	HB	*	*		*	*	*	*	NA
rs1801275	Li *et al.*	2012	PB	*	*	*	*	*	*	*	NA
rs1801275	Wiemels *et al.*	2007	PB	*	*	*	*	**	*	*	NA
rs1801275	Yang *et al.*	2008	PB	*	*	*	*	**	*	*	NA
rs1801275	Chu *et al.*	2012	HB	*	*		*	**	*	*	NA
rs1801275	Brenner *et al.*	2007	HB	*	*		*	**	*	*	NA
rs1801275	Ruan *et al.*	2011	HB	*	*		*	**	*	*	NA
rs1801275	Chu *et al.*	2011	HB	*	*		*	**	*	*	NA
rs1801275	Ivansson *et al.*	2007	PB	*	*	*	*	*	*	*	NA
rs1801275	Ingram *et al.*	2013	PB	*	*	*	*	*	*	*	NA
rs1801275	Wu *et al.*	2003	HB	*	*		*	**	*	*	NA
rs1801275	Balasubramanian *et al.*	2006	PB	*	*	*	*	**	*	*	NA
rs1801275	Liang *et al.*	2017	HB	*	*		*	**	*	*	NA
rs1801275	Quan *et al.*	2014	PB	*	*		*	**	*	*	NA
rs1801275	Quan *et al.*	2014	PB	*	*		*	**	*	*	NA

rs1805010	Zambon *et al.*	2008	HB	*	*		*	*	*	*	NA
rs1805010	Mohan *et al.*	2009	PB	*	*	*	*	**	*	*	NA
rs1805010	Nakamura *et al.*	2002	HB	*	*		*	*	*	*	NA
rs1805010	Crusius *et al.*	2008	PB	*	*	*	*	*	*	*	NA
rs1805010	Ando *et al.*	2009	HB	*	*		*	**	*	*	NA
rs1805010	Landi *et al.*	2007	HB	*	*		*	**	*	*	NA
rs1805010	Nakamura *et al.*	2002	HB	*	*		*	*	*	*	NA
rs1805010	Landi *et al.*	2007	HB	*	*		*	**	*	*	NA
rs1805010	Gu *et al.*	2008	PB		*		*	**	*	*	NA
rs1805010	Wiemels *et al.*	2007	HB	*	*	*	*	**	*	*	NA
rs1805010	Wang *et al.*	2012	PB	*	*	*	*	*	*	*	NA
rs1805010	Chu *et al.*	2011	PB	*	*		*	**	*	*	NA
rs1805010	Chu *et al.*	2012	PB	*	*		*	**	*	*	NA
rs1805010	Ivansson *et al.*	2007	HB	*	*	*	*	*	*	*	NA
rs1805010	Ingram *et al.*	2013	PB	*	*	*	*	*	*	*	NA
rs1805010	Wu *et al.*	2003	HB	*	*		*	**	*	*	NA
rs1805010	Liang *et al.*	2017	HB	*	*		*	**	*	*	NA
rs1805015	Schwartzbaum *et al.*	2005	PB	*	*	*	*	**	*	*	NA
rs1805015	Haidar *et al.*	2014	PB	*	*	*	*	*	*	*	NA
rs1805015	Landi *et al.*	2007	HB	*	*		*	**	*	*	NA
rs1805015	Landi *et al.*	2007	HB	*	*		*	**	*	*	NA
rs1805015	Li *et al.*	2012	PB	*	*	*	*	*	*	*	NA
rs1805015	Wiemels *et al.*	2007	HB	*	*	*	*	**	*	*	NA
rs1805015	Chu *et al.*	2012	PB	*	*		*	**	*	*	NA
rs1805015	Chu *et al.*	2011	PB	*	*		*	**	*	*	NA
rs1805015	Ivansson *et al.*	2007	HB	*	*	*	*	*	*	*	NA
rs1805015	Ingram *et al.*	2013	PB	*	*	*	*	*	*	*	NA
rs2057768	Crusius *et al.*	2008	PB	*	*	*	*	*	*	*	NA
rs2057768	Wilkening *et al.*	2008	PB	*	*	*	*	**	*	*	NA
rs2057768	Burada *et al.*	2012	HB	*	*	*	*	**	*	*	NA

Supplementary table 2 :PRISMA 2009 Checklist

Section/topic	#	Checklist item	Reported on page #
TITLE			
Title	1	Identify the report as a systematic review, meta-analysis, or both.	Page 1
ABSTRACT			
Structured summary	2	Provide a structured summary including, as applicable: background; objectives; data sources; study eligibility criteria, participants, and interventions; study appraisal and synthesis methods; results; limitations; conclusions and implications of key findings; systematic review registration number.	Page 2
INTRODUCTION			
Rationale	3	Describe the rationale for the review in the context of what is already known.	Page 3-4
Objectives	4	Provide an explicit statement of questions being addressed with reference to participants, interventions, comparisons, outcomes, and study design (PICOS).	Page 3-4
METHODS			
Protocol and registration	5	Indicate if a review protocol exists, if and where it can be accessed (e.g., Web address), and, if available, provide registration information including registration number.	N/A
Eligibility criteria	6	Specify study characteristics (e.g., PICOS, length of follow-up) and report characteristics (e.g., years considered, language, publication status) used as criteria for eligibility, giving rationale.	Study selection: Page 4
Information sources	7	Describe all information sources (e.g., databases with dates of coverage, contact with study authors to identify additional studies) in the search and date last searched.	Search strategy: Page 4
Search	8	Present full electronic search strategy for at least one database, including any limits used, such that it could be repeated.	Search strategy: Page 4
Study selection	9	State the process for selecting studies (i.e., screening, eligibility, included in systematic review, and, if applicable, included in the meta-analysis).	Figure 1
Data collection process	10	Describe method of data extraction from reports (e.g., piloted forms, independently, in duplicate) and any processes for obtaining and confirming data from investigators.	Data extraction: Page 5
Data items	11	List and define all variables for which data were sought (e.g., PICOS, funding sources) and any assumptions and simplifications made.	Data extraction: Page 5
Risk of bias in individual studies	12	Describe methods used for assessing risk of bias of individual studies (including specification of whether this was done at the study or outcome level), and how this information is to be used in any data synthesis.	Statistical analysis: Page5-6
Summary measures	13	State the principal summary measures (e.g., risk ratio, difference in means).	Statistical analysis: Page5-6
Synthesis of results	14	Describe the methods of handling data and combining results of studies, if done, including measures of consistency (e.g., I^2) for each meta-analysis.	Statistical analysis: Page5-6

Supplementary table 2 :PRISMA 2009 Checklist

Section/topic	#	Checklist item	Reported on page #
Risk of bias across studies	15	Specify any assessment of risk of bias that may affect the cumulative evidence (e.g., publication bias, selective reporting within studies).	Statistical analysis: Page5-6
Additional analyses	16	Describe methods of additional analyses (e.g., sensitivity or subgroup analyses, meta-regression), if done, indicating which were pre-specified.	Statistical analysis: Page5-6
RESULTS			
Study selection	17	Give numbers of studies screened, assessed for eligibility, and included in the review, with reasons for exclusions at each stage, ideally with a flow diagram.	Description of studies: page 6-7
Study characteristics	18	For each study, present characteristics for which data were extracted (e.g., study size, PICOS, follow-up period) and provide the citations.	Table 1-2
Risk of bias within studies	19	Present data on risk of bias of each study and, if available, any outcome level assessment (see item 12).	Page 7-8
Results of individual studies	20	For all outcomes considered (benefits or harms), present, for each study: (a) simple summary data for each intervention group (b) effect estimates and confidence intervals, ideally with a forest plot.	Page 7-8
Synthesis of results	21	Present results of each meta-analysis done, including confidence intervals and measures of consistency.	Page 7-8
Risk of bias across studies	22	Present results of any assessment of risk of bias across studies (see Item 15).	Page 7-8
Additional analysis	23	Give results of additional analyses, if done (e.g., sensitivity or subgroup analyses, meta-regression [see Item 16]).	Page 8
DISCUSSION			
Summary of evidence	24	Summarize the main findings including the strength of evidence for each main outcome; consider their relevance to key groups (e.g., healthcare providers, users, and policy makers).	Page 9-10
Limitations	25	Discuss limitations at study and outcome level (e.g., risk of bias), and at review-level (e.g., incomplete retrieval of identified research, reporting bias).	Page 10
Conclusions	26	Provide a general interpretation of the results in the context of other evidence, and implications for future research.	Page 11
FUNDING			
Funding	27	Describe sources of funding for the systematic review and other support (e.g., supply of data); role of funders for the systematic review.	Page 11

From: Moher D, Liberati A, Tetzlaff J, Altman DG, The PRISMA Group (2009). Preferred Reporting Items for Systematic Reviews and Meta-Analyses: The PRISMA Statement. PLoS Med 6(7): e1000097. doi:10.1371/journal.pmed1000097

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Supplementary table 3. Details of the sensitivity for the polymorphisms in IL4R and cancer risk

SNP	Comparison	Study omitted	Estimate	[95% Confident Interval]	Effect Model
rs1801275	B VS A	Calhoun et al. (2002)	0.985	0.914-1.061	Random
		Nakamura et al. (2002)	0.970	0.903-1.042	
		Wu et al. (2003)	0.981	0.910-1.059	
		Schwartzbaum et al.(2005)	0.975	0.903-1.052	
		Balasubramanian et al.(2006)	0.986	0.913-1.065	
		Brenner et al.(2007)	0.976	0.902-1.056	
		Ivansson et al. (2007)	0.986	0.914-1.064	
		Landi et al. (2007)	0.981	0.908-1.059	
		Olson et al. (2007)	0.981	0.910-1.058	
		Wiemels et al. (2007)	0.977	0.904-1.056	
		Gu et al. (2008)	0.976	0.904-1.053	
		Yang et al. (2008)	0.984	0.912-1.063	
		Zambon et al. (2008)	0.981	0.911-1.057	
		Lee et al. (2009)	0.995	0.929-1.066	
		Mohan et al. (2009)	0.983	0.913-1.059	
		Scola et al. (2009)	0.971	0.906-1.040	
		Chu et al. (2011)	0.974	0.901-1.054	
		Ruan et al. (2011)	0.985	0.912-1.063	
		Chu et al. (2012)	0.975	0.902-1.054	
		Li et al. (2012)	0.991	0.921-1.066	
		Ingram et al. (2013)	0.968	0.897-1.044	
		Jin et al. (2013)	0.989	0.920-1.063	
		Quan et al. (2014)	0.968	0.897-1.044	
		Quan et al. (2014)	0.970	0.896-1.051	
		Sousa et al. (2015)	0.981	0.909-1.060	
		Liang et al. (2017)	0.985	0.914-1.061	
		Combined	0.980	0.910-1.055	
	BB VS AA	Calhoun et al. (2002)	1.127	0.950-1.336	Random
		Nakamura et al. (2002)	1.096	0.925-1.298	

	Wu et al. (2003)	1.119	0.940-1.332	
	Schwartzbaum et al. (2005)	1.084	0.913-1.287	
	Balasubramanian et al. (2006)	1.113	0.927-1.336	
	Brenner et al. (2007)	1.118	0.930-1.342	
	Ivansson et al. (2007)	1.157	0.981-1.364	
	Landi et al. (2007)	1.113	0.930-1.333	
	Olson et al. (2007)	1.109	0.929-1.323	
	Wiemels et al. (2007)	1.124	0.941-1.344	
	Gu et al. (2008)	1.100	0.922-1.312	
	Yang et al. (2008)	1.105	0.921-1.325	
	Zambon et al. (2008)	1.113	0.934-1.325	
	Lee et al. (2009)	1.119	0.940-1.333	
	Mohan et al. (2009)	1.110	0.931-1.324	
	Scola et al. (2009)	1.087	0.956-1.236	
	Chu et al. (2011)	1.103	0.920-1.324	
	Ruan et al. (2011)	1.145	0.968-1.355	
	Chu et al. (2012)	1.128	0.944-1.348	
	Li et al. (2012)	1.122	0.945-1.332	
	Ingram et al. (2013)	1.090	0.910-1.306	
	Jin et al. (2013)	1.110	0.931-1.324	
	Quan et al. (2014)	1.085	0.907-1.298	
	Quan et al. (2014)	1.108	0.907-1.353	
	Sousa et al. (2015)	1.110	0.926-1.33	
	Liang et al. (2017)	1.102	0.927-1.311	
	Combined	1.110	0.935-1.319	
BA VS AA	Calhoun et al. (2002)	0.942	0.859-1.033	Random
	Nakamura et al. (2002)	0.931	0.852-1.017	
	Wu et al. (2003)	0.939	0.856-1.030	
	Schwartzbaum et al. (2005)	0.942	0.859-1.033	
	Balasubramanian et al. (2006)	0.952	0.869-1.044	
	Brenner et al. (2007)	0.933	0.848-1.026	
	Ivansson et al. (2007)	0.937	0.852-1.029	
	Landi et al. (2007)	0.942	0.859-1.034	

	Olson et al. (2007)	0.944	0.861-1.034	
	Wiemels et al. (2007)	0.933	0.849-1.024	
	Gu et al. (2008)	0.938	0.855-1.029	
	Yang et al. (2008)	0.953	0.870-1.043	
	Zambon et al. (2008)	0.941	0.859-1.030	
	Lee et al. (2009)	0.964	0.888-1.045	
	Mohan et al. (2009)	0.948	0.868-1.035	
	Scola et al. (2009)	0.947	0.866-1.036	
	Chu et al. (2011)	0.933	0.848-1.026	
	Ruan et al. (2011)	0.937	0.852-1.030	
	Chu et al. (2012)	0.929	0.847-1.019	
	Li et al. (2012)	0.952	0.871-1.041	
	Ingram et al. (2013)	0.927	0.846-1.016	
	Jin et al. (2013)	0.956	0.878-1.041	
	Quan et al. (2014)	0.928	0.846-1.019	
	Quan et al. (2014)	0.928	0.845-1.019	
	Sousa et al. (2015)	0.946	0.862-1.037	
	Liang et al. (2017)	0.934	0.853-1.024	
	Combined	0.941	0.860-1.029	
BA+BB VS AA	Calhoun et al. (2002)	0.967	0.886-1.054	Random
	Nakamura et al. (2002)	0.953	0.877-1.035	
	Wu et al. (2003)	0.963	0.882-1.051	
	Schwartzbaum et al. (2005)	0.961	0.880-1.049	
	Balasubramanian et al. (2006)	0.974	0.892-1.062	
	Brenner et al. (2007)	0.957	0.874-1.047	
	Ivansson et al. (2007)	0.964	0.882-1.054	
	Landi et al. (2007)	0.965	0.883-1.054	
	Olson et al. (2007)	0.965	0.885-1.053	
	Wiemels et al. (2007)	0.957	0.875-1.046	
	Gu et al. (2008)	0.959	0.878-1.047	
	Yang et al. (2008)	0.973	0.891-1.061	
	Zambon et al. (2008)	0.964	0.884-1.051	
	Lee et al. (2009)	0.984	0.911-1.063	

	Mohan et al. (2009)	0.968	0.889-1.054	
	Scola et al. (2009)	0.958	0.879-1.045	
	Chu et al. (2011)	0.956	0.873-1.047	
	Ruan et al. (2011)	0.964	0.881-1.054	
	Chu et al. (2012)	0.954	0.872-1.043	
	Li et al. (2012)	0.976	0.897-1.061	
	Ingram et al. (2013)	0.949	0.870-1.035	
	Jin et al. (2013)	0.976	0.900-1.059	
	Quan et al. (2014)	0.950	0.870-1.037	
	Quan et al. (2014)	0.950	0.870-1.039	
	Sousa et al. (2015)	0.967	0.885-1.056	
	Liang et al. (2017)	0.956	0.877-1.043	
	Combined	0.963	0.884-1.048	
BB VS BA+AA	Calhoun et al. (2002)	1.140	0.960-1.353	Random
	Nakamura et al. (2002)	1.110	0.936-1.316	
	Wu et al. (2003)	1.133	0.952-1.349	
	Schwartzbaum et al. (2005)	1.092	0.922-1.294	
	Balasubramanian et al. (2006)	1.123	0.935-1.347	
	Brenner et al. (2007)	1.135	0.945-1.363	
	Ivansson et al. (2007)	1.168	0.987-1.382	
	Landi et al. (2007)	1.126	0.941-1.348	
	Olson et al. (2007)	1.122	0.941-1.338	
	Wiemels et al. (2007)	1.141	0.955-1.364	
	Gu et al. (2008)	1.114	0.934-1.328	
	Yang et al. (2008)	1.114	0.930-1.335	
	Zambon et al. (2008)	1.127	0.946-1.341	
	Lee et al. (2009)	1.131	0.949-1.347	
	Mohan et al. (2009)	1.122	0.942-1.337	
	Scola et al. (2009)	1.072	0.957-1.200	
	Chu et al. (2011)	1.120	0.934-1.343	
	Ruan et al. (2011)	1.157	0.976-1.372	
	Chu et al. (2012)	1.146	0.959-1.368	
	Li et al. (2012)	1.134	0.955-1.348	

		Ingram et al. (2013)	1.110	0.926-1.331	
		Jin et al. (2013)	1.122	0.942-1.337	
		Quan et al. (2014)	1.103	0.921-1.321	
		Quan et al. (2014)	1.140	0.929-1.399	
		Sousa et al. (2015)	1.122	0.936-1.344	
		Liang et al. (2017)	1.117	0.939-1.329	
		Combined	1.124	0.946-1.335	
rs1805010	B VS A	Nakamura et al. (2002)	1.016	0.929-1.111	Random
		Wu et al. (2003)	1.043	0.948-1.148	
		Ivansson et al. (2007)	1.004	0.923-1.093	
		Landi et al. (2007)	1.037	0.940-1.144	
		Wiemels et al. (2007)	1.040	0.942-1.148	
		Gu et al. (2008)	1.047	0.953-1.151	
		Zambon et al. (2008)	1.020	0.937-1.110	
		Crusius et al. (2008)	1.046	0.949-1.153	
		Mohan et al. (2009)	1.020	0.934-1.113	
		Ando et al . (2009)	1.044	0.949-1.149	
		Chu et al. (2011)	1.039	0.938-1.152	
		Wang et al. (2012)	1.034	0.938-1.140	
		Chu et al. (2012)	1.056	0.967-1.152	
		Ingram et al. (2013)	1.043	0.942-1.155	
		Liang et al. (2017)	1.030	0.937-1.132	
		Combined	1.034	0.944-1.132	
	BB VS AA	Nakamura et al. (2002)	1.029	0.860-1.233	Random
		Wu et al. (2003)	1.079	0.892-1.307	
		Ivansson et al. (2007)	0.993	0.844-1.168	
		Landi et al. (2007)	1.066	0.877-1.297	
		Wiemels et al. (2007)	1.073	0.881-1.307	
		Gu et al. (2008)	1.088	0.901-1.313	
		Zambon et al. (2008)	1.035	0.871-1.230	
		Crusius et al. (2008)	1.090	0.901-1.319	
		Mohan et al. (2009)	1.029	0.866-1.222	
		Ando et al . (2009)	1.086	0.900-1.310	

	Chu et al. (2011)	1.071	0.871-1.316	
	Wang et al. (2012)	1.063	0.875-1.291	
	Chu et al. (2012)	1.103	0.921-1.322	
	Ingram et al. (2013)	1.075	0.878-1.318	
	Liang et al. (2017)	1.051	0.871-1.268	
	Combined	1.061	0.885-1.271	
BA VS AA	Nakamura et al. (2002)	0.984	0.901-1.075	Fixed
	Wu et al. (2003)	1.000	0.915-1.092	
	Ivansson et al. (2007)	0.982	0.896-1.076	
	Landi et al. (2007)	0.997	0.911-1.091	
	Wiemels et al. (2007)	0.996	0.910-1.091	
	Gu et al. (2008)	1.010	0.924-1.103	
	Zambon et al. (2008)	0.996	0.913-1.087	
	Crusius et al. (2008)	0.985	0.900-1.078	
	Mohan et al. (2009)	1.005	0.921-1.097	
	Ando et al . (2009)	0.999	0.914-1.092	
	Chu et al. (2011)	0.996	0.906-1.095	
	Wang et al. (2012)	0.998	0.912-1.091	
	Chu et al. (2012)	1.055	0.962-1.157	
	Ingram et al. (2013)	1.020	0.928-1.121	
	Liang et al. (2017)	0.994	0.910-1.086	
	Combined	1.001	0.917-1.092	
BA+BB VS AA	Nakamura et al. (2002)	1.007	0.896-1.132	Random
	Wu et al. (2003)	1.042	0.914-1.187	
	Ivansson et al. (2007)	1.006	0.890-1.136	
	Landi et al. (2007)	1.037	0.908-1.185	
	Wiemels et al. (2007)	1.039	0.908-1.189	
	Gu et al. (2008)	1.053	0.928-1.196	
	Zambon et al. (2008)	1.021	0.909-1.148	
	Crusius et al. (2008)	1.035	0.906-1.183	
	Mohan et al. (2009)	1.033	0.910-1.173	
	Ando et al . (2009)	1.044	0.915-1.191	
	Chu et al. (2011)	1.040	0.905-1.196	

		Wang et al. (2012)	1.036	0.907-1.184	
		Chu et al. (2012)	1.070	0.970-1.181	
		Ingram et al. (2013)	1.052	0.918-1.206	
		Liang et al. (2017)	1.026	0.904-1.164	
		Combined	1.036	0.916-1.172	
	BB VS BA+AA	Nakamura et al. (2002)	1.021	0.882-1.183	Random
		Wu et al. (2003)	1.052	0.905-1.222	
		Ivansson et al. (2007)	0.986	0.867-1.121	
		Landi et al. (2007)	1.038	0.889-1.213	
		Wiemels et al. (2007)	1.045	0.894-1.221	
		Gu et al. (2008)	1.050	0.903-1.220	
		Zambon et al. (2008)	1.020	0.886-1.174	
		Crusius et al. (2008)	1.066	0.927-1.227	
		Mohan et al. (2009)	1.008	0.890-1.141	
		Ando et al . (2009)	1.054	0.910-1.220	
		Chu et al. (2011)	1.040	0.882-1.225	
		Wang et al. (2012)	1.034	0.887-1.205	
		Chu et al. (2012)	1.053	0.900-1.232	
		Ingram et al. (2013)	1.035	0.881-1.215	
		Liang et al. (2017)	1.034	0.890-1.202	
		Combined	1.035	0.897-1.194	
rs1805015	B VS A	Schwartzbaum et al. (2005)	0.890	0.742-1.067	Random
		Ivansson et al. (2007)	0.953	0.788-1.153	
		Landi et al. (2007)	0.923	0.755-1.129	
		Wiemels et al. (2007)	0.906	0.740-1.108	
		Chu et al. (2011)	0.906	0.736-1.114	
		Chu et al. (2012)	0.913	0.747-1.116	
		Li et al. (2012)	0.957	0.799-1.147	
		Ingram et al. (2013)	0.892	0.731-1.087	
		Haidar et al. (2014)	0.995	0.869-1.140	
		Combined	0.928	0.777-1.108	
	BB VS AA	Schwartzbaum et al. (2005)	0.635	0.349-1.156	Random
		Ivansson et al. (2007)	0.697	0.368-1.320	

	Landi et al. (2007)	0.602	0.346-1.046	
	Wiemels et al. (2007)	0.622	0.329-1.176	
	Chu et al. (2011)	0.715	0.404-1.265	
	Chu et al. (2012)	0.744	0.435-1.273	
	Li et al. (2012)	0.728	0.426-1.244	
	Ingram et al. (2013)	0.596	0.324-1.099	
	Haidar et al. (2014)	0.853	0.539-1.350	
	Combined	0.688	0.403-1.176	
BA VS AA	Schwartzbaum et al. (2005)	0.966	0.827-1.130	Random
	Ivansson et al. (2007)	1.038	0.870-1.238	
	Landi et al. (2007)	1.035	0.868-1.234	
	Wiemels et al. (2007)	0.988	0.817-1.195	
	Chu et al. (2011)	0.983	0.807-1.198	
	Chu et al. (2012)	0.983	0.814-1.188	
	Li et al. (2012)	1.026	0.863-1.220	
	Ingram et al. (2013)	0.971	0.802-1.176	
	Haidar et al. (2014)	1.037	0.893-1.204	
	Combined	1.003	0.849-1.185	
BA+BB VS AA	Schwartzbaum et al. (2005)	0.921	0.769-1.103	Random
	Ivansson et al. (2007)	0.996	0.820-1.210	
	Landi et al. (2007)	0.976	0.796-1.197	
	Wiemels et al. (2007)	0.942	0.763-1.162	
	Chu et al. (2011)	0.939	0.756-1.167	
	Chu et al. (2012)	0.943	0.765-1.164	
	Li et al. (2012)	0.991	0.820-1.197	
	Ingram et al. (2013)	0.925	0.752-1.139	
	Haidar et al. (2014)	1.016	0.873-1.182	
	Combined	0.962	0.801-1.157	
BB VS BA+AA	Schwartzbaum et al. (2005)	0.680	0.393-1.176	Random
	Ivansson et al. (2007)	0.725	0.403-1.302	
	Landi et al. (2007)	0.639	0.395-1.033	
	Wiemels et al. (2007)	0.656	0.368-1.171	
	Chu et al. (2011)	0.746	0.445-1.249	

		Chu et al. (2012)	0.772	0.477-1.247	
		Li et al. (2012)	0.753	0.464-1.222	
		Ingram et al. (2013)	0.629	0.360-1.099	
		Haidar et al. (2014)	0.849	0.548-1.315	
		Combined	0.717	0.441-1.167	
rs2057768	B VS A	Crusius et al. (2008)	1.102	0.915-1.327	Fixed
		Wilkening et al. (2008)	1.173	0.973-1.414	
		Burada et al. (2012)	1.037	0.889-1.210	
		Combined	1.093	0.949-1.260	
	BB VS AA	Crusius et al. (2008)	1.321	0.408-4.274	Random
		Wilkening et al. (2008)	1.245	0.331-4.678	
		Burada et al. (2012)	0.709	0.459-1.095	
		Combined	1.019	0.488-2.129	
	BA VS AA	Crusius et al. (2008)	1.183	0.924-1.516	Fixed
		Wilkening et al. (2008)	1.401	1.091-1.798	
		Burada et al. (2012)	1.289	1.051-1.581	
		Combined	1.288	1.067-1.554	
	BA+BB VS AA	Crusius et al. (2008)	1.171	0.924-1.484	
		Wilkening et al. (2008)	1.343	1.056-1.709	
		Burada et al. (2012)	1.190	0.977-1.450	
		Combined	1.226	1.023-1.470	
	BB VS BA+AA	Crusius et al. (2008)	1.219	0.389-3.820	Random
		Wilkening et al. (2008)	1.090	0.268-4.429	
		Burada et al. (2012)	0.634	0.415-0.967	
		Combined	0.916	0.429-1.955	

Supplementary table 4. Egger's regression test for IL-4R polymorphisms

Polymorphism	Subground	Egger's test P>|t|
rs1801275	Overall	0.09
rs1801275	Caucasian	0.727
rs1801275	Asian	0.214
rs1801275	PCR	0.026
rs1801275	PCR-RFLP	0.318
rs1801275	Taq-Man	0.355
rs1801275	PB	0.023
rs1801275	HB	0.909
rs1801275	Renal cancer	0.822
rs1801275	Glioma	0.057
rs1801275	Breast cancer	0.781
rs1805010	Overall	0.072
rs1805010	Asian	0.413
rs1805010	Caucasian	0.225
rs1805010	PCR-RFLP	0.112
rs1805010	PCR	0.619
rs1805010	Taq-Man	0.24
rs1805010	HB	0.34
rs1805010	PB	0.45
rs1805010	Renal cancer	0.058
rs1805010	Gastric cancer	0.064
rs1805015	Overall	0.114
rs1805015	Caucasian	0.595
rs1805015	Asian	0.173
rs1805015	PCR-RFLP	0.498
rs1805015	Taq-Man	0.462
rs1805015	PB	0.112
rs1805015	HB	0.447
rs1805015	Glioma	0.243
rs2057768	Overall	0.168

Supplementary table 5. The differences and advantages of between the current study and former meta-analysis.

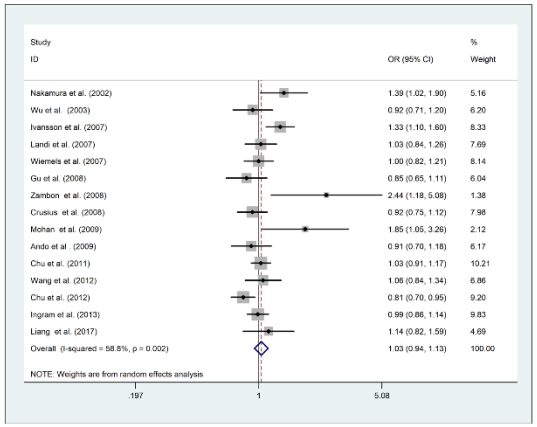
Study	Number of enrolled polymorphisms	Number of enrolled studies	Number of enrolled cancer types	NOS scale	Stratification analysis	Bonferroni corrections	Sensitivity analysis	LD analyses	In-silico analysis of IL-4R expression
Cho et al. (2017) [a]	2	7	4				Yes		
Wang et al. (2012) [b]	3	36	7		Yes		Yes		
Luo et al. (2015) [c]	3	6	3						
Sun et al. (2013) [d]	1	7	1		Yes				
The current study	4	53	11	Yes	Yes	Yes	Yes	Yes	Yes

a. Cho YA, Kim J. Association of IL4, IL13, and IL4R polymorphisms with gastrointestinal cancer risk: A meta-analysis. J Epidemiol. 2017; 27: 215-20.

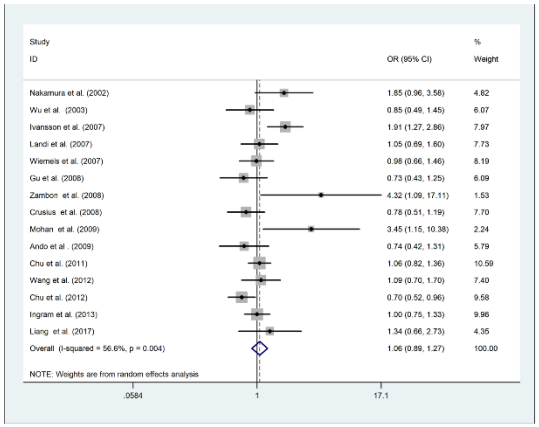
b. Wang JY, Zhou YQ, Li XX, Jin X, Wang LL, Lei L, et al. Associations between three polymorphisms in the interleukin-4 receptor gene and risk of cancer: a meta-analysis. Asian Pac J Cancer Prev. 2012; 13: 6227-32.

c. Luo Y, Ye Z, Li K, et al. Associations between polymorphisms in the IL-4 and IL-4 receptor genes and urinary carcinomas: a meta-analysis[J]. International journal of clinical and experimental medicine, 2015, 8(1): 1227.

d. Sun G, Wang X, Shi L, et al. Association between polymorphisms in interleukin-4Rα and interleukin-13 and glioma risk: A meta-analysis[J]. Cancer epidemiology, 2013, 37(3): 306-310.



rs1805010 B VS A



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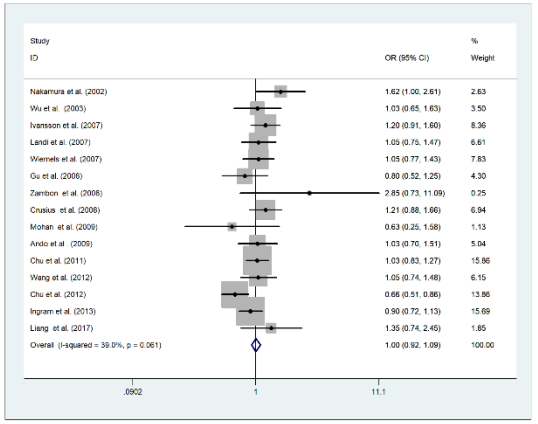

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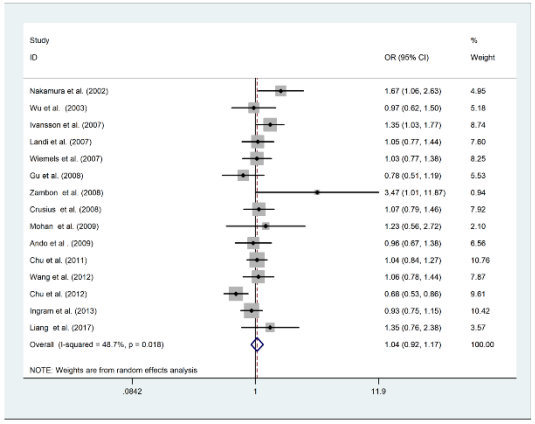

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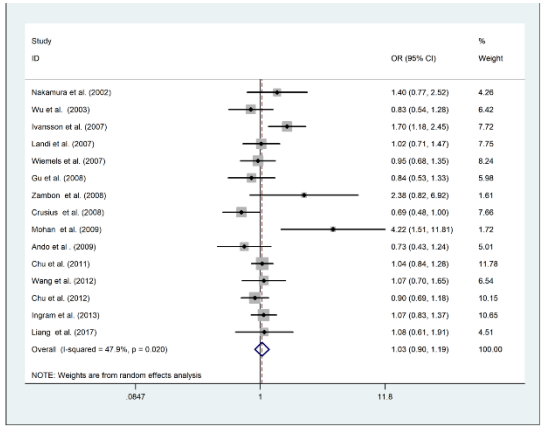
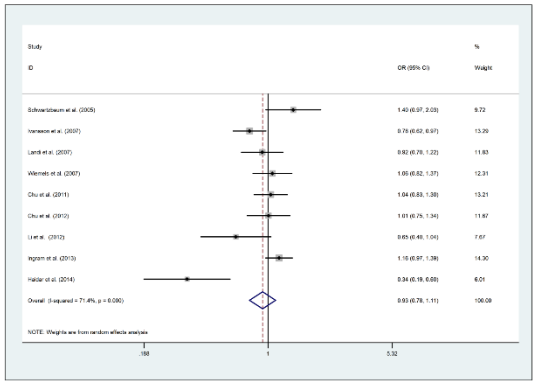


rs1805010 BB VS BA+AA

Supplementary figure 1. Meta-analysis of the association between *IL-4R* 1805010 polymorphism and overall cancer risk in five genetic models.



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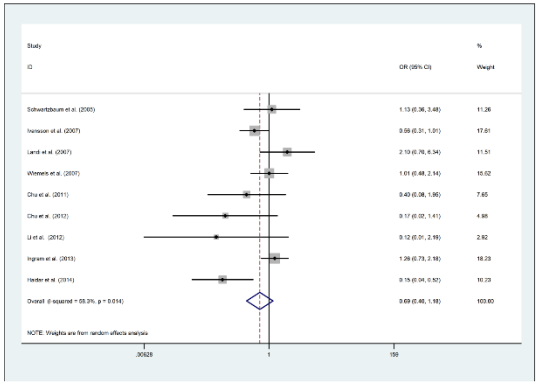
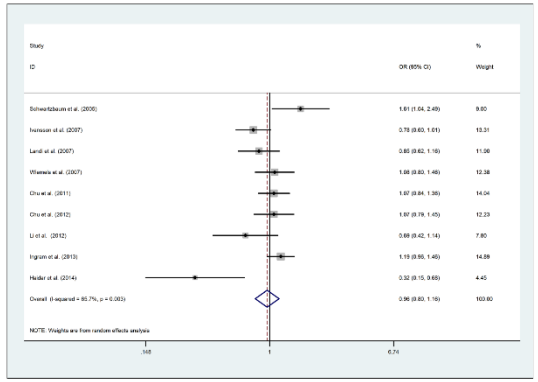


rs1805015 BB VS AA



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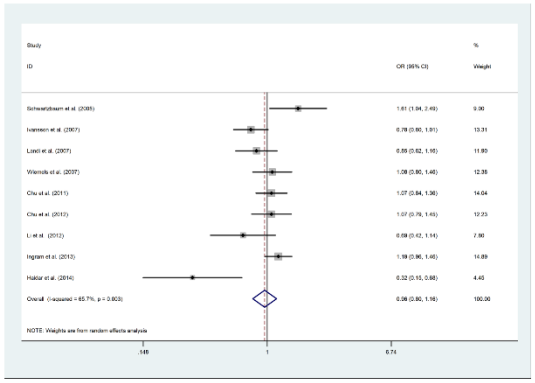
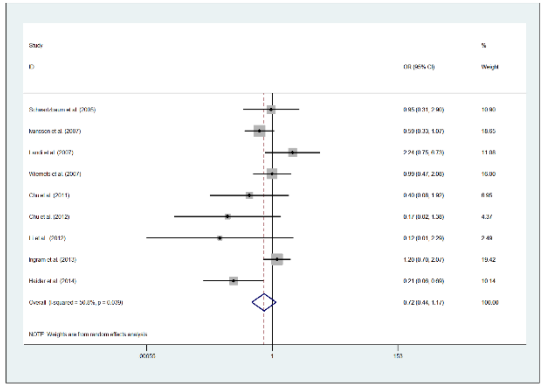
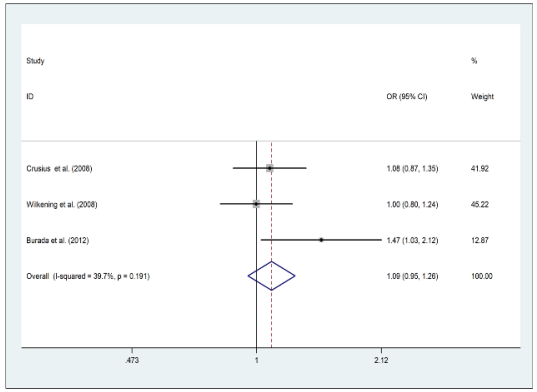


rs1805015 BA+BB VS AA

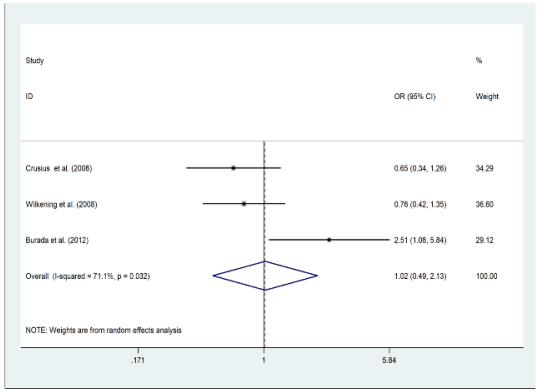


rs1805015 BB VS BA+AA

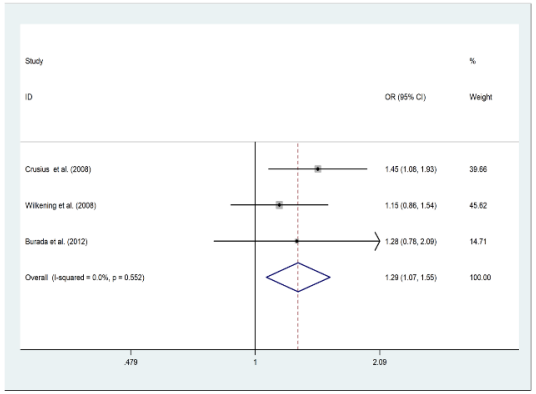
Supplementary figure 2. Meta-analysis of the association between *IL-4R* rs1805015 polymorphism and overall cancer risk in five genetic models.



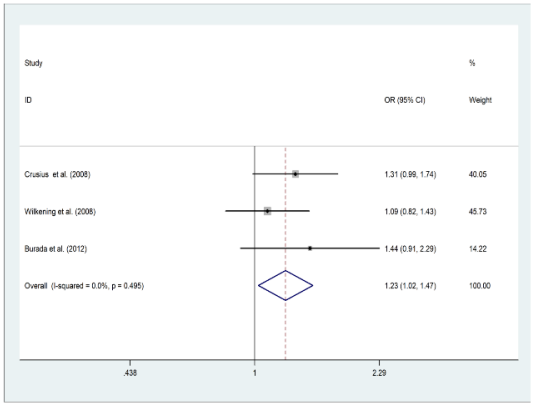
rs2057768 B VS A



rs2057768 BB VS AA



rs2057768 BA VS AA



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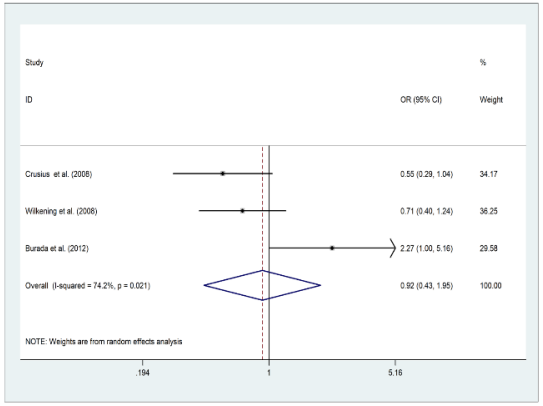
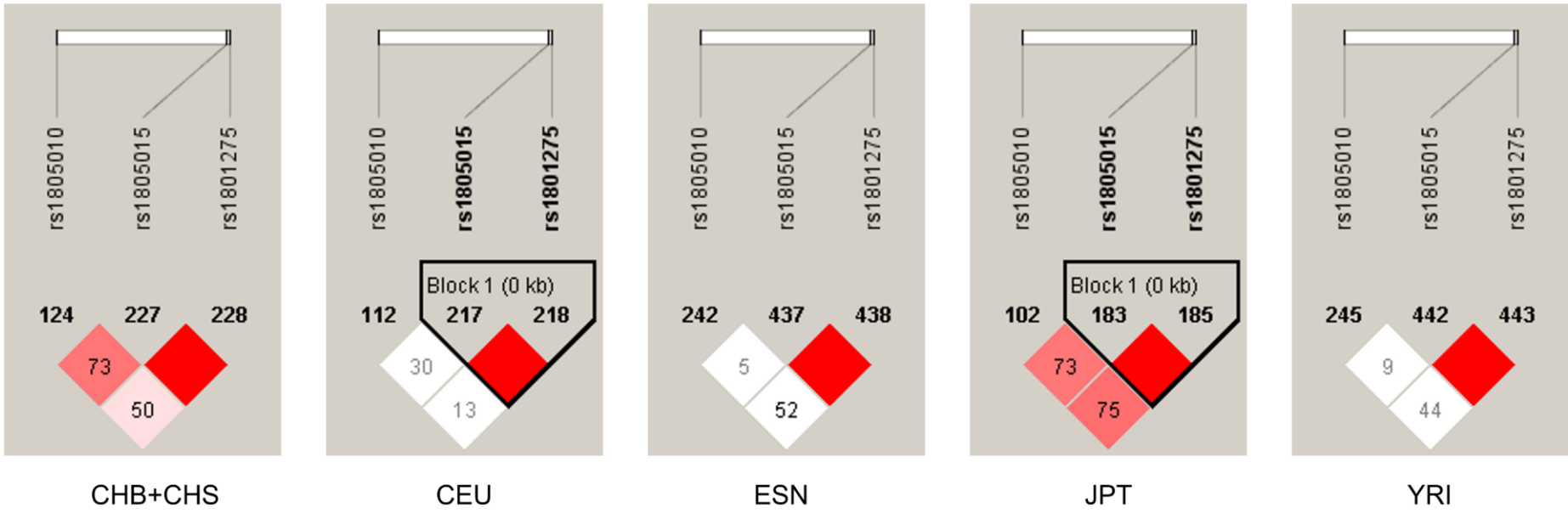
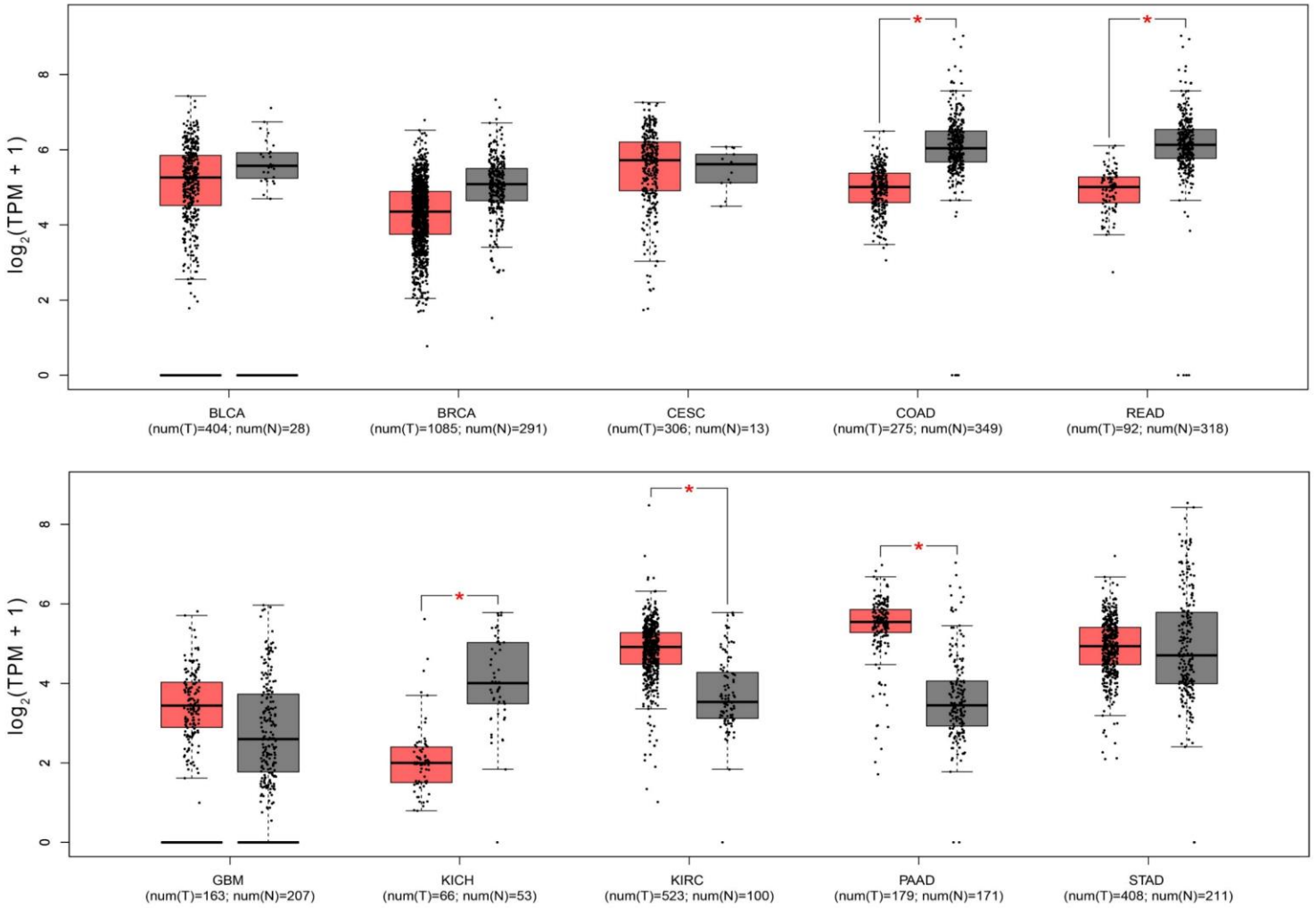


rs2057768 BB VS BA+AA

Supplementary figure 3. Meta-analysis of the association between *IL-4R* rs2057768 polymorphism and overall cancer risk in five genetic models.



Supplementary figure 4. Linkage disequilibrium analyses for IL-4R polymorphisms in populations from 1000 enomes Phase 3. The number of each cell represents r2 and white color cells shows no LD between polymorphisms. Population descriptors: CEU: Utah residents with Northern and Western European ancestry from the CEPH collection; CHB: Han Chinese in Beijing, China; CHS: Southern Han Chinese, China; JPT: Japanese in Tokyo, Japan; YRI: Yoruba in Ibadan, Nigeria; ESN: Esan in Nigeria. The rs numbers are SNP IDs taken from National Center for Biotechnology Information (NCBI).



Supplementary figure 5. In-silico analysis the relative expression of IL-12 in cancer tissue and normal tissue using TCGA database.

BLCA: Bladder Urothelial Carcinoma; BRCA: Breast invasive carcinoma; CESC: Cervical squamous cell carcinoma and endocervical adenocarcinoma COAD: Colon adenocarcinoma; READ: Rectum adenocarcinoma; GBM: Glioblastoma multiforme; KICH: Kidney Chromophobe; KIRC: Kidney renal clear cell carcinoma; PAAD: Pancreatic adenocarcinoma; STAD: Stomach adenocarcinoma.