Association between inflammatory cytokines and prostate cancer

Abstract

Introduction
We conducted bidirectional two-sample Mendelian Randomization (MR) analysis to investigate the causal relationship between 91 inflammatory cytokines and prostate cancer (PCa).

Material and methods
The Inverse Variance Weighted (IVW) model served as the primary two-sample MR analysis method, utilized to estimate the causal effect of exposure on the outcome. The Weighted Median (WM) and MR Egger methods were additionally employed to complement the IVW model. Sensitivity analyses were performed using Cochran's Q test for both the IVW and MR Egger methods. To assess the presence of horizontal pleiotropy, the instrumental variables (IVs) were subjected to the MR-Egger intercept test.

Results
Following Bonferroni correction, the IVW analysis revealed positive correlations between PCa and the levels of C-C motif chemokine 20 (CCL20), C-C motif chemokine 23 (CCL23), fibroblast growth factor 19 (FGF19), fibroblast growth factor 23 (FGF23), and interleukin-6 (IL-6). Notably, IL-6 exhibited the strongest positive association effect (odds ratio [95% confidence interval]: 1.0076 [1.0014, 1.0139]), followed by CCL-20 (1.0067 [1.0004, 1.0129]) and FGF23 ([1.0002, 1.0119]). Reverse MR analysis indicated a negative causal relationship between PCa and interleukin-22 receptor subunit alpha-1 levels (IL22RA1) (0.4852 [0.2390, 0.9847]).

Conclusions
This study proposes that there exists a positive correlation between the levels of CCL20, CCL23, FGF19, FGF23, and IL-6 and the occurrence of PCa. Furthermore, we found evidence to support the causal relationship between decreased levels of IL22RA1 and the development of PCa. These findings unveil novel biomarkers and pathways that could potentially be targeted for the prevention and clinical treatment of PCa.

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Introduction

Prostate cancer (PCa) ranks second among the most prevalent cancers in men and is the second leading cause of male cancer-related mortality. It has been projected that in 2040, there will be 2.9 million new cases of PCa globally [1, 2]. The likelihood of a man being diagnosed with PCa at some point in his lifetime is notably high, reaching 11.2% [3]. While established risk factors for PCa include age, race, family history, and smoking, there is currently a lack of identified modifiable risk factors [3]. Presently, approximately 90% of patients exhibit localized tumor progression at the time of PCa diagnosis, rendering surgical treatment inappropriate. Therefore, early detection and effective intervention of PCa are crucial in enhancing patient prognosis [4, 5, 6].

Inflammation is widely acknowledged as a crucial factor in the aging process and age-related diseases, including heart disease, diabetes, and Alzheimer's disease, with tumor development being particularly affected. This association has led to the recognition of a concept termed "inflamm-aging," which describes the occurrence of chronic, low-grade inflammation that progressively increases with age. Inflamm-aging is attributed to the persistent exposure to antigens and stressors, which, over time, establish a continuous presence of inflammatory stimuli that contributes to the susceptibility to age-related diseases and disabilities. Many epidemiological studies investigating inflammation rely on a single biomarker, typically C-reactive protein (CRP), interleukin-6 (IL-6), or tumor necrosis factor-lpha (TNF-α), to quantify the inflammatory state. In PCa, inflammation plays a crucial role in the disease's pathophysiology, influencing its onset and prognosis.

Previous research has indicated a link between PCa risk and inflammatory cytokines such as MCP-1 and IL-4. However, due to the intricate nature of the inflammatory system and its involvement in various feedback mechanisms, relying solely on a single inflammatory marker may explain the inconsistent findings reported in the literature. Moreover, whether inflammatory cytokines act as initiating factors or are downstream effects of poor functional outcomes in PCa remains a topic of debate and requires further investigation.

48   Mendelian Randomization (MR) analysis employs single nucleotide polymorphisms (SNPs) as genetic

49   instrumental variables (IVs)to proxy for exposure factors [7, 8]. By comparison to observational studies, MR

50   analysis mitigates the effects of reverse causation and confounding factors on the findings, thereby yielding

51   more robust evidence for causal inference [9].

52   In order to evaluate the potential correlation between circulating inflammatory cytokines and PCa, and to

53   determine the direction of this correlation, we conducted a bidirectional two-sample MR analysis. Initially, we

54   obtained validated genetic IV for 91 inflammatory cytokines from genome-wide association study (GWAS)

55   data, and proceeded to analyze their association with PCa. Additionally, we explored the causal relationship

56   by reversing the exposure and outcome variables. This study contributes to the existing evidence supporting

57   the targeting of specific inflammatory cytokines for the purpose of PCa prevention.

58   **Materials and Methods**

59   We employed bidirectional two-sample MR to evaluate the causal relationship between inflammatory

60   cytokines and PCa. All data utilized in this study were obtained from publicly available GWAS summary

61   statistics, thereby obviating the need for additional ethical approval or informed consent. We conducted a

62   thorough search for GWAS summary statistics and extracted primary SNPs that were linked to inflammatory

63   cytokines or PCa as genetic IV. The GWAS summary statistics for PCa comprised of 9,132 cases and 173,493

64   controls, and could be accessed from the MRC IEU GWAS Database (https://gwas.mrcieu.ac.uk/datasets/ieu-

65   b-4809/). The GWAS summary statistics for cytokines were sourced from the GWAS Catalog platform,

66   available at GWAS Catalog (https://www.ebi.ac.uk/gwas/publications/37563310). Ethical approval was

67   obtained from the FinnGen steering committee for all selected GWASs in the FinnGen Consortium, and

68   individuals provided written informed consent.

69   **Selection of IV for Inflammatory Cytokines**

70   The IVs utilized for inflammatory cytokines were obtained from a recent meta-analysis GWAS, which

71   enrolled 14,824 individuals of European ancestry from 11 cohorts. These participants were subjected to

72   measurement of 91 inflammatory cytokines using the Olink Target Inflammation panel. To identify SNPs

73   associated with the levels of these inflammatory cytokines in circulation, a genome-wide significance level (P

74    $< 5 \times 10^{-8}$) was employed. Subsequently, the summary data of the SNPs were extracted, and linkage

75   disequilibrium (LD) SNPs were pruned by applying an r^2 threshold of < 0.1. The SNP with the lowest P-value

76   was selected as an independent instrument. Herein, we identified 91 SNPs that exhibited significant

77   associations with inflammatory cytokines (p-value $< 5 \times 10^{-8}$, LD $r^2 < 0.01$, clump = 1000 kb). To evaluate

78   the efficacy of the remaining SNPs, the F-statistic was computed for each SNP ($F = beta^2/se^2$), and an overall

79   F-statistic was determined as well. The overall F-statistic was calculated as 169.6, surpassing the typical

80   threshold of 10, thereby indicating a robust ability of genetic variants to predict inflammatory cytokine levels.

81   **PCa GWAS Summary Data**

82   We employed the PCa GWAS summary data obtained from the MRC Integrative Epidemiology Unit

83   (MRC-IEU) Consortium (ID: ieu-b-4809). This dataset consisted of 182,625 individuals of European

84   ancestry, encompassing 9,132 cases and 173,493 controls with PCa. A comprehensive collection of 9,851,867

85   SNPs was included in this investigation. The summary statistics can be readily accessed and downloaded

86   from the consortium's website. It is important to underscore that all these data are de-identified, publicly

87   available, and can be utilized without any constraints.

88   **Statistical methods**

89   This study used the inverse variance weighting (IVW) as the primary methodology for MR analysis. To

90   evaluate the heterogeneity among SNPs [10], the Cochran Q-tests were employed. Additional analyses were

91   conducted using the weighted median and MR-Egger methods. The MR-Egger intercept test was used to

92   assess horizontal pleiotropy, while MR-PRESSO was used to detect outlier SNPs [11, 12]. These identified

93   SNPs were subsequently excluded from the MR analysis to ensure the reliability and consistency of the

94   results. A leave-one-out analysis was conducted to evaluate the robustness of the findings. Furthermore,

95   supplementary sensitivity analyses were performed using the weighted mode and simple mode analyses [10].

96   In cases where the IVW analysis yielded statistically significant results (p < 0.05) and no evidence of

97   horizontal pleiotropy or heterogeneity was found, the findings could be considered positive, even if the other

98   methods did not yield significant results, as long as the direction of the β-values remained consistent. When

99   horizontal pleiotropy was present without heterogeneity, the MR-Egger method was used [13]. In situations

100   where heterogeneity was observed without the presence of pleiotropy, either the weighted median method or

101   the random effects IVW method was utilized. The analysis was performed using R 4.2.2 software and the R

102   packages "TwosampleMR" and "MR-PRESSO" [10, 13].

103   **Results**

104   **Casual Association of inflammatory cytokines with PCa**

105   After performing a series of quality control procedures, a total of 33 SNPs were identified as being

106   associated with PCa, while 169 SNPs were found to be associated with inflammatory cytokines (refer to Table

107   1, Table S1, and Table S2). Regarding the inflammatory cytokines, the number of SNPs per cytokine protein

108   varied from 8 to 33. All included SNPs had F values greater than 10. Following the Bonferroni correction, the

109   analysis using the IVW method revealed evidence supporting an association between 9 inflammatory

110   cytokines and PCa (refer to Table S3). Of the known inflammatory cytokines, 7 showed a positive correlation

111   with PCa, whereas 2 exhibited a negative correlation. Among the positively correlated inflammatory factors

112   were levels of CCL20, levels of CCL23, levels of FGF19, levels of FGF23, and IL-6 (levels of interleukin-6).

113   The strongest positive association effect was observed for IL-6 (OR [95%CI]: 1.0076 [1.0014, 1.0139]),

114   followed by CCL-20 (OR [95%CI]: 1.0067 [1.0004, 1.0129]) and FGF23 (OR [95%CI]: 1.0061 [1.0002,

115   1.0119]).

116   Several inflammatory factors showed a negative correlation with PCa, including CX3CL1 (fractalkine

117   levels), CXCL9 (C-X-C motif chemokine 9 levels), TGF-β (latency-associated peptide transforming growth

118   factor beta 1 levels), and NRTN (neurturin levels). Among these factors, NTRN had the strongest negative

119   association effect, with an odds ratio (OR) of 0.9918 and a 95% confidence interval (CI) of 0.9863 to 0.9974

120   (Table 1; Figure 1; Figure 2).

121   **Using PCa as an Exposure to Test Bidirectionality of Associations**

122   After conducting multiple test corrections, we consistently found evidence from the IVW method

123   indicating a negative causal effect of PCa on IL22RA1 (Interleukin-22 receptor subunit alpha-1 levels) with

124   an (OR) (95% CI) of 0.4852 (0.2390, 0.9847). However, the Weighted Median method yielded an OR [95%

125   CI] of 0.4717 (0.1668, 1.3346), while the MR Egger method indicated an OR [95% CI] of 0.3648 (0.0658,

126   2.0218). The p-values for both these methods were greater than 0.05, suggesting that the supplementary

127   methods were unable to confirm the causal effect. These results are summarized in Table 1, Table S4, Figure

128   1, and Figure 2.

129   **Sensitivity analysis**

130   A series of sensitivity analyses were conducted to assess the rigidity of the aforementioned results. The

131   Cochran's Q test of the IVW method and MR Egger method were used. The results showed that only CCL20

132   (MR Egger Q pval: 0.0342, IVW Q pval: 0.0289), CX3CL1 (MR Egger Q pval: 0.0013, IVW Q pval:

133   0.0012), and CXCL9 (MR Egger Q pval: 0.0008, IVW Q pval: 0.0004) exhibited heterogeneity of IV

134   variables ($P < 0.05$) and were significantly associated with PCA. The other inflammatory cytokines did not

135   show significant heterogeneity. In terms of reverse MR, no heterogeneity of PCA affecting inflammatory

136   cytokines was observed. Moreover, the MR-Egger regression intercept analysis revealed no apparent

137   horizontal pleiotropy in the bidirectional MR analysis. The direction of effect in all three methods was

138   consistent with the IVW method. The radial MR results of IVW indicated that the corrected results were

139   consistent with the uncorrected ones. Furthermore, the results remained almost identical to the overall MR

140   effect value after excluding each SNP one by one through LOO, indicating strong robustness of the results

141   (Table 1; Table S5; Table S6; Figure 3).

142   **Discussion**

143   This study utilized a two-sample bidirectional MR analysis approach to examine the causal connection

144   between inflammatory cytokines in the bloodstream and PCa. In the initial phase, the study evaluated the

145   causal association between 91 circulating inflammatory cytokines, encompassing chemokines, interleukins,

146   and growth factors, and the occurrence of PCa. The findings revealed a positive correlation between

147 genetically predicted elevated levels of CCL20, CCL23, FGF19, FGF23, and IL-6, and PCa outcomes.

148 Furthermore, considering PCa as an exposure variable, it appeared to elicit a decrease in IL22RA1 levels via

149 pathogenic mechanisms.

150   CCL20 and CCL23 are chemokines that play a role in promoting the directed migration of leukocytes, T

151 cells, eosinophils, and basophils to sites of injury or inflammation [14]. These chemokines act as pro-

152 inflammatory molecules in diseases. Inflammatory response is a critical pathological process in PCa, and the

153 systemic inflammatory response mediated by CCL20 and CCL23 exacerbates the delay in the resolution of

154 inflammation and worsens the infiltration and progression of PCa tissues [15]. Observational studies have also

155 provided evidence of the association between CCL20, CCL23, and the risk and functional prognosis of PCa.

156 A prospective study has indicated that higher circulating levels of CCL20 and CCL23 can predict the risk of

157 PCa. Therefore, CCL20 and CCL23 are influential factors in the risk of PCa and may also contribute to the

158 post-PCa inflammatory pathological changes [16].

159   The FGF signaling pathway has been demonstrated to play a crucial role in the progression of PCa [17].

160 FGF19, a member of the FGF subfamily, has been shown to circulate in the serum and exert its effects in an

161 endocrine manner. A recent study investigated the impact of FGF19 on the proliferation and epithelial-

162 mesenchymal transition (EMT) of PC3 cells, shedding light on the association between the presence of

163 FGF19-positive cells in the tissues of patients with PCa. This research provides evidence that FGF19 may

164 contribute to the development of PCa by promoting cell proliferation and EMT in PCa.

165   FGF23 is an endocrine FGF, primarily expressed by osteocytes. It plays a crucial role in maintaining

166 phosphate homeostasis by engaging in feedback loops with the kidneys and vitamin D [18, 19]. A study has

167 demonstrated that FGF23 functions as an autocrine growth factor in all cell types. It has been observed that

168 supplementation with exogenous FGF23 increases cell proliferation, invasion capabilities, and anchorage-

169 independent growth in vitro. Conversely, knockdown of FGF23 in PCa cell lines reduces these phenotypes.

170 Furthermore, suppressing FGF23 expression also results in a decrease in tumor growth in vivo [20]. These

171 findings suggest that FGF23 may function as an autocrine, paracrine, and/or endocrine growth factor in PCa,

172 thereby contributing to disease progression [20].

173   Another study has provided confirmation of the role of IL-6 in the pathogenesis of PCa. Through an

174 evaluation of the expression of IL-6 superfamily members, related cytokines, and the potential involvement of

175 IL-6 in regulating PCa growth [21, 22], the study demonstrated that IL-6 appears to experience a functional

176 shift from acting as a paracrine growth inhibitor to functioning as an autocrine growth stimulant during the

177 progression of prostate cancer towards a hormone-resistant phenotype [23].

178   Our findings from reverse MR analysis indicate that PCa may be associated with a decrease in the

179 inflammatory level of IL-22RA1. Interleukin-22 (IL-22) is a member of the IL-10 cytokine family and is

180 produced by T cells and innate lymphoid cells. The IL-22 signaling pathway plays a crucial role in

181 coordinating mucosal immune defense and tissue regeneration. Its pleiotropic actions include pro-survival

182 signals, cell migration, developmental anomalies, and angiogenesis [24]. These functions contribute to the

183 prevention of initial tumor formation. The involvement of the IL-22/IL-22RA1 axis in cancer is intricate.

184 Evidence suggests that IL-22 expression and signaling are dysregulated in patients with various common

185 cancers such as intestinal, skin, lung, and liver cancer. Although IL-22 displays limited tissue specificity, its

186 receptor IL-22R1 is exclusively expressed on epithelial and tissue cells. Nonetheless, it is an attractive

187 therapeutic target on immune cells due to its potential to achieve anti-tumor immunity with reduced side

188 effects [24]. Our study further supports this notion by demonstrating that PCa occurrence is associated with a

189 decrease in the inflammatory level of IL-22RA1, thereby highlighting it as a promising therapeutic target.

190   Our study has several limitations. Firstly, all the GWAS summary statistics used in our study were

191 derived from participants of European ancestry, which may limit the generalizability of our findings to other

192 ethnicities. Secondly, our study included 91 cytokines, while several other important inflammatory

193 biomarkers were not included due to the lack of IVs available for analysis. Additionally, the results for

194 various cytokines such as IFN-γ, IL-5, and IL-13 were based on a single genetic variant, which might lead to

195 lower precision. Thirdly, due to the assumptions of aggregate data level MR analysis in our study, we were

196   unable to investigate the non-linear effects of cytokines and growth factors on PCa. Fourthly, the genetic

197   estimates of cytokines were derived from GWAS adjusted for body mass index (BMI). Although the

198   associations remained consistent when using unweighted allele scores, which minimizes bias in the genetic

199   association estimates of exposures, we cannot exclude the possibility that adjustment for BMI may have led to

200   collider bias during instrument selection. Obesity has been identified as a significant comorbidity in prostate

201   cancer. Studies have shown that obesity is associated with high-grade and aggressive prostate cancer, as well

202   as increased mortality [25]. This relationship can be partly attributed to low-grade inflammation, where

203   cytokines and chemokines play a crucial role. Elevated levels of inflammatory markers in obese individuals

204   may contribute to the progression and severity of prostate cancer. Fifthly, the associations found in MR

205   analysis are based on genetic SNPs, representing the cumulative effect of exposure over an individual's

206   lifetime. It is possible that exposure to cytokines only affects PCa during specific time windows. Lastly, due

207   to the unavailability of information on disease aggressiveness or molecular subtypes, we focused solely on the

208   association between cytokines and the overall risk of PCa. Nevertheless, our study provides new insights into

209   the relationship between inflammatory biomarkers and PCa , enhancing our understanding of its etiology [10,

210   12].

211   In summary, this study utilizing MR analysis has several notable advantages. First, it minimizes

212   confounding factors and reverse causation, providing robust causal inference about the relationship between

213   inflammatory cytokines and prostate cancer. Second, the use of large-scale GWAS data enhances the

214   statistical power and reliability of our findings. Third, by identifying specific inflammatory cytokines such as

215   CCL20, CCL23, FGF19, FGF23, and IL-6 as being associated with an elevated risk of PCa, our study offers

216   supportive evidence of a causal relationship, indicating that these cytokines could serve as potential targets for

217   therapeutic interventions in PCa. Additionally, the study suggests that IL22RA1 might have the potential to

218   serve as a biomarker for monitoring therapeutic effects in advanced stages of PCa. These findings not only

219   provide new insights into the etiology of prostate cancer but also open up new avenues for preventive and

220   clinical strategies.This two-sample MR study examines the genetic correlation and bidirectional relationship

221   between inflammatory activity and PCa using large-scale GWAS data. The findings reveal that genetically

222   predicted elevated levels of CCL20, CCL23, FGF19, FGF23, and IL-6 are positively associated with PCa

223   outcomes, whereas elevated levels of CX3CL1, CXCL9, TGF-β, and NRTN are negatively associated with

224   PCa outcomes. Additionally, the inverse MR results suggest that the presence of PCa may lead to a decrease

225   in inflammatory levels of IL-22RA1. This finding implies that PCa expression could serve as a potential

226   indicator for identifying patients who are likely to respond to immunotherapy, further offering potential

227   targets for novel immunotherapeutic approaches. Overall, this study provides novel insights into PCa

228   biomarkers and pathways, with important implications for PCa prevention and clinical intervention.

229   Our findings have several potential clinical implications. By identifying specific inflammatory cytokines

230   such as CCL20, CCL23, FGF19, FGF23, and IL-6 as associated with an elevated risk of prostate cancer, our

231   study suggests that these cytokines could serve as biomarkers for early detection and risk stratification in

232   clinical settings. Furthermore, targeting these cytokines through therapeutic interventions could provide novel

233   approaches for preventing and treating prostate cancer. The observed decrease in IL22RA1 levels associated

234   with prostate cancer suggests that IL22RA1 might be a valuable biomarker for monitoring therapeutic effects,

235   particularly in advanced stages of the disease. Overall, our research highlights the importance of

236   understanding the inflammatory pathways involved in prostate cancer, paving the way for improved clinical

237   outcomes through targeted interventions.

238   **Conclusion**

239   This study suggests a positive correlation between elevated levels of CCL20, CCL23, FGF19, FGF23,

240   and IL-6 and the risk of prostate cancer. Additionally, prostate cancer appears to causally reduce IL22RA1

241   levels. These findings provide new insights into potential biomarkers and therapeutic targets for prostate

242   cancer prevention and treatment. Our research highlights the importance of targeting specific inflammatory

243   cytokines and understanding their bidirectional relationships with prostate cancer to develop effective clinical

244   interventions.

245   **Conflict of Interest**

246   The authors declare that the research was conducted in the absence of any commercial or financial

247   relationships that could be construed as a potential conflict of interest.

248   **Author Contributions**

249   Conceptualization: Sheng Li and Tielin Wu; Methodology: Libin Zhou and Jianting Xu; Formal analysis

250   and investigation: Tielin Wu and Sheng Li ; Writing - original draft preparation: Jianting Xu and Sheng Li;

251   Writing - review and editing: Lin Cao and Huiming Long.

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329

330   **Figure Captions**

331   **Figure 1.** Causal correlations of cytokines on Prostate cancer.

332   **Figure 2.** Causal effects of significant inflammatory cytokines on Prostate cancer by forward mendelian

333   randomized analysis.

334   **Figure 3.** Causal effects of Prostate cancer on significant inflammatory cytokines(IL-22) by inverse

335   mendelian randomized analysis.

exposure	outcome	method	nsnp		OR(95%CI)	pval
CCL20	PCA	Inverse variance weighted	21		1.0067(1.0004, 1.0129)	0.0361
		Weighted median	21		1.0036(0.9968, 1.0105)	0.2970
		MR Egger	21		0.9996(0.9856, 1.0138)	0.9565
CCL23	PCA	Inverse variance weighted	25		1.0038(1.0006, 1.0069)	0.0187
		Weighted median	25		1.0041(1.0001, 1.0081)	0.0466
		MR Egger	25		1.0045(1.0000, 1.0090)	0.0607
CX3CL1	PCA	Inverse variance weighted	22		0.9925(0.9852, 0.9999)	0.0471
		Weighted median	22		0.9932(0.9855, 1.0010)	0.0858
		MR Egger	22		1.0002(0.9812, 1.0195)	0.9841
CXCL9	PCA	Inverse variance weighted	24		0.9927(0.9860, 0.9994)	0.0320
		Weighted median	24		0.9992(0.9920, 1.0064)	0.8229
		MR Egger	24		1.0009(0.9865, 1.0156)	0.9040
FGF19	PCA	Inverse variance weighted	21		1.0049(1.0004, 1.0094)	0.0336
		Weighted median	21		1.0041(0.9973, 1.0110)	0.2352
		MR Egger	21		0.9992(0.9882, 1.0104)	0.8949
FGF23	PCA	Inverse variance weighted	14		1.0061(1.0002, 1.0119)	0.0419
		MR Egger	14		1.0186(1.0016, 1.0359)	0.0531
		Weighted median	14		1.0055(0.9978, 1.0132)	0.1632
IL-6	PCA	Inverse variance weighted	8		1.0076(1.0014, 1.0139)	0.0166
		Weighted median	8		1.0077(0.9998, 1.0158)	0.0573
		MR Egger	8		1.0034(0.9913, 1.0157)	0.6036
TGF-β	PCA	Inverse variance weighted	20		0.9947(0.9900, 0.9995)	0.0312
		Weighted median	20		0.9930(0.9864, 0.9998)	0.0424
		MR Egger	20		0.9894(0.9810, 0.9979)	0.0253
NRTN	PCA	Inverse variance weighted	14		0.9918(0.9863, 0.9974)	0.0040
		Weighted median	14		0.9922(0.9845, 0.9999)	0.0470
		MR Egger	14		0.9974(0.9863, 1.0086)	0.6528
PCA	IL22RA1	Inverse variance weighted	33		0.4852(0.2390, 0.9847)	0.0452
		Weighted median	33		0.4717(0.1668, 1.3346)	0.1568
		MR Egger	33		0.3648(0.0658, 2.0218)	0.2572

0.9   1.1
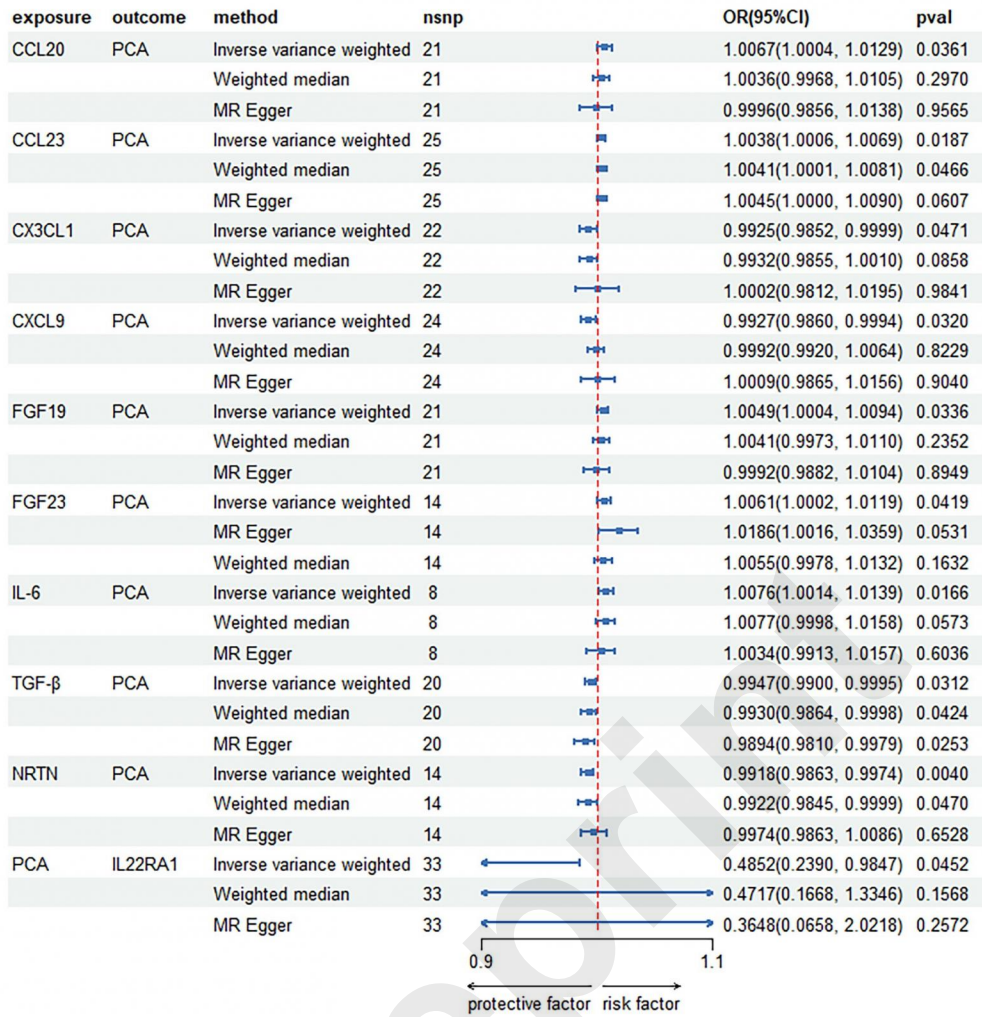
protective factor   risk factor

Table 1. Causal effects between significant cytokines traits and prostate cancer estimated by different two-sample MR methods.

exposure	exposure abbreviation	outcome	outcome abbreviation	method	nsnp	pval	OR(95%CI)	Heterogeneity		Pleiotropy	correct_causal_ direction
								MR Egger Q_pval	IVW Q_pval	egger_intercept pva	
C-C motif chemokine 20 levels	CCL20	Prostate cancer	PCA	Inverse variance weighted	21	0.0361	1.0067(1.0004, 1.0129)	0.0342	0.0289	0.2920	TRUE
				Weighted median	21	0.2970	1.0036(0.9968, 1.0105)				
				MR Egger	21	0.9565	0.9996(0.9856, 1.0138)				
C-C motif chemokine 23 levels	CCL23	Prostate cancer	PCA	Inverse variance weighted	25	0.0187	1.0038(1.0006, 1.0069)	0.4874	0.5347	0.6584	TRUE
				Weighted median	25	0.0466	1.0041(1.0001, 1.0081)				
				MR Egger	25	0.0607	1.0045(1.0000, 1.0090)				
Fractalkine levels	CX3CL1	Prostate cancer	PCA	Inverse variance weighted	22	0.0471	0.9925(0.9852, 0.9999)	0.0013	0.0012	0.4016	TRUE
				Weighted median	22	0.0858	0.9932(0.9855, 1.0010)				
				MR Egger	22	0.9841	1.0002(0.9812, 1.0195)				
C-X-C motif chemokine 9 levels	CXCL9	Prostate cancer	PCA	Inverse variance weighted	24	0.0320	0.9927(0.9860, 0.9994)	0.0008	0.0004	0.2226	TRUE
				Weighted median	24	0.8229	0.9992(0.9920, 1.0064)				
				MR Egger	24	0.9040	1.0009(0.9865, 1.0156)				
Fibroblast growth factor 19 levels	FGF19	Prostate cancer	PCA	Inverse variance weighted	21	0.0336	1.0049(1.0004, 1.0094)	0.8777	0.8621	0.2942	TRUE
				Weighted median	21	0.2352	1.0041(0.9973, 1.0110)				
				MR Egger	21	0.8949	0.9992(0.9882, 1.0104)				
Fibroblast growth factor 23 levels	FGF23	Prostate cancer	PCA	Inverse variance weighted	14	0.0419	1.0061(1.0002, 1.0119)	0.9433	0.8588	0.1502	TRUE
				MR Egger	14	0.0531	1.0186(1.0016, 1.0359)				
				Weighted median	14	0.1632	1.0055(0.9978, 1.0132)				
Interleukin-6 levels	IL-6	Prostate cancer	PCA	Inverse variance weighted	8	0.0166	1.0076(1.0014, 1.0139)	0.6217	0.6566	0.4610	TRUE
				Weighted median	8	0.0573	1.0077(0.9998, 1.0158)				

				MR Egger	8	0.6036	1.0034(0.9913, 1.0157)			
Latency-associated peptide transforming growth factor beta 1 levels	TGF-β	Prostate cancer	PCA	Inverse variance weighted	20	0.0312	0.9947(0.9900, 0.9995)	0.6449	0.5590	0.1546	TRUE
				Weighted median	20	0.0424	0.9930(0.9864, 0.9998)			
				MR Egger	20	0.0253	0.9894(0.9810, 0.9979)			
Neurturin levels	NRTN	Prostate cancer	PCA	Inverse variance weighted	14	0.0040	0.9918(0.9863, 0.9974)	0.9211	0.8933	0.2820	TRUE
				Weighted median	14	0.0470	0.9922(0.9845, 0.9999)			
				MR Egger	14	0.6528	0.9974(0.9863, 1.0086)			
Prostate cancer	PCA	Interleukin-22 receptor subunit alpha-1 levels	IL22RA1	Inverse variance weighted	33	0.0452	0.4852(0.2390, 0.9847)	0.6095	0.6517	0.7225	TRUE
				Weighted median	33	0.1568	0.4717(0.1668, 1.3346)			
				MR Egger	33	0.2572	0.3648(0.0658, 2.0218)			

1   Supplementary Figures and Tables

1.1   Supplementary Tables

Supplementary Table 1. Characteristics of significant SNPs with genome-wide associations ($P<5\times10^{-6}$) for 91 cytokines on Prostate cancer.

id.exposure	chr.exposure	pos.exposure	effect_allele.exposure	other_allele.exposure	beta.exposure	se.exposure	eaf.exposure	pval.exposure	id	SNP	samplesize.exposure	exposure	sd	R2	F
GCST90027476	1	32260562	T	C	0.2585	0.0548	0.9859	2.39E-06	1_32260562_T_C	rs115827722	14243	C-C motif chemokine 20 levels	6.540053419	0.00156006	22.2515 3511
GCST90027476	1	238606022	T	C	-0.0953	0.0208	0.0967	4.61E-06	1_238606022_T_C	rs111674022	14288	C-C motif chemokine 20 levels	2.486274386	0.00146 7273	20.99225684
GCST90027476	2	228661828	T	C	-0.0996	0.0128	0.326	7.18E-15	2_228661828_T_C	rs10207134	14287	C-C motif chemokine 20 levels	1.529961464	0.00422 0672	60.54785156
GCST90027476	6	1448190	T	C	0.0637	0.0135	0.3674	2.38E-06	6_1448190_T_C	rs11242693	12404	C-C motif chemokine 20 levels	1.503538826	0.00179 2011	22.26441701
GCST90027476	6	32635998	T	G	-0.0768	0.0148	0.215	2.82E-07	6_32635998_T_G	rs9274623	14288	C-C motif chemokine 20 levels	1.769079851	0.00184 2435	26.36961286
GCST90027476	6	40998167	T	C	0.1459	0.0185	0.883	3.11E-15	6_40998167_T_C	rs742493	14735	C-C motif chemokine 20 levels	2.245674453	0.00420 3842	62.1966691
GCST90027476	8	22584718	T	C	0.0573	0.012	0.5396	1.80E-06	8_22584718_T_C	rs1129474	14288	C-C motif chemokine 20 levels	1.434389069	0.00159 3469	22.800625
GCST90027476	9	115519904	T	C	0.0636	0.0127	0.3159	5.50E-07	9_115519904_T_C	rs2796032	14718	C-C motif chemokine 20 levels	1.54073561	0.00170 1287	25.07880216

GCST90274766	10	127693479	A	G	0.1939	0.0414	0.9774	2.82E-06	10_127693479_A_G	rs41302923	14726	C-C motif chemokine 20 levels	5.023920278	0.001487588	21.93587365
GCST90274766	11	42142787	T	C	0.1191	0.026	0.9413	4.63E-06	11_42142787_T_C	rs10837780	14288	C-C motif chemokine 20 levels	3.107842982	0.001466658	20.98344675
GCST90274766	12	19657540	A	G	0.2057	0.0422	0.9739	1.09E-06	12_19657540_A_G	rs73072893	13230	C-C motif chemokine 20 levels	4.853917305	0.001792958	23.75984928
GCST90274766	12	76655980	T	C	0.3494	0.0713	0.9856	9.56E-07	12_76655980_T_C	rs564398411	10407	C-C motif chemokine 20 levels	7.273648454	0.002302626	24.0141236
GCST90274766	12	104149874	A	G	0.0635	0.0128	0.6933	7.02E-07	12_104149874_A_G	rs4981022	14721	C-C motif chemokine 20 levels	1.55302564	0.001669259	24.61090088
GCST90274766	14	94625543	T	C	-0.1512	0.0328	0.0376	4.03E-06	14_94625543_T_C	rs151092565	14728	C-C motif chemokine 20 levels	3.98057427	0.001440937	21.24985128
GCST90274766	14	106782532	A	T	-0.1602	0.0344	0.0632	3.21E-06	14_106782532_A_T	rs2003431	9786	C-C motif chemokine 20 levels	3.402992942	0.00221172	21.6874324
GCST90274766	16	63795822	A	T	0.0616	0.0134	0.3426	4.29E-06	16_63795822_A_T	rs6498926	12844	C-C motif chemokine 20 levels	1.518640392	0.001642877	21.13254622
GCST90274766	17	67136325	C	G	-0.185	0.0359	0.9688	2.56E-07	17_67136325_C_G	rs11753190	14243	C-C motif chemokine 20 levels	4.284451054	0.001861251	26.55550469
GCST90274766	17	72761195	C	G	-0.2256	0.0429	0.9694	1.45E-07	17_72761195_C_G	rs117900576	13224	C-C motif chemokine 20 levels	4.933313475	0.002087176	27.65435963
GCST90274766	18	56487606	T	C	-0.0736	0.0158	0.1755	3.19E-06	18_56487606_T_C	rs6420556	14288	C-C motif chemokine 20 levels	1.888612274	0.001516602	21.69908668
GCST90274766	21	32961256	T	C	0.0804	0.0166	0.1452	1.28E-06	21_32961256_T_C	rs35833676	14732	C-C motif chemokine 20 levels	2.014832479	0.001590018	23.4582668

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Study	Chr	Position	EA	OA	Beta	SE		P-value	Variant	rsID	N	Trait			
GCST90274766	21	44005002	A	G	-0.1315	0.0276	0.9476	1.89E-06	21_44005002_A_G	rs130496244	14288	C-C motif chemokine 20 levels	3.299094858	0.001586475	22.7003912
GCST90274766	22	49877754	T	G	-0.1184	0.0257	0.9406	4.09E-06	22_49877754_T_G	rs5769672	14732	C-C motif chemokine 20 levels	3.11934908	0.001438829	21.2244485
GCST90274767	1	161582200	C	G	0.0603	0.0132	0.608	4.92E-06	1_161582200_C_G	rs74127049	13422	C-C motif chemokine 23 levels	1.52926294	0.001552599	20.86828512
GCST90274767	1	203441260	A	G	-0.3061	0.0626	0.0116	1.01E-06	1_203441260_A_G	rs146074782	12935	C-C motif chemokine 23 levels	7.119632055	0.001845341	23.90991283
GCST90274767	2	241647342	T	C	0.0983	0.0215	0.9113	4.83E-06	2_241647342_T_C	rs1001495	13650	C-C motif chemokine 23 levels	2.51191411	0.001529313	20.90403461
GCST90274767	3	6127208	T	C	0.2157	0.0449	0.0255	1.56E-06	3_6127208_T_C	rs143910182	14730	C-C motif chemokine 23 levels	5.449387791	0.00156453	23.07850159
GCST90274767	3	14445911	A	G	-0.21	0.0426	0.0278	8.24E-07	3_14445911_A_G	rs116683909	14724	C-C motif chemokine 23 levels	5.169190095	0.001647921	24.30073398
GCST90274767	3	40054358	A	G	0.1273	0.0278	0.048	4.67E-06	3_40054358_A_G	rs74491711	14735	C-C motif chemokine 23 levels	3.37458107	0.00142121	20.96849283
GCST90274767	3	46462144	T	C	0.0585	0.0127	0.6736	4.10E-06	3_46462144_T_C	rs4317138	14288	C-C motif chemokine 23 levels	1.518061764	0.001483027	21.21799244
GCST90274767	4	77373079	T	C	0.0574	0.0114	0.4869	4.78E-07	4_77373079_T_C	rs2870238	14736	C-C motif chemokine 23 levels	1.383867971	0.001717698	25.35210834
GCST90274767	6	86144743	C	G	0.1164	0.0237	0.9291	9.04E-07	6_86144743_C_G	rs12204524	14727	C-C motif chemokine 23 levels	2.876109982	0.001635472	24.12177536
GCST90274767	7	3238978	T	C	-0.0548	0.0118	0.5907	3.42E-06	7_3238978_T_C	rs4719850	14726	C-C motif chemokine 23 levels	1.43193863	0.001462634	21.5673657

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GCST90274767	7	17545964	A	G	-0.1497	0.0319	0.0393	2.70E-06	7_17545964_A_G	rs73071153	14728	C-C motif chemokine 23 levels	3.8713511	0.00149326	22.022277769
GCST90274767	10	18295482	A	G	0.0574	0.0125	0.3093	4.39E-06	10_18295482_A_G	rs1926742	14725	C-C motif chemokine 23 levels	1.516832637	0.001430164	21.086464
GCST90274767	10	34433796	A	G	-0.2064	0.0437	0.9788	2.32E-06	10_34433796_A_G	rs7735400	14735	C-C motif chemokine 23 levels	5.304647222	0.001511848	22.30778818
GCST90274767	10	132905425	A	G	0.0971	0.0186	0.1154	1.79E-07	10_132905425_A_G	rs11017721	14288	C-C motif chemokine 23 levels	2.223303056	0.001904032	27.25289051
GCST90274767	11	1989274	A	G	-0.0692	0.014	0.7293	7.70E-07	11_1989274_A_G	rs112492	13224	C-C motif chemokine 23 levels	1.609939129	0.001844409	24.43183673
GCST90274767	11	84372512	A	T	0.0927	0.0202	0.0922	4.45E-06	11_84372512_A_T	rs17735284	14725	C-C motif chemokine 23 levels	2.451201542	0.001428366	21.0599206
GCST90274767	11	115081786	C	G	0.224	0.0416	0.0223	7.26E-08	11_115081786_C_G	rs77083410	14734	C-C motif chemokine 23 levels	5.04956147	0.001964236	28.99408284
GCST90274767	12	57405049	A	G	0.0948	0.0207	0.0846	4.66E-06	12_57405049_A_G	rs73114426	14731	C-C motif chemokine 23 levels	2.512386553	0.001421951	20.97374501
GCST90274767	17	21386459	A	G	-0.0643	0.0137	0.7287	2.69E-06	17_21386459_A_G	rs12949647	14288	C-C motif chemokine 23 levels	1.637594187	0.001539576	22.02829133
GCST90274767	17	34140999	T	G	-0.2256	0.0291	0.0643	9.00E-15	17_34140999_T_G	rs7225405	11538	C-C motif chemokine 23 levels	3.125778908	0.005182988	60.1024551
GCST90274767	17	34195180	A	C	-0.3246	0.0413	0.9561	3.85E-15	17_34195180_A_C	rs117639761	14736	C-C motif chemokine 23 levels	5.013486595	0.004175027	61.77274886
GCST90274767	17	34326215	A	C	-0.5147	0.0158	0.1497	8.99E-233	17_34326215_A_C	rs712048	14723	C-C motif chemokine 23 levels	1.917146244	0.067239864	1061.192477

GCST9027476 7	17	34445397	T	C	-0.1285	0.025	0.0956	2.75E-07	17_34445397_T_C	rs16971993	14288	C-C motif chemokine 23 levels	2.988310559	0.001845921	26.4196
GCST9027476 7	17	34816052	T	C	-0.2538	0.0465	0.0298	4.81E-08	17_34816052_T_C	rs77527696	13829	C-C motif chemokine 23 levels	5.468249743	0.002149882	29.79046826
GCST9027476 7	19	45416741	T	C	0.0669	0.0138	0.2405	1.25E-06	19_45416741_T_C	rs438811	14720	C-C motif chemokine 23 levels	1.674298898	0.001594235	23.50141777
GCST9027476 7	22	51076281	T	C	-0.1397	0.0285	0.0559	9.50E-07	22_51076281_T_C	rs113959305	13224	C-C motif chemokine 23 levels	3.277376085	0.001813917	24.02719606
GCST9027477 8	1	6532317	A	G	-0.1881	0.0405	0.9747	3.41E-06	1_6532317_A_G	rs114359340	13651	Fractalkine levels	4.731918506	0.001577905	21.5708642
GCST9027477 8	1	172099857	A	G	-0.1436	0.0304	0.0402	2.32E-06	1_172099857_A_G	rs77915710	14742	Fractalkine levels	3.691065797	0.001511497	22.31319252
GCST9027477 8	2	44117788	C	G	-0.1191	0.0248	0.9355	1.57E-06	2_44117788_C_G	rs111472651	14728	Fractalkine levels	3.009702497	0.001563708	23.06323166
GCST9027477 8	2	113835522	A	G	-0.0675	0.0126	0.5568	8.45E-08	2_113835522_A_G	rs11682107	12412	Fractalkine levels	1.403755363	0.002307233	28.69897959
GCST9027477 8	3	1260482	C	G	-0.0569	0.0125	0.352	2.12E-06	3_1260482_C_G	rs1976172	14732	Fractalkine levels	1.456505407	0.001524042	22.48340278
GCST9027477 8	3	39307162	A	G	0.0941	0.0154	0.1671	9.94E-10	3_39307162_A_G	rs3732378	14740	Fractalkine levels	1.869689386	0.002526972	37.33686119
GCST9027477 8	3	70136592	T	G	0.0633	0.0122	0.3327	2.12E-07	3_70136592_T_G	rs35026817	14740	Fractalkine levels	1.481182501	0.001823294	26.92078742
GCST9027477 8	4	179539497	A	G	0.1479	0.0301	0.9343	8.94E-07	4_179539497_A_G	rs980364	9902	Fractalkine levels	2.995214687	0.002432822	24.14367391

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GCST90274778	4	187139939	A	G	-0.0582	0.0114	0.4914	3.30E-07	4_187139939_A_G	rs12331618	14729	Fractalkine levels	1.383539244	0.001766664	26.06371191
GCST90274778	5	120396066	T	C	-0.0903	0.0193	0.89	2.89E-06	5_120396066_T_C	rs13167439	14295	Fractalkine levels	2.307540801	0.00152923	21.89076217
GCST90274778	5	176839890	T	G	-0.0681	0.0128	0.274	1.04E-07	5_176839890_T_G	rs2731674	14740	Fractalkine levels	1.554027542	0.001916913	28.3057251
GCST90274778	6	31351764	T	C	-0.0589	0.0117	0.6177	4.80E-07	6_31351764_T_C	rs2442752	14743	Fractalkine levels	1.420622846	0.001716271	25.34304916
GCST90274778	6	32424882	T	C	0.0811	0.012	0.3484	1.40E-11	6_32424882_T_C	rs7763262	14743	Fractalkine levels	1.457049073	0.003088934	45.67506944
GCST90274778	7	30524015	A	T	0.0597	0.012	0.4243	6.52E-07	7_30524015_A_T	rs2736723	14295	Fractalkine levels	1.434740395	0.001728667	24.750625
GCST90274778	8	26741279	A	G	0.1968	0.0424	0.9744	3.46E-06	8_26741279_A_G	rs56397903	14743	Fractalkine levels	5.148240057	0.001459343	21.54360983
GCST90274778	9	88885541	A	C	-0.2404	0.0512	0.981	2.66E-06	9_88885541_A_C	rs571946532	11768	Fractalkine levels	5.554197145	0.001870196	22.04595947
GCST90274778	9	136155000	T	C	-0.1145	0.0166	0.1884	5.29E-12	9_136155000_T_C	rs635634	11792	Fractalkine levels	1.802610196	0.004019129	47.57675279
GCST90274778	12	41381284	A	C	0.0563	0.012	0.6601	2.71E-06	12_41381284_A_C	rs712137	14737	Fractalkine levels	1.456752553	0.001491612	22.01173611
GCST90274778	12	79905558	A	C	0.0792	0.0158	0.1687	5.37E-07	12_79905558_A_C	rs10778675	14295	Fractalkine levels	1.889074853	0.00175489	25.12674251
GCST90274778	14	85801666	T	G	-0.2257	0.0491	0.979	4.29E-06	14_85801666_T_G	rs53050572	12127	Fractalkine levels	5.407022551	0.001739651	21.13003099

ID	Chr	Position	A1	A2	Beta	SE	Col	P-value	Variant	rsID	N	Trait	V1	V2	V3
GCST9027478	15	85657494	A	G	-0.1996	0.0432	0.0224	3.83E-06	15_85657494_A_G	rs117698194	13859	Fractalkine levels	5.085687776	0.001538211	21.347822 36
GCST9027478	16	57167230	A	G	-0.1511	0.027	0.9463	2.19E-08	16_57167230_A_G	rs8052631	14295	Fractalkine levels	3.228165888	0.002186389	31.318532 24
GCST9027478	16	57412802	C	G	0.2041	0.0118	0.424	4.99E-67	16_57412802_C_G	rs671623	14295	Fractalkine levels	1.410828055	0.020502274	299.172723 4
GCST9027478	16	57508595	T	C	0.1129	0.0244	0.9372	3.71E-06	16_57508595_T_C	rs55896747	14734	Fractalkine levels	2.961762016	0.001451162	21.409584 12
GCST9027478	20	52569781	C	G	0.2442	0.0529	0.9812	3.91E-06	20_52569781_C_G	rs73137770	13808	Fractalkine levels	6.216143924	0.001541141	21.309829 51
GCST9027484	1	3823464	T	G	0.6177	0.1287	0.00557	1.59E-06	1_3823464_T_G	rs192119373	8829	C-X-C motif chemokine 9 levels	12.09300703	0.002602874	23.035524 69
GCST9027484	1	161608256	T	C	-0.0645	0.0137	0.4962	2.50E-06	1_161608256_T_C	rs4047522	11760	C-X-C motif chemokine 9 levels	1.485676412	0.001881598	22.165538 92
GCST9027484	2	86977227	T	G	-0.2245	0.0488	0.981	4.22E-06	2_86977227_T_G	rs114033894	14287	C-X-C motif chemokine 9 levels	5.832979808	0.001479346	21.163770 66
GCST9027484	2	204754353	T	C	0.057	0.0118	0.5214	1.36E-06	2_204754353_T_C	rs7600322	13849	C-X-C motif chemokine 9 levels	1.388644937	0.001682282	23.333812 12
GCST9027484	2	242665455	A	G	0.0915	0.02	0.1125	4.76E-06	2_242665455_A_G	rs35435997	12791	C-X-C motif chemokine 9 levels	2.261946065	0.001633937	20.930625
GCST9027484	3	151541803	A	G	-0.0834	0.0176	0.1182	2.15E-06	3_151541803_A_G	rs62272916	14710	C-X-C motif	2.134612283	0.001524371	22.454674 59

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GCST9 027478 4	4	76930 776	A	C	-0.1419	0.012 8	0.262 9	1.47E-28	4_76930 776_A_C	rs424 1577	14724	chemokine 9 levels C-X-C motif chemokine 9 levels	1.553 1838 78	0.008 2788 05	122.8 9801 03
GCST9 027478 4	4	16057 4480	T	C	0.1546	0.033 2	0.033 6	3.21E-06	4_16057 4480_T_ C	rs803 4864 4	14734	C-X-C motif chemokine 9 levels	4.029 9384 81	0.001 4697 46	21.68 4170 42
GCST9 027478 4	5	19287 867	T	C	0.0728	0.015 4	0.162 5	2.28E-06	5_19287 867_T_C	rs145 6076 33	14287	C-X-C motif chemokine 9 levels	1.840 7348 86	0.001 5619 32	22.34 7107 44
GCST9 027478 4	6	31269 173	A	G	-0.0605	0.011 5	0.407 5	1.43E-07	6_31269 173_A_ G	rs936 6778	14735	C-X-C motif chemokine 9 levels	1.395 9597 95	0.001 8750 32	27.67 6748 58
GCST9 027478 4	6	31423 412	A	G	-0.1603	0.034 2	0.037 8	2.77E-06	6_31423 412_A_ G	rs181 8160 09	11985	C-X-C motif chemokine 9 levels	3.744 0800 47	0.001 8300 11	21.96 9229 85
GCST9 027478 4	6	16108 8918	A	C	-0.0805	0.014 4	0.195 8	2.27E-08	6_16108 8918_A_ C	rs783 149	14287	C-X-C motif chemokine 9 levels	1.721 2066 47	0.002 1829 18	31.25 1205 63
GCST9 027478 4	6	16125 6529	A	G	-0.1452	0.019 7	0.098	1.70E-13	6_16125 6529_A_ G	rs121 9130 7	14287	C-X-C motif chemokine 9 levels	2.354 7063 15	0.003 7885 42	54.32 5130 77
GCST9 027478 4	7	29069 227	T	C	0.0562	0.011 9	0.656 2	2.33E-06	7_29069 227_T_C	rs317 748	14734	C-X-C motif chemokine 9 levels	1.444 4659 01	0.001 5116 8	22.30 3792 11
GCST9 027478 4	7	48859 798	T	C	0.2705	0.055 1	0.985 1	9.14E-07	7_48859 798_T_C	rs142 1197 26	13800	C-X-C motif	6.472 7844 09	0.001 7436 42	24.10 0793 48

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GCST90274784	10	107966626	A	G	-0.0758	0.0158	0.1611	1.61E-06	10_107966626_A_G	rs61875680	14287	C-X-C motif chemokine 9 levels	1.888546182	0.001608588	23.015570261
GCST90274784	12	111884608	T	C	0.1008	0.013	0.4744	8.92E-15	12_111884608_T_C	rs3184504	11784	C-X-C motif chemokine 9 levels	1.411203741	0.005076973	60.12213018
GCST90274784	12	129186447	T	C	-0.0675	0.0146	0.5684	3.78E-06	12_129186447_T_C	rs10744384	10893	C-X-C motif chemokine 9 levels	1.523795222	0.001958766	21.37478889
GCST90274784	14	74739091	A	T	-0.0574	0.0115	0.5236	6.00E-07	14_74739091_A_T	rs7149776	14286	C-X-C motif chemokine 9 levels	1.374526646	0.001741091	24.91311909
GCST90274784	16	1803589	T	C	0.1861	0.0385	0.028	1.34E-06	16_1803589_T_C	rs182152471	13667	C-X-C motif chemokine 9 levels	4.500878886	0.001706946	23.365296
GCST90274784	16	79431853	C	G	-0.157	0.0343	0.9683	4.71E-06	16_79431853_C_G	rs4888966	14287	C-X-C motif chemokine 9 levels	4.099818609	0.001464517	20.9513043
GCST90274784	19	10427721	A	T	-0.1309	0.0286	0.049	4.72E-06	19_10427721_A_T	rs74956615	13662	C-X-C motif chemokine 9 levels	3.342898371	0.001531197	20.94822485
GCST90274784	20	2538467	A	C	0.2792	0.059	0.0133	2.22E-06	20_2538467_A_C	rs73606147	13379	C-X-C motif chemokine 9 levels	6.824390009	0.001671251	22.39374892
GCST90274784	20	20119931	A	C	-0.115	0.0244	0.9336	2.44E-06	20_20119931_A_C	rs62200304	14287	C-X-C motif chemokine 9 levels	2.916489004	0.001552605	22.21345069

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Study	Chr	Position	EA	OA	Beta	SE		P-value	Variant	rsID	N	Trait			
GCST90274784	21	18734554	A	G	0.1821	0.0391	0.9758	3.20E-06	21_18734554_A_G	rs73194812	14730	C-X-C motif chemokine 9 levels	4.745457965	0.001470562	21.69034085
GCST90274784	21	45024252	T	C	-0.0588	0.0126	0.5804	3.06E-06	21_45024252_T_C	rs73367822	11760	C-X-C motif chemokine 9 levels	1.36638825	0.00184 8743	21.77777778
GCST90274787	1	85295202	A	G	-0.1614	0.0352	0.9664	4.53E-06	1_85295202_A_G	rs12407505	14735	Fibroblast growth factor 19 levels	4.272850852	0.001424988	21.02430914
GCST90274787	1	100098055	A	G	-0.0614	0.0128	0.3002	1.61E-06	1_100098055_A_G	rs834971	14728	Fibroblast growth factor 19 levels	1.553394837	0.001560105	23.01000977
GCST90274787	3	74674996	A	G	0.2371	0.0482	0.9755	8.69E-07	3_74674996_A_G	rs574352299	10894	Fibroblast growth factor 19 levels	5.0308425 3	0.002216653	24.19741826
GCST90274787	3	132162249	A	G	-0.0927	0.0199	0.1012	3.19E-06	3_132162249_A_G	rs112126444	14735	Fibroblast growth factor 19 levels	2.415617385	0.001470696	21.6996793
GCST90274787	4	39457617	A	G	0.0837	0.0124	0.3415	1.48E-11	4_39457617_A_G	rs13103023	14296	Fibroblast growth factor 19 levels	1.4826169 3	0.003177398	45.5625
GCST90274787	5	54847098	T	C	-0.1014	0.0221	0.9175	4.47E-06	5_54847098_T_C	rs12520287	14296	Fibroblast growth factor 19 levels	2.642405979	0.001470613	21.05190311
GCST90274787	6	168606201	T	C	-0.136	0.0297	0.0418	4.67E-06	6_168606201_T_C	rs12110436	14743	Fibroblast growth factor 19 levels	3.606196455	0.001420433	20.96838191

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GCST90274787	7	17445553	T	C	0.1992	0.0421	0.9777	2.23E-06	7_17445553_T_C	rs145274424	14735	Fibroblast growth factor 19 levels	5.110426729	0.001517273	22.387957 64
GCST90274787	7	101569302	T	C	-0.0623	0.0135	0.2503	3.93E-06	7_101569302_T_C	rs2906655	14743	Fibroblast growth factor 19 levels	1.639180207	0.001442629	21.296515 78
GCST90274787	8	59382715	A	G	-0.1055	0.0123	0.3458	9.72E-18	8_59382715_A_G	rs7005978	14744	Fibroblast growth factor 19 levels	1.493525949	0.004965653	73.568973 49
GCST90274787	9	18148302	A	G	0.073	0.0156	0.1762	2.88E-06	9_18148302_A_G	rs7911099 0	14295	Fibroblast growth factor 19 levels	1.865162513	0.001529707	21.897600 26
GCST90274787	9	84435749	A	G	0.2151	0.0456	0.0203	2.39E-06	9_84435749_A_G	rs3583670 6	14734	Fibroblast growth factor 19 levels	5.535096227	0.001508113	22.251082 06
GCST90274787	9	136095770	C	G	0.1199	0.0247	0.0898	1.21E-06	9_136095770_C_G	rs1124403 8	11786	Fibroblast growth factor 19 levels	2.681514635	0.001995649	23.563752 89
GCST90274787	11	5610048	T	C	0.2325	0.0488	0.9812	1.89E-06	11_5610048_T_C	rs1915223 30	14738	Fibroblast growth factor 19 levels	5.924328804	0.001538007	22.698976 25
GCST90274787	11	114495920	T	C	0.0621	0.0132	0.6316	2.54E-06	11_114495920_T_C	rs1671812	12412	Fibroblast growth factor 19 levels	1.470600857	0.001780286	22.132747 93
GCST90274787	12	76644195	A	G	-0.2295	0.0492	0.0198	3.09E-06	12_76644195_A_G	rs1420671 35	13809	Fibroblast growth factor 19 levels	5.781575716	0.001573446	21.758811 72

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GCST90274787	12	91080475	A	G	-0.0767	0.0166	0.1923	3.83E-06	12_91080475_A_G	rs10777251	12411	Fibroblast growth factor 19 levels	1.849317485	0.001717478	21.34885324
GCST90274787	12	108147245	T	C	0.1024	0.02222	0.9158	3.98E-06	12_108147245_T_C	rs76708593	14296	Fibroblast growth factor 19 levels	2.654362568	0.001486258	21.27619511
GCST90274787	13	85357827	T	C	0.2161	0.0471	0.0209	4.47E-06	13_85357827_T_C	rs17326790	14741	Fibroblast growth factor 19 levels	5.71852969	0.001426198	21.05075707
GCST90274787	15	59188192	T	C	0.2583	0.0564	0.0178	4.65E-06	15_59188192_T_C	rs117398067	14744	Fibroblast growth factor 19 levels	6.84836288	0.001420747	20.97445111
GCST90274787	19	5851801	A	G	0.0674	0.0141	0.2338	1.75E-06	19_5851801_A_G	rs2306969	14739	Fibroblast growth factor 19 levels	1.711800394	0.001548102	22.84975605
GCST90274787	19	49206172	T	C	-0.1661	0.0118	0.445	5.31E-45	19_49206172_T_C	rs516246	14744	Fibroblast growth factor 19 levels	1.432813512	0.013262352	198.1414105
GCST90274789	1	146522722	T	C	0.0708	0.0136	0.7502	1.93E-07	1_146522722_T_C	rs671205	14287	Fibroblast growth factor 23 levels	1.625584055	0.001893587	27.10121107
GCST90274789	2	121962947	T	G	0.0941	0.0185	0.8733	3.65E-07	2_121962947_T_G	rs6753743	14287	Fibroblast growth factor 23 levels	2.211272428	0.00180788	25.87234478
GCST90274789	2	190446541	C	G	0.1163	0.0131	0.2897	6.82E-19	2_190446541_C_G	rs3811621	14286	Fibroblast growth factor 23 levels	1.565765136	0.005487534	78.81644426

GCST90274789	4	40142535	T	C	0.0685	0.0144	0.2406	1.97E-06	4_40142535_T_C	rs794007	12844	Fibroblast growth factor 23 levels	1.631971764	0.001758972	22.62852045
GCST90274789	4	124325226	A	T	-0.1845	0.0389	0.9748	2.11E-06	4_124325226_A_T	rs11930290	12848	Fibroblast growth factor 23 levels	4.409276821	0.001748098	22.49539059
GCST90274789	5	146629145	A	G	0.1704	0.0348	0.0295	9.75E-07	5_146629145_A_G	rs34551523	14730	Fibroblast growth factor 23 levels	4.223578956	0.001625289	23.97621879
GCST90274789	5	176814656	A	G	-0.0653	0.0135	0.2766	1.32E-06	5_176814656_A_G	rs33921462	14287	Fibroblast growth factor 23 levels	1.613631231	0.001635189	23.39692773
GCST90274789	6	31175118	A	C	-0.2224	0.0479	0.0191	3.43E-06	6_31175118_A_C	rs181409232	12846	Fibroblast growth factor 23 levels	5.428995382	0.001675598	21.55750716
GCST90274789	6	81343345	A	G	-0.0768	0.0166	0.8634	3.72E-06	6_81343345_A_G	rs12195292	14710	Fibroblast growth factor 23 levels	2.013327494	0.001453186	21.40455799
GCST90274789	7	12540548	C	G	0.1059	0.0222	0.1002	1.84E-06	7_12540548_C_G	rs37020322	11759	Fibroblast growth factor 23 levels	2.407344088	0.001931745	22.75547845
GCST90274789	11	106531034	A	G	0.2362	0.0507	0.0187	3.18E-06	11_106531034_A_G	rs118177380	14287	Fibroblast growth factor 23 levels	6.060081735	0.001517065	21.70420426
GCST90274789	12	4479549	A	G	-0.0959	0.0178	0.1141	7.14E-08	12_4479549_A_G	rs7955866	14719	Fibroblast growth factor 23 levels	2.159529569	0.00196844	29.02666961

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GCST number	Chr	Position	A1	A2	Beta	SE	P	P-value	Variant	rsID	N	Trait			
GCST9027478 9	14	22607677	A	G	-0.1085	0.0235	0.8871	3.89E-06	14_22607677_A_G	rs7533833 3	10893	Fibroblast growth factor 23 levels	2.452684091	0.0019534 7	21.31688547
GCST9027478 9	16	83137317	T	C	-0.056	0.0119	0.4938	2.53E-06	16_83137317_T_C	rs1115053 9	14287	Fibroblast growth factor 23 levels	1.422386048	0.0015478 51	22.14532872
GCST9027478 9	20	52731402	A	T	0.0907	0.0134	0.706	1.30E-11	20_52731402_A_T	rs6127099	14287	Fibroblast growth factor 23 levels	1.601678407	0.0031969 37	45.81471374
GCST9027478 9	22	18002038	A	G	0.1228	0.0257	0.0941	1.77E-06	22_18002038_A_G	rs3682154 73	9397	Fibroblast growth factor 23 levels	2.491309802	0.0024242 62	22.83129192
GCST9027478 9	22	22238107	T	C	0.0803	0.0166	0.1851	1.32E-06	22_22238107_T_C	rs3559011 2	12386	Fibroblast growth factor 23 levels	1.847453967	0.0018859 67	23.39994919
GCST9027481 5	1	154426970	A	C	-0.1684	0.0119	0.6128	1.83E-45	1_154426970_A_C	rs2228145	14742	Interleukin-6 levels	1.444857993	0.0134039 3	200.2581739
GCST9027481 5	2	113871806	T	G	0.0975	0.0211	0.9152	3.82E-06	2_113871806_T_G	rs1748681 9	14739	Interleukin-6 levels	2.561630377	0.0014467 93	21.35228319
GCST9027481 5	5	141146747	T	G	-0.0671	0.0143	0.2276	2.70E-06	5_141146747_T_G	rs248536	14295	Interleukin-6 levels	1.709732304	0.0015380 88	22.01775148
GCST9027481 5	6	32609094	T	C	0.067	0.0131	0.291	3.15E-07	6_32609094_T_C	rs5507175 66	14294	Interleukin-6 levels	1.566203488	0.0018269 21	26.15814929
GCST9027481 5	7	28486167	T	C	0.0582	0.0127	0.6371	4.59E-06	7_28486167_T_C	rs1023437 0	14295	Interleukin-6 levels	1.518433584	0.0014671 6	21.00093

GCST90274815	7	76792340	T	C	-0.2244	0.0469	0.0182	1.71E-06	7_76792340_T_C	rs187416244	14726	Interleukin-6 levels	5.6913493	0.001552385	22.89285828
GCST90274815	8	21260780	A	G	-0.0659	0.0135	0.7459	1.05E-06	8_21260780_A_G	rs1346147	14295	Interleukin-6 levels	1.614082944	0.001664395	23.82888145
GCST90274815	9	954741	A	C	-0.3418	0.0701	0.9865	1.08E-06	9_954741_A_C	rs10977774	12312	Interleukin-6 levels	7.778257589	0.001927579	23.77431873
GCST90274815	10	79656931	T	C	-0.2313	0.0484	0.9602	1.76E-06	10_79656931_T_C	rs554155854	9830	Interleukin-6 levels	4.798683653	0.002318395	22.83813008
GCST90274815	13	68942611	T	G	-0.3427	0.0682	0.0105	5.04E-07	13_68942611_T_G	rs185969953	12934	Interleukin-6 levels	7.756232214	0.001948707	25.24998882
GCST90274815	14	77078350	A	T	0.1165	0.0244	0.118	1.80E-06	14_77078350_A_T	rs1642826	10893	Interleukin-6 levels	2.546616673	0.002088797	22.79671123
GCST90274818	2	107310081	A	G	-0.0849	0.0183	0.8857	3.50E-06	2_107310081_A_G	rs7570818	14729	Latency-associated peptide transforming growth factor beta 1 levels	2.220944576	0.001459367	21.52351518
GCST90274818	4	5793052	A	T	0.0626	0.0121	0.5957	2.30E-07	4_5793052_A_T	rs7656674	14288	Latency-associated peptide transforming growth factor beta 1 levels	1.446342311	0.0018870055	26.76565808
GCST90274818	4	26142254	C	G	0.2053	0.0433	0.9689	2.12E-06	4_26142254_C_G	rs73112514	12393	Latency-associated peptide transforming growth	4.820322787	0.0018810959	22.48030018

												factor beta 1 levels			
GCST90274818	4	84952443	A	C	0.1265	0.0263	0.9391	1.51E-06	4_84952443_A_C	rs1921885	14288	Latency-associated peptide transforming growth factor beta 1 levels	3.14370270709	0.0016168	23.13500267
GCST90274818	4	175537640	T	C	-0.299	0.0613	0.01112	1.07E-06	4_175537640_T_C	rs114152855	14249	Latency-associated peptide transforming growth factor beta 1 levels	7.31733043	0.001667145	23.79147828
GCST90274818	5	131705458	C	G	-0.0605	0.013	0.4529	3.26E-06	5_131705458_C_G	rs2631367	11785	Latency-associated peptide transforming growth factor beta 1 levels	1.41126362618	0.00183472 4	21.65828402
GCST90274818	7	16406570	T	C	-0.0931	0.0199	0.1103	2.89E-06	7_16406570_T_C	rs34992551	14734	Latency-associated peptide transforming growth factor beta 1 levels	2.41535354 15	0.001483497	21.88735133
GCST90274818	8	51696312	T	C	0.1447	0.03003	0.0388	1.79E-06	8_51696312_T_C	rs143420877	14729	Latency-associated peptide transforming growth factor beta 1 levels	3.677301675	0.001546199	22.80614101

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GCST9 027481 8	8	68719 454	T	C	- 0.0747	0.015 5	0.832 1	1.44E- 06	8_68719 454_T_C	rs782 0135	14730	Latency- associated peptide transformi ng growth factor beta 1 levels	1.881 9191977	0.001 5745 25	23.22 6181 06
GCST9 027481 8	8	10659 3558	A	G	- 0.0608	0.012 1	0.446 9	5.04E- 07	8_10659 3558_A_ G	rs701 3321	14288	Latency- associated peptide transformi ng growth factor beta 1 levels	1.446 3423 11	0.001 7642 45	25.24 8548 6
GCST9 027481 8	9	87111 083	T	G	0.2185	0.046 1	0.018 2	2.14E- 06	9_87111 083_T_G	rs183 3197 99	14733	Latency- associated peptide transformi ng growth factor beta 1 levels	5.595 5981 74	0.001 5226 74	22.46 4721 13
GCST9 027481 8	10	18285 342	T	C	0.0523	0.011 4	0.462 7	4.48E- 06	10_1828 5342_T_ C	rs105 0855 6	14735	Latency- associated peptide transformi ng growth factor beta 1 levels	1.383 8210 14	0.001 4265 35	21.04 7168 36
GCST9 027481 8	11	95274 487	T	G	0.0989	0.021	0.902 3	2.48E- 06	11_9527 4487_T_ G	rs345 3680 6	14288	Latency- associated peptide transformi ng growth factor beta 1 levels	2.510 1808 7	0.001 5501 35	22.17 9614 51
GCST9 027481 8	12	24809 427	T	C	- 0.2662	0.052 6	0.022 7	4.17E- 07	12_2480 9427_T_ C	rs144 8345 46	12935	Latency- associated peptide	5.982 3106 41	0.001 9764 51	25.61 2066 1

transforming growth factor beta 1 levels

GCST90274818	12	95312882	A	C	-0.1083	0.02322	0.0779	3.04E-06	12_95312882_A_C	rs60821320	12852	Latency-associated peptide transforming growth factor beta 1 levels	2.630106553	0.001692942	21.7911898
GCST90274818	16	48902293	A	C	-0.2301	0.04722	0.0182	1.09E-06	16_48902293_A_C	rs14945816	14726	Latency-associated peptide transforming growth factor beta 1 levels	5.72775452	0.001611473	23.765625
GCST90274818	19	14764810	A	G	-0.0597	0.0125	0.292	1.79E-06	19_14764810_A_G	rs104032011	14730	Latency-associated peptide transforming growth factor beta 1 levels	1.51709142	0.001546368	22.810176
GCST90274818	19	41811072	A	G	-0.1921	0.02776	0.9378	3.40E-12	19_41811072_A_G	rs73045256	14288	Latency-associated peptide transforming growth factor beta 1 levels	3.29909485 8	0.003379525	48.4436174 1
GCST90274818	19	41847860	A	G	-0.4623	0.03355	0.0345	2.55E-43	19_41847860_A_G	rs1800472	14736	Latency-associated peptide transforming growth	4.066629563	0.012760278	190.44

Study	Chr	Position			Beta	SE		P-value	Variant	rsID	N	Trait			
												factor beta 1 levels			
GCST90274818	19	41981195	T	C	0.1378	0.0271	0.0525	3.68E-07	19_41981195_T_C	rs7247630	14729	Latency-associated peptide transforming growth factor beta 1 levels	3.28893979782	0.001752604	25.85591155
GCST90274818	22	45002724	T	C	-0.0873	0.019	0.1204	4.33E-06	22_45002724_T_C	rs2281119	14284	Latency-associated peptide transforming growth factor beta 1 levels	2.270798098	0.001476015	21.11160665
GCST90274828	1	214886642	A	G	-0.0652	0.0141	0.3445	3.76E-06	1_214886642_A_G	rs4360502	11342	Neurturin levels	1.501633451	0.001882027	21.38242543
GCST90274828	2	15734798	A	G	0.0786	0.0172	0.8077	4.88E-06	2_15734798_A_G	rs62120726	11343	Neurturin levels	1.831860562	0.001837968	20.88277447
GCST90274828	2	172434373	C	G	-0.0622	0.0136	0.3324	4.80E-06	2_172434373_C_G	rs908372	11773	Neurturin levels	1.475647004	0.001773857	20.91717128
GCST90274828	3	73067086	T	C	0.3387	0.0738	0.0176	4.44E-06	3_73067086_T_C	rs76777800	6941	Neurturin levels	6.148474611	0.003026248	21.06287593
GCST90274828	4	43313220	T	C	-0.4361	0.0867	0.0118	4.91E-07	4_43313220_T_C	rs143131035	7585	Neurturin levels	7.550868205	0.003325418	25.30078397
GCST90274828	5	21508959	C	G	-0.0879	0.0176	0.6738	5.90E-07	5_21508959_C_G	rs7712604	8587	Neurturin levels	1.630922782	0.002897024	24.9432141
GCST90274828	5	171026588	T	C	-0.074	0.0159	0.2493	3.25E-06	5_171026588_T_C	rs29630	11343	Neurturin levels	1.693405985	0.001906291	21.66053558

GCST90274828	8	43185781	T	G	0.3743	0.0786	0.0252	1.92E-06	8_43185781_T_G	rs192427410	8783	Neurturin levels	7.366208162	0.002575909	22.67746797
GCST90274828	11	4475910	T	C	0.1667	0.034	0.958	9.44E-07	11_4475910_T_C	rs77216559	11791	Neurturin levels	3.691936619	0.002034941	24.03883218
GCST90274828	11	10358788	A	G	0.1565	0.031	0.0646	4.46E-07	11_10358788_A_G	rs182274799	9461	Neurturin levels	3.015297829	0.002687147	25.48621228
GCST90274828	11	95201232	A	G	0.087	0.0178	0.5434	1.02E-06	11_95201232_A_G	rs4753678	7942	Neurturin levels	1.58629861	0.002999669	23.88902916
GCST90274828	15	24046105	T	C	0.1332	0.0286	0.9133	3.20E-06	15_24046105_T_C	rs8033310	11343	Neurturin levels	3.046000703	0.001908953	21.69084063
GCST90274828	16	21786236	T	C	-0.1778	0.037	0.9507	1.54E-06	16_21786236_T_C	rs28759830	9461	Neurturin levels	3.598903861	0.002435319	23.09192111
GCST90274828	16	26080883	A	T	0.0746	0.0157	0.6725	2.02E-06	16_26080883_A_T	rs7202385	9460	Neurturin levels	1.527021742	0.002381461	22.57762992
GCST90274828	19	14691684	A	C	-0.1731	0.0366	0.0363	2.25E-06	19_14691684_A_C	rs10412462	11790	Neurturin levels	3.974092651	0.00189395	22.36824778
GCST90274828	20	55469957	A	G	-0.2288	0.0495	0.0208	3.80E-06	20_55469957_A_G	rs113580784	11768	Neurturin levels	5.369780442	0.001812529	21.36493827

Supplementary Table 2. Characteristics of significant SNPs with genome-wide associations (P<5×10^{-8}) for prostate cancer on 91 cytokines.

SNP	effect_allele.exposure	other_allele.exposure	beta.exposure	se.exposure	pval.exposure	samplesize.exposure	exposure	eaf.exposure	id.exposure
rs4951402	T	C	0.00519307	0.000768856	1.40E-11	182625	Prostate cancer || id:ieu-b-4809	0.672599	ieu-b-4809
rs10207640	G	A	-0.0119442	0.0015033	1.90E-15	182625	Prostate cancer || id:ieu-b-4809	0.061349	ieu-b-4809
rs1038822	C	T	-0.00484116	0.000792052	9.80E-10	182625	Prostate cancer || id:ieu-b-4809	0.70132	ieu-b-4809
rs7568458	A	T	-0.00450081	0.000724983	5.40E-10	182625	Prostate cancer || id:ieu-b-4809	0.454631	ieu-b-4809
rs58235267	G	C	0.00596389	0.000726651	2.30E-16	182625	Prostate cancer || id:ieu-b-4809	0.487635	ieu-b-4809
rs61436251	G	C	-0.00749701	0.000903504	1.10E-16	182625	Prostate cancer || id:ieu-b-4809	0.19944	ieu-b-4809
rs2271494	T	A	-0.00457686	0.000731517	3.90E-10	182625	Prostate cancer || id:ieu-b-4809	0.417574	ieu-b-4809
rs2220407	A	G	-0.0046004	0.000724712	2.20E-10	182625	Prostate cancer || id:ieu-b-4809	0.543406	ieu-b-4809
rs10007915	G	C	-0.0063275	0.00074475	2.00E-17	182625	Prostate cancer || id:ieu-b-4809	0.376207	ieu-b-4809
rs6853490	G	A	0.00498199	0.000734565	1.20E-11	182625	Prostate cancer || id:ieu-b-4809	0.423307	ieu-b-4809
rs2242652	A	G	-0.00772678	0.000919211	4.20E-17	182625	Prostate cancer || id:ieu-b-4809	0.19474	ieu-b-4809
rs28363089	A	G	0.0134149	0.00242736	3.30E-08	182625	Prostate cancer || id:ieu-b-4809	0.022533	ieu-b-4809
rs35351739	C	T	0.00682289	0.00112367	1.30E-09	182625	Prostate cancer || id:ieu-b-4809	0.139236	ieu-b-4809
rs6917270	G	A	0.00526158	0.00080047	4.90E-11	182625	Prostate cancer || id:ieu-b-4809	0.279443	ieu-b-4809

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rs339351	A	C	-0.00477624	0.000781937	1.00E-09	182625	Prostate cancer || id:ieu-b-4809	0.303856	ieu-b-4809
rs11768309	A	C	-0.00496741	0.000721142	5.60E-12	182625	Prostate cancer || id:ieu-b-4809	0.535026	ieu-b-4809
rs10486567	A	G	0.00614301	-0.000850299	5.00E-13	182625	Prostate cancer || id:ieu-b-4809	0.233265	ieu-b-4809
rs7335162 9	G	C	0.00702834	-0.000767569	5.40E-20	182625	Prostate cancer || id:ieu-b-4809	0.327496	ieu-b-4809
rs6983267	T	G	-0.0108676	0.00071974	1.60E-51	182625	Prostate cancer || id:ieu-b-4809	0.481358	ieu-b-4809
rs13265330	T	C	-0.00608579	0.00073051	8.00E-17	182625	Prostate cancer || id:ieu-b-4809	0.57938	ieu-b-4809
rs77541621	A	G	0.0352943	0.00224674	1.30E-55	182625	Prostate cancer || id:ieu-b-4809	0.028712	ieu-b-4809
rs4582524	C	G	-0.0167993	0.00120349	2.80E-44	182625	Prostate cancer || id:ieu-b-4809	0.900514	ieu-b-4809
rs10993994	C	T	-0.00986238	0.000735885	5.90E-41	182625	Prostate cancer || id:ieu-b-4809	0.606513	ieu-b-4809
rs4962418	A	G	0.0041057	0.000742972	3.30E-08	182625	Prostate cancer || id:ieu-b-4809	0.378918	ieu-b-4809
rs10786774	C	G	-0.00681446	0.0012348	3.40E-08	182625	Prostate cancer || id:ieu-b-4809	0.905691	ieu-b-4809
rs12275055	G	A	0.0113688	0.000955873	1.30E-32	182625	Prostate cancer || id:ieu-b-4809	0.171611	ieu-b-4809
rs10840606	G	A	0.00999402	0.000955466	1.30E-25	182625	Prostate cancer || id:ieu-b-4809	0.177994	ieu-b-4809
rs17120257	C	T	0.00830009	0.00114355	3.90E-13	182625	Prostate cancer || id:ieu-b-4809	0.113617	ieu-b-4809
rs1570876	T	G	0.00572248	0.000926076	6.40E-10	182625	Prostate cancer || id:ieu-b-4809	0.814367	ieu-b-4809

rs1859963 63	C	T	-0.00672206	0.000722 979	1.40E-20	182625	Prostate cancer || id:ieu-b-4809	0.539616	ieu-b-4809
rs684232 2	C	T	0.00524647	0.000752 462	3.10E-12	182625	Prostate cancer || id:ieu-b-4809	0.355817	ieu-b-4809
rs11263 763	A	G	0.00941585	0.000727 321	2.50E-38	182625	Prostate cancer || id:ieu-b-4809	0.522599	ieu-b-4809
rs17632 542	C	T	-0.016446	0.001382 44	1.20E-32	182625	Prostate cancer || id:ieu-b-4809	0.073166	ieu-b-4809
rs12976 534	G	A	-0.00496061	0.000721 424	6.10E-12	182625	Prostate cancer || id:ieu-b-4809	0.514702	ieu-b-4809
rs34835 912	A	G	-0.0153024	0.002386 07	1.40E-10	182625	Prostate cancer || id:ieu-b-4809	0.023433	ieu-b-4809
rs81346 57	A	G	-0.00761374	0.001228 83	5.80E-10	182625	Prostate cancer || id:ieu-b-4809	0.094806	ieu-b-4809

Supplementary Table 3. Comparing causal effects of 91 cytokines traits on prostate cancer ($P<5\times10^{-6}$) estimated by different two-sample MR methods.

id.exposure+A2:I11	id.outcome	outcome	exposure	method	nsnp	b	se	pval	lo_ci	up_ci	or	or_lci95	or_uci95
GCST90274758	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Eukaryotic translation initiation factor 4E-binding protein 1 levels	Weighted median	11	0.00569826 4	0.00434383 83	0.18953986	-0.00281476 66	0.01421295	1.00571453	0.99718991 92	1.01431327 55
GCST90274758	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Eukaryotic translation initiation factor 4E-binding protein 1 levels	MR Egger	11	0.02495951 5	0.01831073	0.20597313 69	-0.01092951 5	0.06084854 5	1.02527361 2	0.98912999 95	1.06273794 5
GCST90274758	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Eukaryotic translation initiation factor 4E-binding protein 1 levels	Inverse variance weighted	11	-0.00669262 7	0.00808654 7	0.40788299 1	-0.02254225 8	0.00915700 4	0.99332971 9	0.97770992	1.00919905 8
GCST90274759	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Adenosine Deaminase levels	Inverse variance weighted	15	-0.00124010 9	0.00166142 5	0.45541800 6	-0.00449650 2	0.00201628 4	0.99876066	0.99551359 2	1.00201831 8
GCST90274759	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Adenosine Deaminase levels	Weighted median	15	-0.00060693 8	0.00144224 3	0.67387979 9	-0.00343373 3	0.00221985 8	0.99939324 6	0.99657215 5	1.00222232 3
GCST90274759	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Adenosine Deaminase levels	MR Egger	15	-0.00070800 2	0.00216705 4	0.74908623 3	-0.00495542 8	0.00353942 3	0.99929224 8	0.99505683	1.00354569 4
GCST90274760	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Artemin levels	MR Egger	20	-0.00428053 4	0.00602242 6	0.48633794 5	-0.01608448 9	0.00752342 1	0.99572861 5	0.98404417 6	1.00755179 3

					nsnp	b	se	pval			or	lo_ci	up_ci
GCST90274760	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Artemin levels	Inverse variance weighted	20	-0.001573093	0.002493237	0.528077036	-0.006459838	0.003313651	0.998428143	0.993560982	1.003319147
GCST90274760	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Artemin levels	Weighted median	20	0.000685282	0.003540346	0.846517513	-0.006253795	0.00762436	1.000685517	0.99376572	1.007653499
GCST90274761	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Axin-1 levels	Inverse variance weighted	8	-0.005426817	0.003862972	0.160071982	-0.012998242	0.002144608	0.994587882	0.98708587	1.002146909
GCST90274761	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Axin-1 levels	Weighted median	8	-0.006365611	0.005052294	0.207689354	-0.016268107	0.003536886	0.993654607	0.983863504	1.003543148
GCST90274761	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Axin-1 levels	MR Egger	8	-0.003696317	0.008709045	0.686054631	-0.020766045	0.013373412	0.996310506	0.979448084	1.013463236
GCST90274762	ieu-b-4809	Prostate cancer || id:ieu-b-4809	beta-nerve growth factor levels	Inverse variance weighted	21	0.004187839	0.002733696	0.125539052	-0.001170206	0.009545884	1.00419662	0.998830478	1.009591591
GCST90274762	ieu-b-4809	Prostate cancer || id:ieu-b-4809	beta-nerve growth factor levels	Weighted median	21	0.003188555	0.003838515	0.406157701	-0.004334934	0.010712044	1.003193644	0.995674449	1.010769623
GCST90274762	ieu-b-4809	Prostate cancer || id:ieu-b-4809	beta-nerve growth factor levels	MR Egger	21	0.003182936	0.006309266	0.619720459	-0.009183226	0.015549098	1.003188007	0.990858811	1.015670614
GCST90274763	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Caspase 8 levels	Inverse variance weighted	12	-0.002979251	0.002903654	0.304874958	-0.008670413	0.00271191	0.997025182	0.991367067	1.002715591

GCST90274763	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Caspase 8 levels	Weighted median	12	-0.00223158 7	0.00415192 7	0.59093462 3	-0.01036936 4	0.00590619 1	0.99777090 1	0.98968421 3	1.00592366 7
GCST90274763	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Caspase 8 levels	MR Egger	12	-0.00229433 6	0.00601688 4	0.71094506 5	-0.01408742 9	0.00949875 7	0.99770829 4	0.98601133 4	1.00954401 4
GCST90274764	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Eotaxin levels	Weighted median	18	0.00109651 7	0.00337921 8	0.74556839 6	-0.00552675 1	0.00771978 5	1.00109711 8	0.99448849 3	1.00774965 9
GCST90274764	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Eotaxin levels	Inverse variance weighted	18	-0.00022202 6	0.00331773 3	0.94664471 2	-0.00672478 2	0.00628073 1	0.99977799 9	0.99329777 9	1.00630049 6
GCST90274764	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Eotaxin levels	MR Egger	18	-0.00018350 8	0.00680694 8	0.97882586 7	-0.01352512 7	0.01315811 1	0.99981650 9	0.98656592 6	1.01324506
GCST90274765	ieu-b-4809	Prostate cancer || id:ieu-b-4809	C-C motif chemokine 19 levels	MR Egger	21	-0.00173825 1	0.00400028 5	0.66879716 2	-0.00957880 9	0.00610230 7	0.99826325 9	0.99046692 1	1.00612096 4
GCST90274765	ieu-b-4809	Prostate cancer || id:ieu-b-4809	C-C motif chemokine 19 levels	Weighted median	21	0.00085186 5	0.00298431 1	0.77530110 3	-0.00499738 4	0.00670111 4	1.00085222 8	0.99501508 2	1.00672361 7
GCST90274765	ieu-b-4809	Prostate cancer || id:ieu-b-4809	C-C motif chemokine 19 levels	Inverse variance weighted	21	0.0003284	0.00227456 8	0.88520118 4	-0.00412975 4	0.00478655 4	1.00032845 4	0.99587876 2	1.00479802 7
GCST90274766	ieu-b-4809	Prostate cancer || id:ieu-b-4809	C-C motif chemokine 20 levels	Inverse variance weighted	21	0.00662911 8	0.00316244 9	0.03606464 4	0.00043071 9	0.01282751 7	1.00665113 9	1.00043081 1	1.01291014 3

GCST90274766	ieu-b-4809	Prostate cancer || id:ieu-b-4809	C-C motif chemokine 20 levels	Weighted median	21	0.003637359	0.003487702	0.296989974	-0.003198536	0.010473254	1.003643982	0.996806574	1.01052829
GCST90274766	ieu-b-4809	Prostate cancer || id:ieu-b-4809	C-C motif chemokine 20 levels	MR Egger	21	-0.000398746	0.007208862	0.956466378	-0.014528116	0.013730624	0.999601334	0.985576908	1.013825322
GCST90274767	ieu-b-4809	Prostate cancer || id:ieu-b-4809	C-C motif chemokine 23 levels	Inverse variance weighted	25	0.003758347	0.001597747	0.018658742	0.000626763	0.006889931	1.003765419	1.00062696	1.006913721
GCST90274767	ieu-b-4809	Prostate cancer || id:ieu-b-4809	C-C motif chemokine 23 levels	Weighted median	25	0.004056452	0.00203879	0.046630959	6.04E-05	0.00805248	1.00406469	1.000060425	1.008084989
GCST90274767	ieu-b-4809	Prostate cancer || id:ieu-b-4809	C-C motif chemokine 23 levels	MR Egger	25	0.0044819	0.002271888	0.060659989	2.90E-05	0.0089348	1.004491959	1.000029001	1.008974835
GCST90274768	ieu-b-4809	Prostate cancer || id:ieu-b-4809	C-C motif chemokine 25 levels	Inverse variance weighted	30	-0.000873177	0.001030874	0.396980694	-0.002893691	0.001147337	0.999127204	0.997110491	1.001147995
GCST90274768	ieu-b-4809	Prostate cancer || id:ieu-b-4809	C-C motif chemokine 25 levels	MR Egger	30	-0.000753679	0.001329811	0.575394953	-0.003360109	0.00185275	0.999246605	0.99664553	1.001854467
GCST90274768	ieu-b-4809	Prostate cancer || id:ieu-b-4809	C-C motif chemokine 25 levels	Weighted median	30	-0.000504226	0.001212501	0.67751555	-0.002880728	0.001872277	0.999495902	0.997123417	1.00187403
GCST90274769	ieu-b-4809	Prostate cancer || id:ieu-b-4809	C-C motif chemokine 28 levels	MR Egger	20	0.005706076	0.005687344	0.329016861	-0.005441119	0.016853271	1.005722387	0.994573657	1.016996089
GCST90274769	ieu-b-4809	Prostate cancer || id:ieu-b-4809	C-C motif chemokine 28 levels	Inverse variance weighted	20	0.00203374	0.00284044	0.473994589	-0.003533522	0.007601002	1.00203581	0.996472713	1.007629963

GCST90274769	ieu-b-4809	Prostate cancer || id:ieu-b-4809	C-C motif chemokine 28 levels	Weighted median	20	0.00230298 8	0.00388875 6	0.55370514 9	-0.00531897 3	0.00992494 9	1.00230564 2	0.99469514 7	1.00997436 5
GCST90274770	ieu-b-4809	Prostate cancer || id:ieu-b-4809	C-C motif chemokine 4 levels	Weighted median	18	0.00076441 6	0.00173645 7	0.65978057 6	-0.00263903 9	0.00416787 2	1.00076470 9	0.99736444	1.00417656 9
GCST90274770	ieu-b-4809	Prostate cancer || id:ieu-b-4809	C-C motif chemokine 4 levels	MR Egger	18	-0.00090474	0.00217188 1	0.68252784 7	-0.00516162 6	0.00335214 6	0.99909566 9	0.99485167 2	1.00335777 1
GCST90274770	ieu-b-4809	Prostate cancer || id:ieu-b-4809	C-C motif chemokine 4 levels	Inverse variance weighted	18	-0.00011133 9	0.00146280 8	0.93932885 2	-0.00297844 3	0.00275576 5	0.99988866 7	0.99702598 8	1.00275956 5
GCST90274771	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Natural killer cell receptor 2B4 levels	MR Egger	20	0.00693994 7	0.00426192 1	0.12082453 2	-0.00141341 7	0.01529331 2	1.00696408 4	0.99858758 1	1.01541085 3
GCST90274771	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Natural killer cell receptor 2B4 levels	Weighted median	20	0.00420904 8	0.00284261 9	0.13868819 1	-0.00136248 5	0.00978058 2	1.00421791 9	0.99863844 3	1.00982856 8
GCST90274771	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Natural killer cell receptor 2B4 levels	Inverse variance weighted	20	0.00237063 7	0.00203853	0.24486398 6	-0.00162488 1	0.00636615 5	1.00237344 9	0.99837643 8	1.00638646 2
GCST90274772	ieu-b-4809	Prostate cancer || id:ieu-b-4809	CD40L receptor levels	Weighted median	16	0.00208704 6	0.00178784 6	0.24306811 8	-0.00141713 2	0.00559122 5	1.00208922 6	0.99858387 2	1.00560688 5
GCST90274772	ieu-b-4809	Prostate cancer || id:ieu-b-4809	CD40L receptor levels	Inverse variance weighted	16	0.00168167 1	0.00156629 7	0.28297488 5	-0.00138827 1	0.00475161 3	1.00168308 6	0.99861269 2	1.00476292

GCST90274772	ieu-b-4809	Prostate cancer || id:ieu-b-4809	CD40L receptor levels	MR Egger	16	0.001754079	0.002178588	0.434197904	-0.002515954	0.006024112	1.001755618	0.997548708	1.006042293
GCST90274773	ieu-b-4809	Prostate cancer || id:ieu-b-4809	T-cell surface glycoprotein CD5 levels	MR Egger	24	-0.008891892	0.007009728	0.217875807	-0.022630959	0.004847176	0.991147524	0.9776232	1.004858942
GCST90274773	ieu-b-4809	Prostate cancer || id:ieu-b-4809	T-cell surface glycoprotein CD5 levels	Inverse variance weighted	24	0.002584453	0.002757296	0.348596895	-0.002819847	0.007988754	1.002587796	0.997184125	1.008020749
GCST90274773	ieu-b-4809	Prostate cancer || id:ieu-b-4809	T-cell surface glycoprotein CD5 levels	Weighted median	24	0.002095499	0.00317535	0.509300757	-0.004128187	0.008319184	1.002097696	0.995880322	1.008353885
GCST90274774	ieu-b-4809	Prostate cancer || id:ieu-b-4809	T-cell surface glycoprotein CD6 isoform levels	MR Egger	14	-0.001014062	0.001763022	0.575793212	-0.004469586	0.002441461	0.998986452	0.995540388	1.002444444
GCST90274774	ieu-b-4809	Prostate cancer || id:ieu-b-4809	T-cell surface glycoprotein CD6 isoform levels	Weighted median	14	-0.000343501	0.001361327	0.80078722	-0.003011702	0.002324699	0.999656558	0.996992829	1.002323403
GCST90274774	ieu-b-4809	Prostate cancer || id:ieu-b-4809	T-cell surface glycoprotein CD6 isoform levels	Inverse variance weighted	14	1.61E-05	0.001269161	0.98987722	-0.002471454	0.002503658	1.000016102	0.997531598	1.002502567
GCST90274775	ieu-b-4809	Prostate cancer || id:ieu-b-4809	CUB domain-containing protein 1 levels	Weighted median	23	-0.0040596 5	0.002740959	0.138578432	-0.009431931	0.00131263	0.995948579	0.990612411	1.001313492
GCST90274775	ieu-b-4809	Prostate cancer || id:ieu-b-4809	CUB domain-containing protein 1 levels	MR Egger	23	-0.001518979	0.005033538	0.765794349	-0.011384712	0.008346755	0.998482174	0.988679848	1.008381686

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GCST90274775	ieu-b-4809	Prostate cancer || id:ieu-b-4809	CUB domain-containing protein 1 levels	Inverse variance weighted	23	0.000374495	0.002536294	0.88261539	-0.005345631	0.004596641	0.999625575	0.994668631	1.004607221
GCST90274776	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Macrophage colony-stimulating factor 1 levels	Weighted median	18	0.005227564	0.003654088	0.152542833	-0.001934448	0.012389576	1.005241252	0.998067422	1.012466645
GCST90274776	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Macrophage colony-stimulating factor 1 levels	MR Egger	18	0.007187891	0.007212444	0.333794952	-0.006948498	0.021324281	1.007213786	0.993075587	1.021553269
GCST90274776	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Macrophage colony-stimulating factor 1 levels	Inverse variance weighted	18	0.001249969	0.002863178	0.662425418	-0.004361861	0.006861799	1.001250751	0.995647639	1.006885395
GCST90274777	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Cystatin D levels	Inverse variance weighted	32	-0.0012405	0.001105143	0.261658919	-0.003406581	0.000925581	0.998760269	0.996599215	1.000926009
GCST90274777	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Cystatin D levels	MR Egger	32	-0.001485274	0.001508298	0.332629846	-0.004441539	0.00147099	0.998515828	0.99556831	1.001472072
GCST90274777	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Cystatin D levels	Weighted median	32	-0.000951764	0.001303864	0.465416724	-0.003507336	0.001603809	0.999048689	0.996498807	1.001605096
GCST90274778	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Fractalkine levels	Inverse variance weighted	22	-0.007508512	0.003782004	0.047108157	-0.0149212 4	-9.58E-05	0.992519606	0.985189531	0.99990422
GCST90274778	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Fractalkine levels	Weighted median	22	-0.006819087	0.003968752	0.085761204	-0.014597841	0.000959667	0.99320411	0.985508191	1.000960128

GCST	ID	Outcome	Exposure	Method	nsnp								
GCST90274778	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Fractalkine levels	MR Egger	22	0.000196934	0.009763254	0.984106878	-0.018939044	0.019332913	1.000196954	0.981239173	1.019521003
GCST90274779	ieu-b-4809	Prostate cancer || id:ieu-b-4809	C-X-C motif chemokine 1 levels	Weighted median	11	0.005036281	0.002616697	0.054270481	-9.24E-05	0.010165007	1.005048985	0.99990756	1.010216846
GCST90274779	ieu-b-4809	Prostate cancer || id:ieu-b-4809	C-X-C motif chemokine 1 levels	MR Egger	11	0.00819029	0.00528515	0.155628929	-0.002168604	0.018549184	1.008223922	0.997833745	1.018722288
GCST90274779	ieu-b-4809	Prostate cancer || id:ieu-b-4809	C-X-C motif chemokine 1 levels	Inverse variance weighted	11	0.002951525	0.003495394	0.398443732	-0.003899448	0.009802498	1.002955885	0.996108145	1.009850699
GCST90274780	ieu-b-4809	Prostate cancer || id:ieu-b-4809	C-X-C motif chemokine 10 levels	Weighted median	19	0.001945801	0.003087321	0.528527437	-0.004105348	0.007996951	1.001947695	0.995903067	1.008029012
GCST90274780	ieu-b-4809	Prostate cancer || id:ieu-b-4809	C-X-C motif chemokine 10 levels	MR Egger	19	-0.002822005	0.005869885	0.63681607	-0.01432698	0.00868297	0.997181973	0.985775162	1.008720776
GCST90274780	ieu-b-4809	Prostate cancer || id:ieu-b-4809	C-X-C motif chemokine 10 levels	Inverse variance weighted	19	-0.001465663	0.003516936	0.676865506	-0.008358857	0.005427532	0.998535411	0.991675981	1.005442287
GCST90274781	ieu-b-4809	Prostate cancer || id:ieu-b-4809	C-X-C motif chemokine 11 levels	MR Egger	20	0.005575109	0.005788524	0.348243109	-0.005770397	0.016920616	1.005590679	0.99424622	1.01706458
GCST90274781	ieu-b-4809	Prostate cancer || id:ieu-b-4809	C-X-C motif chemokine 11 levels	Weighted median	20	0.002347418	0.003134651	0.453941096	-0.003796499	0.008491334	1.002350175	0.996210698	1.008527488
GCST90274781	ieu-b-4809	Prostate cancer || id:ieu-b-4809	C-X-C motif chemokine 11 levels	Inverse variance weighted	20	0.001523457	0.002469784	0.537341515	-0.003	0.006364234	1.001524618	0.996688176	1.006384529

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GCST90274782	ieu-b-4809	Prostate cancer || id:ieu-b-4809	C-X-C motif chemokine 5 levels	Weighted median	15	-0.00245503	0.00207234	0.23605132	-0.00651722	0.00160621 3	0.99754750 9	0.99350397 1	1.00160750 4
GCST90274782	ieu-b-4809	Prostate cancer || id:ieu-b-4809	C-X-C motif chemokine 5 levels	Inverse variance weighted	15	-0.00167398	0.00207980 4	0.42089247 3	-0.00575039 6	0.00240243 6	0.99832742	0.99426610 6	1.00240532 4
GCST90274782	ieu-b-4809	Prostate cancer || id:ieu-b-4809	C-X-C motif chemokine 5 levels	MR Egger	15	-0.00263791 6	0.00335018 2	0.44517000 2	-0.00920427 4	0.00392844 1	0.99736556	0.99083795 6	1.00393616 7
GCST90274783	ieu-b-4809	Prostate cancer || id:ieu-b-4809	C-X-C motif chemokine 6 levels	MR Egger	11	-0.00191204 7	0.00270413 4	0.49741317 2	-0.00721214 9	0.00338805 6	0.99808978	0.99281379 6	1.00339380 2
GCST90274783	ieu-b-4809	Prostate cancer || id:ieu-b-4809	C-X-C motif chemokine 6 levels	Inverse variance weighted	11	0.00124911 7	0.00203935 1	0.54020230 9	-0.00274801 1	0.00524624 4	1.00124989 7	0.99725576 2	1.00526003
GCST90274783	ieu-b-4809	Prostate cancer || id:ieu-b-4809	C-X-C motif chemokine 6 levels	Weighted median	11	8.53E-05	0.00149296 8	0.95446176 3	-0.00284096 3	0.00301147 4	1.00008525 9	0.99716306 9	1.00301601 3
GCST90274784	ieu-b-4809	Prostate cancer || id:ieu-b-4809	C-X-C motif chemokine 9 levels	Inverse variance weighted	24	-0.00736839 5	0.00343673	0.03203179 7	-0.01410438 6	-0.00063240 5	0.99265868 5	0.98599461 5	0.99936779 5
GCST90274784	ieu-b-4809	Prostate cancer || id:ieu-b-4809	C-X-C motif chemokine 9 levels	Weighted median	24	-0.00082012 8	0.00366644	0.82290534 8	-0.00800235 2	0.00636209 5	0.99918020 8	0.99202958 1	1.00638237 6
GCST90274784	ieu-b-4809	Prostate cancer || id:ieu-b-4809	C-X-C motif chemokine 9 levels	MR Egger	24	0.00090443 4	0.00741462 5	0.90402241 1	-0.013	0.01543714 371	1.00090484 3	0.98646421 2	1.01555686 8

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GCST90 274785	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Delta and Notch-like epidermal growth factor-related receptor levels	MR Egger	1 6	-0.004 4373 01	0.004 9446 52	0.384 6815 2	-0.014 1288 18	0.005 2542 17	0.995 5725 29	0.985 9705 25	1.005 2680 44
GCST90 274785	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Delta and Notch-like epidermal growth factor-related receptor levels	Weighted median	1 6	0.000 7106 99	0.003 2395 22	0.826 3511 17	-0.005 6387 65	0.007 0601 62	1.000 7109 51	0.994 3771 03	1.007 0851 44
GCST90 274785	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Delta and Notch-like epidermal growth factor-related receptor levels	Inverse variance weighted	1 6	0.000 1412 5	0.002 2191 87	0.949 2494 91	-0.004 2083 58	0.004 4908 57	1.000 1412 6	0.995 8004 85	1.004 5009 56
GCST90 274786	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Protein S100-A12 levels	Inverse variance weighted	1 4	0.005 1951 09	0.003 7961 59	0.171 1502 41	-0.002 2453 63	0.012 6355 81	1.005 2086 27	0.997 7571 56	1.012 7157 47
GCST90 274786	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Protein S100-A12 levels	MR Egger	1 4	-0.008 6443 2	0.007 0308 34	0.242 4514 57	-0.022 4247 55	0.005 1361 15	0.991 3929 34	0.977 8248 11	1.005 1493 27
GCST90 274786	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Protein S100-A12 levels	Weighted median	1 4	0.000 8632 48	0.003 7361 35	0.817 2729 86	-0.006 4595 76	0.008 1860 72	1.000 8636 21	0.993 5612 43	1.008 2196 69
GCST90 274787	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Fibroblast growth factor 19 levels	Inverse variance weighted	2 1	0.004 8539 3	0.002 2844 26	0.033 6039 6	0.000 3764 55	0.009 3314 04	1.004 8657 29	1.000 3765 26	1.009 3750 77
GCST90 274787	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Fibroblast growth factor 19 levels	Weighted median	2 1	0.004 1241	0.003 4742 22	0.235 2051 49	-0.002 6853 76	0.010 9335 75	1.004 1326 15	0.997 3182 27	1.010 9935 65
GCST90 274787	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Fibroblast growth factor 19 levels	MR Egger	2 1	-0.000 7613 53	0.005 6848 84	0.894 8695 86	-0.011 9037 25	0.010 3810 19	0.999 2389 37	0.988 1668 44	1.010 4350 89

GCST90274788	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Fibroblast growth factor 21 levels	MR Egger	13	0.009157315	0.006220678	0.169024777	-0.003035214	0.021349844	1.009199371	0.996969387	1.021579382
GCST90274788	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Fibroblast growth factor 21 levels	Weighted median	13	-0.001429903	0.003857887	0.710902558	-0.008991361	0.006131555	0.998571118	0.99104894	1.006150391
GCST90274788	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Fibroblast growth factor 21 levels	Inverse variance weighted	13	0.000918817	0.002875079	0.74928693	-0.004716339	0.006553973	1.000919239	0.995294766	1.006575497
GCST90274789	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Fibroblast growth factor 23 levels	Inverse variance weighted	14	0.006038931	0.002967525	0.041850255	0.000222583	0.01185528	1.006057202	1.000222607	1.011925832
GCST90274789	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Fibroblast growth factor 23 levels	MR Egger	14	0.018448142	0.008601381	0.053135247	0.001589434	0.035306849	1.01861936	1.001590698	1.035937536
GCST90274789	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Fibroblast growth factor 23 levels	Weighted median	14	0.005460253	0.003915473	0.163156915	-0.002214073	0.013134579	1.005475187	0.997788376	1.013221217
GCST90274790	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Fibroblast growth factor 5 levels	MR Egger	24	-0.001064518	0.001762537	0.552042032	-0.00451909	0.002390055	0.998936049	0.995491105	1.002392914
GCST90274790	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Fibroblast growth factor 5 levels	Weighted median	24	-0.000630449	0.001441704	0.661898118	-0.003456189	0.002195292	0.99936975	0.996549776	1.002197703
GCST90274790	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Fibroblast growth factor 5 levels	Inverse variance weighted	24	-0.000170303	0.001255667	0.892115873	-0.002631411	0.002290805	0.999829712	0.997372048	1.002293431
GCST90274791	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Fms-related tyrosine kinase 3 ligand levels	Weighted median	29	-0.008	0.002634524	0.001859965	-0.013	-0.003	0.991835592	0.986727283	0.996970346

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GCST90274791	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Fms-related tyrosine kinase 3 ligand levels	MR Egger	29	-0.00200288	0.00548862	0.71800993	-0.012760265	0.008754505	0.997999124	0.987320802	1.008792938
GCST90274791	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Fms-related tyrosine kinase 3 ligand levels	Inverse variance weighted	29	-9.95E-05	0.003234512	0.975465881	-0.006439118	0.00624017	0.999900531	0.993581569	1.006259681
GCST90274792	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Glial cell line-derived neurotrophic factor levels	MR Egger	16	0.006223722	0.003577606	0.103850666	-0.000788387	0.01323583	1.006243129	0.999211924	1.013323812
GCST90274792	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Glial cell line-derived neurotrophic factor levels	Weighted median	16	0.004535975	0.002877263	0.114913077	-0.001103461	0.010175411	1.004546278	0.998897147	1.010227357
GCST90274792	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Glial cell line-derived neurotrophic factor levels	Inverse variance weighted	16	0.001776788	0.002087254	0.394627103	-0.002314231	0.005867807	1.001778367	0.997688445	1.005885056
GCST90274793	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Hepatocyte growth factor levels	Inverse variance weighted	18	0.003181543	0.003229862	0.324604522	-0.003148987	0.009512072	1.003186609	0.996855966	1.009557455
GCST90274793	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Hepatocyte growth factor levels	Weighted median	18	0.001521621	0.00415803	0.714404253	-0.006628118	0.00967136	1.001522779	0.993393799	1.009718279
GCST90274793	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Hepatocyte growth factor levels	MR Egger	18	0.001512331	0.007558324	0.84393271	-0.013301985	0.016326646	1.001513475	0.986786096	1.016460654
GCST90274794	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Interferon gamma levels	Inverse variance weighted	10	0.004226404	0.003255792	0.1942465	-0.002154947	0.010607756	1.004235348	0.997847373	1.010664217

GCST90274794	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Interferon gamma levels	Weighted median	10	0.002984681	0.004594275	0.515916954	-0.006020099	0.011989846	1.002989139	0.993997986	1.012061621
GCST90274794	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Interferon gamma levels	MR Egger	10	0.003648148	0.005564303	0.530458254	-0.007257885	0.014554181	1.003654811	0.992768390	1.014660609
GCST90274795	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Interleukin-10 levels	Weighted median	20	-0.002457202	0.003515068	0.484521919	-0.009346735	0.004432331	0.997545815	0.990696810	1.004442169
GCST90274795	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Interleukin-10 levels	MR Egger	20	0.001089235	0.005967041	0.857197678	-0.010606165	0.012784634	1.001089828	0.989449882	1.012866707
GCST90274795	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Interleukin-10 levels	Inverse variance weighted	20	-0.000300896	0.002621848	0.908631426	-0.005439718	0.004837926	0.999699149	0.994575050	1.004849647
GCST90274796	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Interleukin-10 receptor subunit alpha levels	MR Egger	10	-0.009350270	0.008825432	0.320323371	-0.026648116	0.007947577	0.990693308	0.973703812	1.007979243
GCST90274796	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Interleukin-10 receptor subunit alpha levels	Inverse variance weighted	10	-0.003586880	0.004617475	0.437273522	-0.012637131	0.005463371	0.996419545	0.987442382	1.005478322
GCST90274796	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Interleukin-10 receptor subunit alpha levels	Weighted median	10	-8.73E-06	0.005208824	0.998662280	-0.010218028	0.010200562	0.999991267	0.989833999	1.010252765
GCST90274797	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Interleukin-10 receptor subunit beta levels	Weighted median	17	0.004086497	0.001732635	0.018346766	0.000690532	0.007482463	1.004094859	1.000690771	1.007510526

GCST	source	outcome	exposure	method	nsnp								
GCST90274797	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Interleukin-10 receptor subunit beta levels	MR Egger	17	0.00624477 67	0.00256743	0.02798205	0.00121368	0.01127636 66	1.00626430 6	1.00121390 4	1.01134018 4
GCST90274797	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Interleukin-10 receptor subunit beta levels	Inverse variance weighted	17	0.00310227 3	0.00188172 7	0.09922318 7	-0.00058591 1	0.00679045 7	1.00310709	0.99941426 1	1.00681356 5
GCST90274798	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Interleukin-12 subunit beta levels	Inverse variance weighted	28	-0.00168287 7	0.00157226 8	0.28446173	-0.00476452 1	0.00139876 8	0.99831853 8	0.99524681 1	1.00139974 6
GCST90274798	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Interleukin-12 subunit beta levels	MR Egger	28	0.00125099 6	0.00236235	0.60091298	-0.00337921	0.00588120 3	1.00125177 9	0.99662649 3	1.00589853 1
GCST90274798	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Interleukin-12 subunit beta levels	Weighted median	28	-0.00039307 6	0.00145561 1	0.78712785 8	-0.00324607 4	0.00245992 1	0.99960700 1	0.99675918 9	1.00246295
GCST90274799	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Interleukin-13 levels	Inverse variance weighted	12	0.00487362 5	0.00316546 8	0.12365244	-0.00133069 2	0.01107794 1	1.00488552	0.99867019 3	1.01113952 9
GCST90274799	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Interleukin-13 levels	MR Egger	12	0.01012068 6	0.00824192 6	0.24758365	-0.00603349	0.02627486 2	1.01017207 4	0.99398467 5	1.02662308 9
GCST90274799	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Interleukin-13 levels	Weighted median	12	0.00294146 7	0.00406098 1	0.46886677 1	-0.00501805 6	0.01090099	1.00294579 7	0.99499451 3	1.01096062 2
GCST90274800	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Interleukin-15 receptor subunit alpha levels	Weighted median	14	-0.00276682 7	0.00176582 4	0.11714371 7	-0.00622784 2	0.00069418 8	0.99723697	0.99379151	1.00069442 9
GCST90274800	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Interleukin-15 receptor subunit alpha levels	Inverse variance weighted	14	-0.001	0.00196324 1	0.42647269 9	-0.005	0.0022867	0.99843996 7	0.9946054	1.00228931 7

id.exposure	id.outcome	outcome	exposure	method	nsnp	b	se	pval	lo_ci	up_ci	or	or_lci95	or_uci95
						5612 52			4092 03				
GCST90274800	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Interleukin-15 receptor subunit alpha levels	MR Egger	14	-0.00150 3787	0.003 4803 64	0.673 3472 59	-0.008 3253	0.005 3177 27	0.998 4973 43	0.991 7092 59	1.005 3318 91
GCST90274801	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Interleukin-17A levels	Weighted median	15	0.002 1900 07	0.004 4684 79	0.624 0622 94	-0.006 5682 12	0.010 9482 25	1.002 1924 07	0.993 4533 12	1.011 0083 76
GCST90274801	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Interleukin-17A levels	Inverse variance weighted	15	0.001 8525 5	0.004 0344 79	0.646 1053 25	-0.006 0550 29	0.009 7601 28	1.001 8542 67	0.993 9632 66	1.009 8079 14
GCST90274801	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Interleukin-17A levels	MR Egger	15	0.002 1548 68	0.010 9709 97	0.847 3226 11	-0.019 3482 85	0.023 6580 21	1.002 1571 91	0.980 8376 91	1.023 9400 92
GCST90274802	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Interleukin-17C levels	MR Egger	19	0.014 4976 79	0.006 3617 93	0.035 8665 27	0.002 0285 64	0.026 9667 94	1.014 6032 8	1.002 0306 22	1.027 3336 89
GCST90274802	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Interleukin-17C levels	Inverse variance weighted	19	0.001 3511 15	0.002 7125 02	0.618 4089 24	-0.003 9653 89	0.006 6676 19	1.001 3520 28	0.996 0424 63	1.006 6898 97
GCST90274802	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Interleukin-17C levels	Weighted median	19	0.001 2415 5	0.003 4454 2	0.718 5869 6	-0.005 5114 74	0.007 9945 74	1.001 2423 21	0.994 5036 87	1.008 0266 15
GCST90274803	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Interleukin-18 levels	Inverse variance weighted	21	0.001 5160 96	0.001 9981 27	0.447 9970 26	-0.002 4002 33	0.005 4324 25	1.001 5172 46	0.997 6026 45	1.005 4472 07
GCST90274803	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Interleukin-18 levels	Weighted median	21	0.001 2608 14	0.002 7290 17	0.644 0792 07	-0.004 0880 59	0.006 6096 87	1.001 2616 09	0.995 9202 85	1.006 6315 79

GCST90274803	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Interleukin-18 levels	MR Egger	21	0.000526717	0.004194948	0.901399362	-0.007695381	0.008748816	1.000526856	0.992334152	1.008787199
GCST90274804	ieu-b-4809	Prostate cancer || id:ieu-b-4809	interleukin-18 receptor 1 levels	Weighted median	24	0.000764275	0.001423374	0.591304751	-0.002025537	0.003554088	1.000764567	0.997976513	1.003560411
GCST90274804	ieu-b-4809	Prostate cancer || id:ieu-b-4809	interleukin-18 receptor 1 levels	MR Egger	24	0.000621054	0.00223791	0.783975621	-0.003765249	0.005007357	1.000621247	0.996241831	1.005019914
GCST90274804	ieu-b-4809	Prostate cancer || id:ieu-b-4809	interleukin-18 receptor 1 levels	Inverse variance weighted	24	0.000332778	0.001252646	0.790500995	-0.002122409	0.002787965	1.000332834	0.997879842	1.002791855
GCST90274805	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Interleukin-1-alpha levels	Weighted median	14	-0.00664655	0.00320752	0.038248928	-0.01293329	0.00035981	0.993375489	0.987149986	0.999640254
GCST90274805	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Interleukin-1-alpha levels	MR Egger	14	-0.008630392	0.004698537	0.091116246	-0.017839525	0.00057874	0.991406742	0.982318657	1.000578907
GCST90274805	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Interleukin-1-alpha levels	Inverse variance weighted	14	-0.001360103	0.003002654	0.65057245	-0.007245304	0.004525098	0.998640821	0.99278088	1.004535352
GCST90274806	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Interleukin-2 levels	Weighted median	16	0.004765875	0.003799046	0.209663004	-0.002680255	0.012212005	1.00477725	0.997323334	1.012286876
GCST90274806	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Interleukin-2 levels	Inverse variance weighted	16	0.002684973	0.002871682	0.34979727	-0.002943524	0.008313471	1.002688581	0.997060803	1.008348123

				Method	nSNP								
GCST90274806	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Interleukin-2 levels	MR Egger	16	0.00403423	0.00756169	0.60203863	-0.010786249	0.018854709	1.004042379	0.989271714	1.019033582
GCST90274807	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Interleukin-20 levels	MR Egger	12	-0.010528839	0.006641318	0.143969043	-0.023545822	0.002488144	0.989526395	0.976729218	1.002491242
GCST90274807	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Interleukin-20 levels	Inverse variance weighted	12	-0.003899613	0.003468154	0.260840771	-0.010697194	0.002897968	0.99610798	0.989359817	1.002902171
GCST90274807	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Interleukin-20 levels	Weighted median	12	-0.002447246	0.004509952	0.587382944	-0.011286751	0.00639226	0.997555746	0.988776705	1.006412734
GCST90274808	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Interleukin-20 receptor subunit alpha levels	MR Egger	9	0.009055802	0.007034074	0.238877151	-0.004730983	0.022842588	1.00909693	0.99528019	1.023105478
GCST90274808	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Interleukin-20 receptor subunit alpha levels	Weighted median	9	-0.00421803	0.004936769	0.392877259	-0.013894096	0.005458037	0.995790854	0.986201981	1.005472959
GCST90274808	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Interleukin-20 receptor subunit alpha levels	Inverse variance weighted	9	-0.002163588	0.003508053	0.537400375	-0.009039371	0.004712196	0.997838751	0.991001361	1.004723316
GCST90274809	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Interleukin-22 receptor subunit alpha-1 levels	MR Egger	11	-0.009935814	0.008725689	0.28423572	-0.027038165	0.007166537	0.990113383	0.973324094	1.007192278
GCST90274809	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Interleukin-22 receptor subunit alpha-1 levels	Weighted median	11	-0.001923025	0.00521721	0.712431407	-0.012148757	0.008302707	0.998078823	0.987924741	1.00833727

id	exposure	outcome	exposure name	method	nsnp	b	se	pval	lo_ci	up_ci	or	or_lci95	or_uci95
GCST90274809	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Interleukin-22 receptor subunit alpha-1 levels	Inverse variance weighted	11	0.00132938	0.00499403	0.79008989	-0.00845919	0.01111679	1.00133026 4	0.99157 67 57	1.01117 97 1
GCST90274810	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Interleukin-24 levels	MR Egger	10	-0.00586493 7	0.00665016 3	0.40353729	-0.01889925 8	0.00716938 3	0.99415222 8	0.98127821 4	1.00719514 4
GCST90274810	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Interleukin-24 levels	Weighted median	10	-0.00154531 7	0.00444634 5	0.72817982	-0.01026015 4	0.00716951 9	0.99845587 6	0.98979230 2	1.00719528 2
GCST90274810	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Interleukin-24 levels	Inverse variance weighted	10	0.00048817	0.00338378 5	0.88528936 8	-0.00614404 8	0.00712038 7	1.00048828 9	0.99387478 8	1.00714579 8
GCST90274811	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Interleukin-2 receptor subunit beta levels	MR Egger	12	-0.00342481	0.00659891 4	0.61505420 6	-0.01635868 1	0.00950906 1	0.99658104 8	0.98377439 6	1.00955441 5
GCST90274811	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Interleukin-2 receptor subunit beta levels	Weighted median	12	-0.00184061	0.00425383 1	0.66523658 7	-0.01017811 8	0.00649689 8	0.99816108 3	0.98987350 4	1.00651804 9
GCST90274811	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Interleukin-2 receptor subunit beta levels	Inverse variance weighted	12	0.00083980 3	0.00323272 2	0.79503182 2	-0.00549633 1	0.00717593 8	1.00084015 6	0.99451874 6	1.00720174 7
GCST90274812	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Interleukin-33 levels	Inverse variance weighted	10	0.00190607 7	0.00356514	0.59289674 5	-0.00508159 7	0.00889375 2	1.00190789 5	0.99493129 2	1.00893341 9
GCST90274812	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Interleukin-33 levels	MR Egger	10	-0.00356651 6	0.01350397 4	0.79837249 4	-0.03003430 5	0.02290127 4	0.99643983 7	0.97041224 3	1.02316552 1

GCST90274812	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Interleukin-33 levels	Weighted median	10	0.000176331	0.00489679	0.97127242	-0.009420571	0.009773233	1.000176346	0.990623663	1.009821147
GCST90274813	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Interleukin-4 levels	MR Egger	13	0.023286972	0.00990573 5	0.038429082	0.003871732	0.042702213	1.023560231	1.003879237	1.04362707
GCST90274813	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Interleukin-4 levels	Inverse variance weighted	13	0.005420697	0.004057412	0.181549711	-0.00253183	0.013373224	1.005435415	0.997471372	1.013463046
GCST90274813	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Interleukin-4 levels	Weighted median	13	0.004700429	0.004180813	0.260891777	-0.003493964	0.012894821	1.004711493	0.996512132	1.012978318
GCST90274814	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Interleukin-5 levels	MR Egger	10	-0.006294955	0.00855255 2	0.482731499	-0.023057957	0.010468046	0.993724816	0.977205846	1.010523028
GCST90274814	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Interleukin-5 levels	Inverse variance weighted	10	0.001581181	0.003552563	0.656260668	-0.005381843	0.008544205	1.001582432	0.994632614	1.00858081
GCST90274814	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Interleukin-5 levels	Weighted median	10	0.000876045	0.00481711	0.855691642	-0.00856549	0.010317581	1.000876429	0.991471089	1.01037099
GCST90274815	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Interleukin-6 levels	Inverse variance weighted	8	0.007612601	0.003177762	0.016593837	0.001384187	0.013841014	1.00764165	1.001385146	1.013937244
GCST90274815	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Interleukin-6 levels	Weighted median	8	0.007705383	0.004052686	0.057262386	-0.000237882	0.015648647	1.007735145	0.999762146	1.015771728
GCST90274815	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Interleukin-6 levels	MR Egger	8	0.00340548	0.006215992	0.60355776	-0.008	0.015588824	1.003411285	0.991260549	1.015710964

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GCST90274816	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Interleukin-7 levels	Weighted median	14	0.002511877	0.004148582	0.544861162	-0.005619343	0.010643097	1.002515034	0.994396416	1.010699936
GCST90274816	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Interleukin-7 levels	MR Egger	14	0.00350218	0.007816284	0.66209059	-0.011817735	0.018822096	1.00350832	0.98825182	1.019000348
GCST90274816	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Interleukin-7 levels	Inverse variance weighted	14	-0.000687787	0.003006407	0.81904474	-0.006580346	0.005204771	0.999312449	0.993441257	1.00521834
GCST90274817	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Interleukin-8 levels	Inverse variance weighted	17	0.004449562	0.003696343	0.228676886	-0.00279527	0.011694393	1.004459476	0.997208633	1.01176304
GCST90274817	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Interleukin-8 levels	Weighted median	17	0.004056957	0.004045717	0.315967853	-0.003872648	0.011986562	1.004065197	0.996134841	1.012058688
GCST90274817	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Interleukin-8 levels	MR Egger	17	-0.001869431	0.007280558	0.800844657	-0.016139324	0.012400462	0.998132315	0.983990217	1.012477667
GCST90274818	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Latency-associated peptide transforming growth factor beta 1 levels	MR Egger	20	-0.010629654	0.004357032	0.025277603	-0.019169436	-0.002089872	0.989426641	0.98101313	0.99791231
GCST90274818	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Latency-associated peptide transforming growth factor beta 1 levels	Inverse variance weighted	20	-0.005272514	0.002446942	0.031182471	-0.010068519	-0.000476508	0.994741361	0.989981999	0.999523605
GCST90274818	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Latency-associated peptide transforming growth factor beta 1 levels	Weighted median	20	-0.006978019	0.003437474	0.042358106	-0.013715469	-0.00024057	0.99304627	0.98637816	0.999759459

GCST90274819	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Leukemia inhibitory factor levels	MR Egger	11	0.012764472	0.008654079	0.174323916	-0.004197522	0.029726466	1.012846286	0.995811276	1.030172708
GCST90274819	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Leukemia inhibitory factor levels	Weighted median	11	0.003276069	0.004782437	0.493330805	-0.006097507	0.012649645	1.003281441	0.993921045	1.0127299 9
GCST90274819	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Leukemia inhibitory factor levels	Inverse variance weighted	11	-0.001756343	0.004495251	0.696011063	-0.010567035	0.007054349	0.998245199	0.9894886	1.0070792 9
GCST90274820	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Leukemia inhibitory factor receptor levels	MR Egger	18	-0.008993508	0.003860729	0.033256906	-0.016560538	-0.001426479	0.991046812	0.983575834	0.998574538
GCST90274820	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Leukemia inhibitory factor receptor levels	Weighted median	18	-0.002620268	0.002925245	0.370389995	-0.008353747	0.003113212	0.997383162	0.991681048	1.003118063
GCST90274820	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Leukemia inhibitory factor receptor levels	Inverse variance weighted	18	0.000821078	0.002613684	0.753410353	-0.004301743	0.005943898	1.000821415	0.995707497	1.005961598
GCST90274821	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Monocyte chemoattractant protein-1 levels	MR Egger	23	0.005338842	0.003880508	0.183377886	-0.002266953	0.012944637	1.005353119	0.997735615	1.013028782
GCST90274821	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Monocyte chemoattractant protein-1 levels	Inverse variance weighted	23	0.001586763	0.002046207	0.438064742	-0.002423803	0.005597328	1.001588022	0.997579132	1.005613023
GCST90274821	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Monocyte chemoattractant protein-1 levels	Weighted median	23	-0.000419681	0.003324906	0.899555024	-0.006936496	0.006097134	0.999580407	0.993087505	1.006115759

GCST90274822	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Monocyte chemoattractant protein 2 levels	Weighted median	23	0.001626738	0.001030232	0.1143335674	-0.000392517	0.003645994	1.001628062	0.99960756	1.003652648
GCST90274822	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Monocyte chemoattractant protein 2 levels	MR Egger	23	0.002026743	0.00141293	0.166175578	-0.000742599	0.004796085	1.002028799	0.999257677	1.004807605
GCST90274822	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Monocyte chemoattractant protein 2 levels	Inverse variance weighted	23	0.001008327	0.001184322	0.39454945	-0.001312944	0.003329597	1.001008835	0.998687918	1.003335147
GCST90274823	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Monocyte chemoattractant protein-3 levels	Weighted median	19	-0.004959625	0.00346082	0.151835549	-0.011742833	0.001823582	0.995052653	0.988325845	1.001825246
GCST90274823	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Monocyte chemoattractant protein-3 levels	Inverse variance weighted	19	-0.004427835	0.003640438	0.223873775	-0.011563092	0.002707423	0.995581954	0.988503503	1.002711092
GCST90274823	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Monocyte chemoattractant protein-3 levels	MR Egger	19	-0.003968745	0.008505533	0.646704669	-0.020639589	0.0127021	0.99603912	0.979571949	1.012783114
GCST90274824	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Monocyte chemoattractant protein-4 levels	Weighted median	20	-0.003092784	0.002800992	0.269517488	-0.008582729	0.002397161	0.996911994	0.991453997	1.002400036
GCST90274824	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Monocyte chemoattractant protein-4 levels	Inverse variance weighted	20	-0.00044344	0.001880816	0.813611049	-0.004129839	0.003242958	0.999556658	0.995878677	1.003248223
GCST90274824	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Monocyte chemoattractant protein-4 levels	MR Egger	20	9.71E-05	0.00399059	0.980860546	-0.007724483	0.00791863	1.000097078	0.992305274	1.007950065

				Method	nsnp	b	se	pval	lo_ci	up_ci	or	or_lci95	or_uci95
GCST90274825	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Macrophage inflammatory protein 1a levels	MR Egger	14	0.001345163	0.003162636	0.678124197	-0.004853604	0.00754393	1.001346068	0.995158156	1.007572457
GCST90274825	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Macrophage inflammatory protein 1a levels	Weighted median	14	0.000768863	0.001989084	0.699095873	-0.003129742	0.004667468	1.000769159	0.996875151	1.004678377
GCST90274825	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Macrophage inflammatory protein 1a levels	Inverse variance weighted	14	0.000385497	0.001974014	0.845169212	-0.003483571	0.004254565	1.000385571	0.99652249	1.004263628
GCST90274826	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Matrix metalloproteinase-1 levels	Weighted median	16	0.002611982	0.00354963	0.461824284	-0.004345293	0.009569256	1.002615396	0.995664134	1.009615188
GCST90274826	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Matrix metalloproteinase-1 levels	MR Egger	16	0.003145335	0.005589785	0.582542825	-0.007810643	0.014101313	1.003150287	0.992219781	1.014201205
GCST90274826	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Matrix metalloproteinase-1 levels	Inverse variance weighted	16	0.000636423	0.002887653	0.825563947	-0.005023377	0.006296222	1.000636625	0.99498922	1.006316085
GCST90274827	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Matrix metalloproteinase-10 levels	MR Egger	17	-0.001070142	0.003094013	0.734240003	-0.007134408	0.004994125	0.998930431	0.992890982	1.005006616
GCST90274827	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Matrix metalloproteinase-10 levels	Weighted median	17	0.000145253	0.001954569	0.940760011	-0.003685701	0.003976208	1.000145264	0.996321083	1.003984123
GCST90274827	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Matrix metalloproteinase-10 levels	Inverse variance weighted	17	0.000153283	0.002243012	0.945516641	-0.004243021	0.004549586	1.000153295	0.995765968	1.004559952

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GCST90274828	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Neurturin levels	Inverse variance weighted	14	-0.008196248	0.002847983	0.004003148	-0.013778294	-0.002614202	0.991837249	0.986316192	0.997389212
GCST90274828	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Neurturin levels	Weighted median	14	-0.007839456	0.003947418	0.04703621	-0.015576396	-0.000102516	0.992191193	0.984544289	0.99989749
GCST90274828	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Neurturin levels	MR Egger	14	-0.002630799	0.005703108	0.652838332	-0.01380889	0.008547291	0.997372658	0.986286015	1.008583924
GCST90274829	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Neurotrophin-3 levels	Inverse variance weighted	17	0.004479601	0.003604031	0.21388932	-0.0025843	0.011543502	1.004489649	0.997419036	1.011610385
GCST90274829	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Neurotrophin-3 levels	Weighted median	17	0.004416923	0.00425656	0.299421714	-0.003925934	0.01275978	1.004426692	0.996081762	1.012841533
GCST90274829	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Neurotrophin-3 levels	MR Egger	17	-0.00036541	0.008651507	0.966867193	-0.017322364	0.016591544	0.999634657	0.982826805	1.016729948
GCST90274830	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Osteoprotegerin levels	Inverse variance weighted	20	-0.001849866	0.00216521	0.39290636	-0.006093678	0.002393946	0.998151844	0.993924851	1.002396814
GCST90274830	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Osteoprotegerin levels	Weighted median	20	-0.002085154	0.003038466	0.492553959	-0.008040547	0.003870238	0.997917018	0.991991691	1.003877738
GCST90274830	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Osteoprotegerin levels	MR Egger	20	-0.002478559	0.004549195	0.592554183	-0.011394981	0.006437863	0.99752451	0.988669696	1.00645863
GCST90274831	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Oncostatin-M levels	Inverse variance weighted	15	-0.001	0.002800716	0.521916556	-0.007	0.003695842	0.998208046	0.992743492	1.00370268

						793561			282965				
GCST90274831	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Oncostatin-M levels	Weighted median	15	-0.000802192	0.003951279	0.839118747	-0.008546698	0.006942314	0.99919813	0.991489721	1.006966468
GCST90274831	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Oncostatin-M levels	MR Egger	15	0.000647709	0.007795736	0.935049616	-0.014631933	0.015927352	1.000647919	0.985474594	1.016054868
GCST90274832	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Programmed cell death 1 ligand 1 levels	Inverse variance weighted	18	-0.000812679	0.003000225	0.786488947	-0.00669312	0.005067762	0.999187651	0.993329229	1.005080625
GCST90274832	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Programmed cell death 1 ligand 1 levels	MR Egger	18	0.000578262	0.007225176	0.937202439	-0.014739607	0.013583082	0.999421905	0.985368489	1.013675752
GCST90274832	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Programmed cell death 1 ligand 1 levels	Weighted median	18	0.000203868	0.003672363	0.955728974	-0.006993964	0.007401699	1.000203888	0.993030437	1.0074291 6
GCST90274833	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Stem cell factor levels	MR Egger	30	-0.001507992	0.003290234	0.650257331	-0.00795685	0.004940866	0.998493144	0.992074722	1.004953092
GCST90274833	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Stem cell factor levels	Inverse variance weighted	30	0.000215684	0.00166523	0.896944658	-0.003048167	0.003479535	1.000215707	0.996956474	1.003485595
GCST90274833	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Stem cell factor levels	Weighted median	30	-0.000100725	0.00259225	0.969004896	-0.005181536	0.004980085	0.99989928	0.994831865	1.004992506
GCST90274834	ieu-b-4809	Prostate cancer || id:ieu-b-4809	SIR2-like protein 2 levels	Weighted median	13	-0.009	0.004759411	0.035716565	-0.019	-0.000	0.990054361	0.980861637	0.999333241

id	exposure	outcome	exposure name	method	nsnp	b	se	pval	lo_ci	up_ci	or	or_lci95	or_uci95
							995427			323872	666982		
GCST90274834	ieu-b-4809	Prostate cancer || id:ieu-b-4809	SIR2-like protein 2 levels	MR Egger	13	-0.013251043	0.007954072	0.123914958	-0.028841024	0.002338938	0.986836365	0.971570909	1.002341675
GCST90274834	ieu-b-4809	Prostate cancer || id:ieu-b-4809	SIR2-like protein 2 levels	Inverse variance weighted	13	-0.004924001	0.004151564	0.235598861	-0.013061066	0.003213064	0.995088102	0.987023859	1.003218231
GCST90274835	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Signaling lymphocytic activation molecule levels	MR Egger	27	0.00885321	0.006474962	0.183700222	-0.003837716	0.021544136	1.008892515	0.996169638	1.021777887
GCST90274835	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Signaling lymphocytic activation molecule levels	Inverse variance weighted	27	-0.000522649	0.003224199	0.871225606	-0.006842078	0.00579678	0.999477488	0.993181276	1.005813614
GCST90274835	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Signaling lymphocytic activation molecule levels	Weighted median	27	0.000379997	0.002856616	0.89417481	-0.005218971	0.005978965	1.000380069	0.994794625	1.005996874
GCST90274836	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Sulfotransferase 1A1 levels	MR Egger	23	-0.006612962	0.004335149	0.142072551	-0.015109853	0.00188393	0.993408856	0.985003728	1.001885706
GCST90274836	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Sulfotransferase 1A1 levels	Weighted median	23	0.003281041	0.002681331	0.221080048	-0.001974368	0.00853645	1.00328643	0.99802758	1.00857299
GCST90274836	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Sulfotransferase 1A1 levels	Inverse variance weighted	23	0.001203471	0.001848864	0.51509509	-0.002420303	0.004827245	1.001204196	0.997582624	1.004838915
GCST90274837	ieu-b-4809	Prostate cancer || id:ieu-b-4809	STAM binding protein levels	Inverse variance weighted	12	-0.002365217	0.00374613	0.527794625	-0.009707633	0.004977198	0.997637578	0.990339334	1.004989605

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GCST90274837	ieu-b-4809	Prostate cancer || id:ieu-b-4809	STAM binding protein levels	MR Egger	12	0.005092342	0.010941404	0.651601798	-0.016352811	0.026537494	1.00510533	0.983780171	1.026892749
GCST90274837	ieu-b-4809	Prostate cancer || id:ieu-b-4809	STAM binding protein levels	Weighted median	12	0.000528711	0.004905833	0.914176574	-0.009086722	0.010144144	1.000528851	0.990954438	1.010195771
GCST90274838	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Transforming growth factor-alpha levels	Weighted median	14	0.003824886	0.004284387	0.371991114	-0.004572513	0.012222285	1.00383221	0.995437925	1.012297282
GCST90274838	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Transforming growth factor-alpha levels	MR Egger	14	0.00579032	0.008614267	0.514204623	-0.011093643	0.022674284	1.005807117	0.988967664	1.022933299
GCST90274838	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Transforming growth factor-alpha levels	Inverse variance weighted	14	0.000196571	0.003464083	0.954747933	-0.006593031	0.006986173	1.00019659	0.993428655	1.007010634
GCST90274839	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Tumor necrosis factor levels	MR Egger	17	0.003198236	0.005579008	0.574961361	-0.00773662	0.014133092	1.003203356	0.99229323	1.014233436
GCST90274839	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Tumor necrosis factor levels	Inverse variance weighted	17	0.000955114	0.002610405	0.71444916	-0.00416128	0.006071508	1.00095557	0.995847366	1.006089977
GCST90274839	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Tumor necrosis factor levels	Weighted median	17	4.03E-05	0.003406189	0.990571793	-0.006635881	0.006716381	1.000040251	0.993386088	1.006738987
GCST90274840	ieu-b-4809	Prostate cancer || id:ieu-b-4809	TNF-beta levels	MR Egger	23	0.000458391	0.001664526	0.785709251	-0.00280408	0.003720863	1.000458497	0.997199848	1.003727794

id	exposure_id	outcome	exposure	method	nsnp	b	se	pval	lo_ci	up_ci	or	or_lci95	or_uci95
GCST90274840	ieu-b-4809	Prostate cancer || id:ieu-b-4809	TNF-beta levels	Weighted median	23	-2.31E-05	0.001078393	0.982908461	-0.002136752	0.002090548	0.999976898	0.997865529	1.002092735
GCST90274840	ieu-b-4809	Prostate cancer || id:ieu-b-4809	TNF-beta levels	Inverse variance weighted	23	-9.07E-06	0.001303561	0.994446438	-0.002564052	0.002545906	0.999990927	0.997439232	1.002549149
GCST90274841	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Tumor necrosis factor receptor superfamily member 9 levels	Inverse variance weighted	28	0.003208472	0.002824791	0.256029255	-0.008745061	0.002328118	0.99679667	0.991293066	1.00233083
GCST90274841	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Tumor necrosis factor receptor superfamily member 9 levels	Weighted median	28	0.002384756	0.002838691	0.400857976	-0.003179079	0.007948591	1.002387602	0.996825969	1.007980264
GCST90274841	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Tumor necrosis factor receptor superfamily member 9 levels	MR Egger	28	-0.00317797	0.006754569	0.641926754	-0.016416925	0.010060986	0.996827075	0.983717099	1.010111768
GCST90274842	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Tumor necrosis factor ligand superfamily member 14 levels	MR Egger	26	-0.003602269	0.002900354	0.22623342	-0.009286963	0.002082425	0.996404212	0.990756028	1.002084595
GCST90274842	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Tumor necrosis factor ligand superfamily member 14 levels	Weighted median	26	-0.002835491	0.002633439	0.281602943	-0.007997032	0.00232605	0.997168525	0.992034859	1.002328757
GCST90274842	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Tumor necrosis factor ligand superfamily member 14 levels	Inverse variance weighted	26	-0.001187312	0.001791624	0.507521561	-0.004698895	0.00232427	0.998813392	0.995312128	1.002326973
GCST90274843	ieu-b-4809	Prostate cancer || id:ieu-b-4809	TNF-related apoptosis-inducing ligand levels	MR Egger	26	-0.002195496	0.002493828	0.387388794	-0.007083399	0.002692406	0.997806912	0.99294163	1.002696034

GCST	id	outcome	exposure	method	nsnp	b	se	pval					
GCST90274843	ieu-b-4809	Prostate cancer || id:ieu-b-4809	TNF-related apoptosis-inducing ligand levels	Inverse variance weighted	26	-0.00049124 6	0.001519591	0.746486623	-0.003469644	0.002487151	0.999508874	0.996536369	1.002490247
GCST90274843	ieu-b-4809	Prostate cancer || id:ieu-b-4809	TNF-related apoptosis-inducing ligand levels	Weighted median	26	-0.000743299	0.002321779	0.74886065	-0.005293985	0.003807387	0.999256977	0.994720003	1.003814644
GCST90274844	ieu-b-4809	Prostate cancer || id:ieu-b-4809	TNF-related activation-induced cytokine levels	Inverse variance weighted	28	0.001961637	0.001924779	0.308132216	-0.001810931	0.005734205	1.001963562	0.998190708	1.005750677
GCST90274844	ieu-b-4809	Prostate cancer || id:ieu-b-4809	TNF-related activation-induced cytokine levels	Weighted median	28	0.000531087	0.002587311	0.837364409	-0.004540042	0.005602215	1.000531228	0.995470248	1.005617937
GCST90274844	ieu-b-4809	Prostate cancer || id:ieu-b-4809	TNF-related activation-induced cytokine levels	MR Egger	28	-0.00048144	0.003994279	0.904988127	-0.008310227	0.007347348	0.999518676	0.991724208	1.007374406
GCST90274845	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Thymic stromal lymphopoietin levels	Weighted median	15	-0.002077882	0.003938279	0.597768901	-0.009796909	0.005641145	0.997924275	0.990250925	1.005657086
GCST90274845	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Thymic stromal lymphopoietin levels	MR Egger	15	0.00190887	0.005783289	0.746608189	-0.009426377	0.013244116	1.001910693	0.990617912	1.013332208
GCST90274845	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Thymic stromal lymphopoietin levels	Inverse variance weighted	15	0.000546799	0.00285782	0.848263622	-0.005054529	0.006148127	1.000546949	0.994958224	1.006167066
GCST90274846	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Tumor necrosis factor ligand superfamily member 12 levels	MR Egger	27	-0.006423066	0.004201497	0.138880151	-0.014658001	0.001811869	0.993597518	0.985448905	1.001813511

GCST	id	outcome	exposure	method	nsnp								
GCST90274846	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Tumor necrosis factor ligand superfamily member 12 levels	Inverse variance weighted	27	-0.002670385	0.00190105	0.16021366	-0.00639735	0.00100565 65	0.99733177	0.99362085	1.00105723
GCST90274846	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Tumor necrosis factor ligand superfamily member 12 levels	Weighted median	27	-0.00308109	0.00300 1806	0.30469 7324	-0.0089646 3	0.00280245	0.99692 3651	0.99107 5432	1.00280638
GCST90274847	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Urokinase-type plasminogen activator levels	Inverse variance weighted	21	0.00235 7904	0.00218 9317	0.28147 8258	-0.00193 3157	0.006648 966	1.00236 0686	0.99806 871	1.00667 1119
GCST90274847	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Urokinase-type plasminogen activator levels	MR Egger	21	-0.003 954478	0.004 498405	0.390 338136	-0.012 771351	0.004 862395	0.996 053331	0.987 309857	1.004 874236
GCST90274847	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Urokinase-type plasminogen activator levels	Weighted median	21	0.000 367487	0.003 084187	0.905 155027	-0.006 412494	0.005 67752	0.999 632581	0.993 608022	1.005 693668
GCST90274848	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Vascular endothelial growth factor A levels	Weighted median	24	0.004 250213	0.001 609348	0.008 267315	0.001 095891	0.007 404536	1.004 259258	1.001 096491	1.007 432017
GCST90274848	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Vascular endothelial growth factor A levels	MR Egger	24	0.006 189512	0.002 261597	0.012 040016	0.001 756782	0.010 622242	1.006 208707	1.001 758326	1.010 678858
GCST90274848	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Vascular endothelial growth factor A levels	Inverse variance weighted	24	0.001 767132	0.001 652551	0.284 918525	-0.001 471869	0.005 006132	1.001 768694	0.998 529214	1.005 018684

Supplementary Table 4. Comparing causal effects of prostate cancer traits (P<5×10⁻⁶) on 91 cytokines estimated by different two-sample MR methods.

id.exposure	id.outcome	outcome	exposure	method	nsnp	b	se	pval	lo_ci	up_ci	or	or_lci95	or_uci95	qvalue
ieu-b-4809	GCST90274758	Eukaryotic translation initiation factor 4E-binding protein 1 levels	Prostate cancer || id:ieu-b-4809	Weighted median	32	0.586305073	0.50176159	0.24260751 6	-0.397146995	1.56975712	1.79733511	0.672235203	4.80548102	1
ieu-b-4809	GCST90274758	Eukaryotic translation initiation factor 4E-binding protein 1 levels	Prostate cancer || id:ieu-b-4809	MR Egger	32	0.673835443	0.87588675	0.44771981	-1.04290 3029	2.39057 3914	1.96174 7078	0.352430081	10.919 759 15	1
ieu-b-4809	GCST90274758	Eukaryotic translation initiation factor 4E-binding protein 1 levels	Prostate cancer || id:ieu-b-4809	Inverse variance weighted	32	-0.04045761 2	0.36467496 8	0.91166268 4	-0.755220 549	0.674305324	0.960349871	0.469906966	1.962669083	1
ieu-b-4809	GCST90274759	Adenosine Deaminase levels	Prostate cancer || id:ieu-b-4809	MR Egger	32	0.606428874	0.78072263	0.443386062	-0.9237873 5	2.13664 5097	1.83387 0707	0.397012564	8.47097 0622	1
ieu-b-4809	GCST90274759	Adenosine Deaminase levels	Prostate cancer || id:ieu-b-4809	Inverse variance weighted	32	-0.12125948 7	0.32628416 7	0.71016263 9	-0.76077764 54	0.5182574 8	0.88580407 5	0.467303446	1.67909 9235	1
ieu-b-4809	GCST90274759	Adenosine Deaminase levels	Prostate cancer || id:ieu-b-4809	Weighted median	32	-0.01118787	0.47482053 4	0.98120173 4	-0.9418361 17	0.9194603 77	0.9887448 2	0.389911255	2.50793 6684	1
ieu-b-4809	GCST90274760	Artemin levels	Prostate cancer || id:ieu-b-4809	MR Egger	33	-0.3844154 62	0.92164653 6	0.67948229 1	-2.19084 2672	1.4220117 48	0.6808485 02	0.111822479	4.14545 1661	1
ieu-b-4809	GCST90274760	Artemin levels	Prostate cancer || id:ieu-b-4809	Inverse variance weighted	33	0.154592583	0.37753240 6	0.68218624 9	-0.58537 0932	0.8945560 99	1.16718 2335	0.556899252	2.44624 9655	1

ieu-b-4809	GCST90274760	Artemin levels	Prostate cancer || id:ieu-b-4809	Weighted median	33	-0.030474593	0.556153311	0.956301537	-1.120535081	1.059585894	0.969985076	0.326105255	2.885175974	1
ieu-b-4809	GCST90274761	Axin-1 levels	Prostate cancer || id:ieu-b-4809	MR Egger	33	2.064645878	0.937065202	0.035132146	0.227998083	3.901293674	7.882506036	1.256082917	49.46640112	1
ieu-b-4809	GCST90274761	Axin-1 levels	Prostate cancer || id:ieu-b-4809	Weighted median	33	0.612902254	0.559908016	0.273670828	-0.484517458	1.710321966	1.845780557	0.615994369	5.530741903	1
ieu-b-4809	GCST90274761	Axin-1 levels	Prostate cancer || id:ieu-b-4809	Inverse variance weighted	33	0.365879421	0.40495863	0.366261507	-0.427839494	1.159598336	1.441781384	0.651916043	3.188652251	1
ieu-b-4809	GCST90274762	beta-nerve growth factor levels	Prostate cancer || id:ieu-b-4809	MR Egger	32	0.343606811	0.746629543	0.648683437	-1.119787093	1.807000715	1.410024121	0.326349269	6.092147915	1
ieu-b-4809	GCST90274762	beta-nerve growth factor levels	Prostate cancer || id:ieu-b-4809	Inverse variance weighted	32	-0.111307462	0.311793881	0.721098896	-0.72242347	0.499808545	0.894663631	0.485574055	1.648405645	1
ieu-b-4809	GCST90274762	beta-nerve growth factor levels	Prostate cancer || id:ieu-b-4809	Weighted median	32	-0.109416077	0.447174907	0.806701928	-0.985878894	0.76704674	0.896357386	0.373111158	2.153397312	1
ieu-b-4809	GCST90274763	Caspase 8 levels	Prostate cancer || id:ieu-b-4809	Weighted median	32	-0.57903897	0.524780622	0.26985678	-1.60760899	0.44953105	0.560436704	0.200366119	1.567576898	1
ieu-b-4809	GCST90274763	Caspase 8 levels	Prostate cancer || id:ieu-b-4809	MR Egger	32	0.914093648	0.914213865	0.325371211	-0.877765527	2.705952824	2.494513321	0.415710769	14.96857231	1

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id	GCST	exposure	outcome	method	nsnp									
ieu-b-4809	GCST90274763	Caspase 8 levels	Prostate cancer || id:ieu-b-4809	Inverse variance weighted	32	-0.32566418	0.38916793	0.40269739	-1.08843249	0.43710492	0.72204726	0.33674374	1.54821864	1
ieu-b-4809	GCST90274764	Eotaxin levels	Prostate cancer || id:ieu-b-4809	Inverse variance weighted	32	-0.39535941	0.32256996	0.22032895	-1.02759649	0.23687167	0.67343806	0.35788663	1.26728544	1
ieu-b-4809	GCST90274764	Eotaxin levels	Prostate cancer || id:ieu-b-4809	Weighted median	32	-0.35353365	0.45614885	0.43831590	-1.24758523	0.54051794	0.70220253	0.28719749	1.71689574	1
ieu-b-4809	GCST90274764	Eotaxin levels	Prostate cancer || id:ieu-b-4809	MR Egger	32	-0.35049168	0.77285885	0.65345187	-1.86529416	1.16431075	0.70434169	0.15485065	3.20371397	1
ieu-b-4809	GCST90274765	C-C motif chemokine 19 levels	Prostate cancer || id:ieu-b-4809	MR Egger	32	0.99356319	0.90509330	0.28104807	-0.78041967	2.76754607	2.70084079	0.45821367	15.91952066	1
ieu-b-4809	GCST90274765	C-C motif chemokine 19 levels	Prostate cancer || id:ieu-b-4809	Weighted median	32	0.32176475	0.47885157	0.50161495	-0.61678434	1.26031384	1.37956019	0.53967706	3.52652809	1
ieu-b-4809	GCST90274765	C-C motif chemokine 19 levels	Prostate cancer || id:ieu-b-4809	Inverse variance weighted	32	0.08817400	0.37874132	0.81591051	-0.65415899	0.830507	1.09217814	0.51987909	2.29448174	1
ieu-b-4809	GCST90274766	C-C motif chemokine 20 levels	Prostate cancer || id:ieu-b-4809	Weighted median	32	-0.50415393	0.47324028	0.28672962	-1.43170488	0.42343970	0.60401639	0.23890127	1.52714048	1
ieu-b-4809	GCST90274766	C-C motif chemokine 20 levels	Prostate cancer || id:ieu-b-4809	Inverse variance weighted	32	-0.23441728	0.38918660	0.54695703	-0.99722303	0.52838846	0.79103163	0.36890245	1.69619662	1

ieu-b-4809	GCST90274766	C-C motif chemokine 20 levels	Prostate cancer || id:ieu-b-4809	MR Egger	32	-0.053721676	0.947501881	0.955161539	-1.910825364	1.803382011	0.947695836	0.147958217	6.070142078	1
ieu-b-4809	GCST90274767	C-C motif chemokine 23 levels	Prostate cancer || id:ieu-b-4809	Weighted median	32	-0.284299491	0.454822864	0.531920263	-1.175752304	0.607153322	0.752541232	0.308586741	1.835199734	1
ieu-b-4809	GCST90274767	C-C motif chemokine 23 levels	Prostate cancer || id:ieu-b-4809	MR Egger	32	0.277465714	0.775330037	0.7229479	-1.242181158	1.797112587	1.319780869	0.288753713	6.032204826	1
ieu-b-4809	GCST90274767	C-C motif chemokine 23 levels	Prostate cancer || id:ieu-b-4809	Inverse variance weighted	32	-0.108698332	0.32390968	0.737185928	-0.743561305	0.526164641	0.897000973	0.47541779	1.692428773	1
ieu-b-4809	GCST90274768	C-C motif chemokine 25 levels	Prostate cancer || id:ieu-b-4809	Inverse variance weighted	32	-0.084973774	0.323251381	0.792649149	-0.718546481	0.548598932	0.918536373	0.487460274	1.730826313	1
ieu-b-4809	GCST90274768	C-C motif chemokine 25 levels	Prostate cancer || id:ieu-b-4809	Weighted median	32	-0.072324778	0.463953249	0.876121247	-0.981673146	0.83702359	0.930228729	0.374683674	2.309482769	1
ieu-b-4809	GCST90274768	C-C motif chemokine 25 levels	Prostate cancer || id:ieu-b-4809	MR Egger	32	0.021495447	0.774135344	0.978031848	-1.495809828	1.538800721	1.021728138	0.224067075	4.658999481	1
ieu-b-4809	GCST90274769	C-C motif chemokine 28 levels	Prostate cancer || id:ieu-b-4809	MR Egger	32	0.850437576	0.871261104	0.336820915	-0.857234188	2.558109341	2.34067085	0.424334089	12.9113832	1
ieu-b-4809	GCST90274769	C-C motif chemokine 28 levels	Prostate cancer || id:ieu-b-4809	Inverse variance weighted	32	-0.137188538	0.366806954	0.708398764	-0.856130168	0.581753092	0.871805842	0.424802821	1.789172266	1

ieu-b-4809	GCST90274769	C-C motif chemokine 28 levels	Prostate cancer || id:ieu-b-4809	Weighted median	32	-0.00068369	0.471739291	0.99884363	-0.9252927	0.923925321	0.999316544	0.396415371	2.519159517	1
ieu-b-4809	GCST90274770	C-C motif chemokine 4 levels	Prostate cancer || id:ieu-b-4809	MR Egger	32	0.521906525	0.783836641	0.510603729	-1.014413291	2.05822634	1.685237536	0.362615117	7.832066062	1
ieu-b-4809	GCST90274770	C-C motif chemokine 4 levels	Prostate cancer || id:ieu-b-4809	Weighted median	32	-0.159199242	0.459766277	0.729146393	-1.060341146	0.741942661	0.852826423	0.346337638	2.100011165	1
ieu-b-4809	GCST90274770	C-C motif chemokine 4 levels	Prostate cancer || id:ieu-b-4809	Inverse variance weighted	32	0.043174713	0.327669615	0.895171798	-0.599057733	0.685407159	1.0441203	0.549329007	1.984579711	1
ieu-b-4809	GCST90274771	Natural killer cell receptor 2B4 levels	Prostate cancer || id:ieu-b-4809	Weighted median	32	0.589838159	0.492607147	0.231158306	-0.375671849	1.555348168	1.803696481	0.686827679	4.736735416	1
ieu-b-4809	GCST90274771	Natural killer cell receptor 2B4 levels	Prostate cancer || id:ieu-b-4809	Inverse variance weighted	32	0.371105648	0.361585586	0.304736695	-0.337602101	1.079813397	1.449336185	0.713479124	2.944130116	1
ieu-b-4809	GCST90274771	Natural killer cell receptor 2B4 levels	Prostate cancer || id:ieu-b-4809	MR Egger	32	0.129192866	0.878317466	0.884044026	-1.592309367	1.8506951	1.137909567	0.203455216	6.3642417 7	1
ieu-b-4809	GCST90274772	CD40L receptor levels	Prostate cancer || id:ieu-b-4809	MR Egger	32	0.766163361	0.763933503	0.323921278	-0.731146305	2.263473027	2.151495885	0.481356892	9.616429353	1
ieu-b-4809	GCST90274772	CD40L receptor levels	Prostate cancer || id:ieu-b-4809	Weighted median	32	0.209300169	0.476314287	0.660360059	-0.724275835	1.142876172	1.232814996	0.484675427	3.135774435	1

id.exposure	id	exposure	outcome	method	nsnp									
ieu-b-4809	GCST90274772	CD40L receptor levels	Prostate cancer || id:ieu-b-4809	Inverse variance weighted	32	0.112837905	0.318487295	0.723119111	-0.511397193	0.737073004	1.119450461	0.599657156	2.089809689	1
ieu-b-4809	GCST90274773	T-cell surface glycoprotein CD5 levels	Prostate cancer || id:ieu-b-4809	MR Egger	32	-1.071533283	0.768287624	0.173347622	-2.577377025	0.43431046	0.342482991	0.075973018	1.543898112	1
ieu-b-4809	GCST90274773	T-cell surface glycoprotein CD5 levels	Prostate cancer || id:ieu-b-4809	Inverse variance weighted	32	-0.051442868	0.32411185	0.87388988	-0.686702093	0.583816357	0.949857915	0.503232951	1.792867614	1
ieu-b-4809	GCST90274773	T-cell surface glycoprotein CD5 levels	Prostate cancer || id:ieu-b-4809	Weighted median	32	-0.070607984	0.460870632	0.878236103	-0.973914423	0.832698455	0.931827112	0.377602047	2.299515514	1
ieu-b-4809	GCST90274774	T-cell surface glycoprotein CD6 isoform levels	Prostate cancer || id:ieu-b-4809	Inverse variance weighted	32	0.338554622	0.382906089	0.376603681	-0.411941312	1.089050555	1.402918377	0.662363148	2.971451504	1
ieu-b-4809	GCST90274774	T-cell surface glycoprotein CD6 isoform levels	Prostate cancer || id:ieu-b-4809	MR Egger	32	0.641943713	0.930618899	0.495619893	-1.18206933	2.465956756	1.900170679	0.306643535	11.77474232	1
ieu-b-4809	GCST90274774	T-cell surface glycoprotein CD6 isoform levels	Prostate cancer || id:ieu-b-4809	Weighted median	32	0.200393195	0.498372953	0.687614226	-0.776417793	1.177204184	1.221883103	0.460051061	3.245288278	1
ieu-b-4809	GCST90274775	CUB domain-containing protein 1 levels	Prostate cancer || id:ieu-b-4809	Inverse variance weighted	32	0.160695164	0.355628318	0.651367914	-0.53633634	0.857726668	1.174326937	0.584887159	2.357794546	1
ieu-b-4809	GCST90274775	CUB domain-containing protein 1 levels	Prostate cancer || id:ieu-b-4809	Weighted median	32	-0.105825132	0.45315125	0.815348643	-0.994001582	0.782351319	0.899581943	0.370092767	2.186607639	1

id	GCST	exposure	outcome	method	nsnp									
ieu-b-4809	GCST90274775	CUB domain-containing protein 1 levels	Prostate cancer || id:ieu-b-4809	MR Egger	32	0.02244223 9	0.866240386	0.979502581	-1.675388918	1.720273397	1.022695961	0.187235346	5.586055464	1
ieu-b-4809	GCST90274776	Macrophage colony-stimulating factor 1 levels	Prostate cancer || id:ieu-b-4809	Weighted median	32	-0.293865649	0.462550749	0.525222683	-1.200465117	0.612733819	0.745376627	0.301054154	1.845469689	1
ieu-b-4809	GCST90274776	Macrophage colony-stimulating factor 1 levels	Prostate cancer || id:ieu-b-4809	MR Egger	32	0.188803004	0.777677266	0.809829556	-1.335444437	1.713050445	1.207802996	0.263041244	5.545853018	1
ieu-b-4809	GCST90274776	Macrophage colony-stimulating factor 1 levels	Prostate cancer || id:ieu-b-4809	Inverse variance weighted	32	-0.052267286	0.319915465	0.870220486	-0.679301597	0.574767025	0.949075158	0.506970939	1.776716548	1
ieu-b-4809	GCST90274777	Cystatin D levels	Prostate cancer || id:ieu-b-4809	Inverse variance weighted	32	0.438186359	0.360660685	0.224383406	-0.268708583	1.145081301	1.549893717	0.764365972	3.142696852	1
ieu-b-4809	GCST90274777	Cystatin D levels	Prostate cancer || id:ieu-b-4809	MR Egger	32	0.377825596	0.87834282	0.670155585	-1.343726331	2.099377523	1.459108447	0.260871761	8.161088241	1
ieu-b-4809	GCST90274777	Cystatin D levels	Prostate cancer || id:ieu-b-4809	Weighted median	32	0.201280072	0.492104973	0.682526034	-0.763245676	1.16580582	1.222967242	0.466150994	3.20850732	1
ieu-b-4809	GCST90274778	Fractalkine levels	Prostate cancer || id:ieu-b-4809	Inverse variance weighted	32	0.083895578	0.38605511	0.827962844	-0.672772438	0.840563594	1.087515327	0.510291862	2.317672835	1
ieu-b-4809	GCST90274778	Fractalkine levels	Prostate cancer || id:ieu-b-4809	Weighted median	32	0.044428155	0.478820691	0.926073079	-0.894060399	0.982916708	1.045429865	0.408991707	2.672239028	1

id	GCST	exposure	outcome	method	nsnp									
ieu-b-4809	GCST90274778	Fractalkine levels	Prostate cancer || id:ieu-b-4809	MR Egger	32	-0.018882612	0.941007889	0.984123298	-1.863258074	1.82549285	0.981294548	0.155166263	6.205852822	1
ieu-b-4809	GCST90274779	C-X-C motif chemokine 1 levels	Prostate cancer || id:ieu-b-4809	MR Egger	32	0.764086079	0.880384199	0.392338529	-0.961466952	2.48963911	2.147031262	0.382331612	12.05692412	1
ieu-b-4809	GCST90274779	C-X-C motif chemokine 1 levels	Prostate cancer || id:ieu-b-4809	Inverse variance weighted	32	0.041949294	0.366770418	0.908940688	-0.676920726	0.760819313	1.042841599	0.508179409	2.140028857	1
ieu-b-4809	GCST90274779	C-X-C motif chemokine 1 levels	Prostate cancer || id:ieu-b-4809	Weighted median	32	-0.015777843	0.47738418	0.973634217	-0.951450714	0.919895028	0.984345975	0.38618038	2.50902698	1
ieu-b-4809	GCST90274780	C-X-C motif chemokine 10 levels	Prostate cancer || id:ieu-b-4809	Weighted median	32	0.5948276	0.458017563	0.194046761	-0.302886824	1.492542024	1.812718405	0.738682693	4.448389072	1
ieu-b-4809	GCST90274780	C-X-C motif chemokine 10 levels	Prostate cancer || id:ieu-b-4809	MR Egger	32	0.638223238	0.780771254	0.420129461	-0.892088419	2.168534896	1.893114277	0.409799026	8.74546164	1
ieu-b-4809	GCST90274780	C-X-C motif chemokine 10 levels	Prostate cancer || id:ieu-b-4809	Inverse variance weighted	32	0.165759009	0.325932624	0.611047851	-0.473056422	0.80457444	1.180288629	0.623094914	2.235744853	1
ieu-b-4809	GCST90274781	C-X-C motif chemokine 11 levels	Prostate cancer || id:ieu-b-4809	MR Egger	32	0.74295908	0.784261102	0.351036297	-0.794192679	2.280110839	2.10214674	0.451945953	9.777764106	1
ieu-b-4809	GCST90274781	C-X-C motif chemokine 11 levels	Prostate cancer || id:ieu-b-4809	Weighted median	32	-0.120920815	0.463782683	0.794302798	-1.029934873	0.788093243	0.886104123	0.357030212	2.199199089	1

ieu-b-4809	GCST90274781	C-X-C motif chemokine 11 levels	Prostate cancer || id:ieu-b-4809	Inverse variance weighted	32	-0.00089496	0.32715272	0.997818682	-0.642113727	0.640324934	0.999106003	0.526179049	1.897097211	1
ieu-b-4809	GCST90274782	C-X-C motif chemokine 5 levels	Prostate cancer || id:ieu-b-4809	MR Egger	32	0.441674776	0.907947211	0.630180051	-1.337901757	2.221251309	1.555309834	0.262395661	9.21885929	1
ieu-b-4809	GCST90274782	C-X-C motif chemokine 5 levels	Prostate cancer || id:ieu-b-4809	Weighted median	32	0.074529079	0.52526423	0.88716791	-0.954988994	1.104047151	1.077376672	0.38481638	3.016348975	1
ieu-b-4809	GCST90274782	C-X-C motif chemokine 5 levels	Prostate cancer || id:ieu-b-4809	Inverse variance weighted	32	0.016835155	0.374762688	0.964169341	-0.717699713	0.751370023	1.016977665	0.487873215	2.119902343	1
ieu-b-4809	GCST90274783	C-X-C motif chemokine 6 levels	Prostate cancer || id:ieu-b-4809	Inverse variance weighted	32	-0.063084969	0.327318067	0.847168135	-0.704628379	0.578458442	0.938863696	0.494292229	1.783287269	1
ieu-b-4809	GCST90274783	C-X-C motif chemokine 6 levels	Prostate cancer || id:ieu-b-4809	Weighted median	32	0.051236303	0.468979725	0.91300375	-0.867963958	0.970436563	1.052571589	0.419805421	2.639096341	1
ieu-b-4809	GCST90274783	C-X-C motif chemokine 6 levels	Prostate cancer || id:ieu-b-4809	MR Egger	32	0.029325054	0.783906118	0.970406815	-1.507130938	1.565781046	1.029759267	0.221544692	4.786411884	1
ieu-b-4809	GCST90274784	C-X-C motif chemokine 9 levels	Prostate cancer || id:ieu-b-4809	Inverse variance weighted	32	-0.110651959	0.316132595	0.72632552	-0.730271846	0.508967928	0.895250278	0.481778003	1.663573381	1
ieu-b-4809	GCST90274784	C-X-C motif chemokine 9 levels	Prostate cancer || id:ieu-b-4809	Weighted median	32	0.091818038	0.458291914	0.841208135	-0.806434113	0.990070179	1.096165344	0.446447211	2.691423377	1

ieu-b-4809	GCST90274784	C-X-C motif chemokine 9 levels	Prostate cancer || id:ieu-b-4809	MR Egger	32	-0.13117169	0.75719662	0.86363062	-1.61527843	1.352933505	0.87706735	0.19883815	3.868757921	1
ieu-b-4809	GCST90274785	Delta and Notch-like epidermal growth factor-related receptor levels	Prostate cancer || id:ieu-b-4809	MR Egger	32	0.71260962	0.75880452	0.35516952	-0.77464952	2.199867847	2.0393052	0.46086275	9.023820892	1
ieu-b-4809	GCST90274785	Delta and Notch-like epidermal growth factor-related receptor levels	Prostate cancer || id:ieu-b-4809	Inverse variance weighted	32	0.14137099	0.31682277	0.65542816	-0.47959544	0.762349743	1.151858931	0.61903713	2.143306527	1
ieu-b-4809	GCST90274785	Delta and Notch-like epidermal growth factor-related receptor levels	Prostate cancer || id:ieu-b-4809	Weighted median	32	0.09487146	0.42172865	0.82201157	-0.73171709	0.921459601	1.099517499	0.48108402	2.512955627	1
ieu-b-4809	GCST90274786	Protein S100-A12 levels	Prostate cancer || id:ieu-b-4809	Inverse variance weighted	32	0.17889677	0.32805167	0.58552931	-0.46409045	0.821885804	1.19589837	0.62870686	2.274785594	1
ieu-b-4809	GCST90274786	Protein S100-A12 levels	Prostate cancer || id:ieu-b-4809	MR Egger	32	0.41151681	0.78573834	0.60431243	-1.128530345	1.951563947	1.509105062	0.32350853	7.039688674	1
ieu-b-4809	GCST90274786	Protein S100-A12 levels	Prostate cancer || id:ieu-b-4809	Weighted median	32	0.038828358	0.47692903	0.935113295	-0.895952683	0.9736094	1.039592031	0.40821851	2.64748306	1
ieu-b-4809	GCST90274787	Fibroblast growth factor 19 levels	Prostate cancer || id:ieu-b-4809	MR Egger	32	0.213188782	0.826111833	0.798120557	-1.405990411	1.832367975	1.23761827	0.245124163	6.248665839	1
ieu-b-4809	GCST90274787	Fibroblast growth factor 19 levels	Prostate cancer || id:ieu-b-4809	Weighted median	32	0.042101805	0.468448925	0.928386619	-0.876	0.960261698	1.043000656	0.416421176	2.612380039	1

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ieu-b-4809	GCST90274787	Fibroblast growth factor 19 levels	Prostate cancer || id:ieu-b-4809	Inverse variance weighted	32	-0.02497060 8	0.33943647 9	0.94135660 7	-0.69026610 8	0.64032489 1	0.97533857 8	0.50154426 13	1.89709713	1
ieu-b-4809	GCST90274788	Fibroblast growth factor 21 levels	Prostate cancer || id:ieu-b-4809	MR Egger	32	1.12069580 8	0.78840207 6	0.16549088 3	-0.42457226 1	2.66596387 8	3.06698749 7	0.65404948 8	14.38180517	1
ieu-b-4809	GCST90274788	Fibroblast growth factor 21 levels	Prostate cancer || id:ieu-b-4809	Weighted median	32	0.24040879 8	0.45899749 2	0.60043900 5	-0.65922628 7	1.14004388 2	1.27176894	0.51725138 4	3.12690557 6	1
ieu-b-4809	GCST90274788	Fibroblast growth factor 21 levels	Prostate cancer || id:ieu-b-4809	Inverse variance weighted	32	0.01949919 1	0.32890765 3	0.95272534 8	-0.62515980 9	0.66415819 2	1.01969054 2	0.53517589 6	1.94285432 2	1
ieu-b-4809	GCST90274789	Fibroblast growth factor 23 levels	Prostate cancer || id:ieu-b-4809	Weighted median	32	0.40182450 4	0.45467259 2	0.37682215 7	-0.48933377 7	1.29298278 5	1.49454902 3	0.61303467 6	3.64363855 5	1
ieu-b-4809	GCST90274789	Fibroblast growth factor 23 levels	Prostate cancer || id:ieu-b-4809	Inverse variance weighted	32	0.27070734 5	0.31647726 1	0.39234251 6	-0.34958808 7	0.89100277 8	1.31089137 6	0.70497842	2.43757277	1
ieu-b-4809	GCST90274789	Fibroblast growth factor 23 levels	Prostate cancer || id:ieu-b-4809	MR Egger	32	0.26423432 5	0.75775959 9	0.72974649 5	-1.22097448 8	1.74944313 8	1.30243335 3	0.29429409	5.75139905	1
ieu-b-4809	GCST90274790	Fibroblast growth factor 5 levels	Prostate cancer || id:ieu-b-4809	MR Egger	32	0.72607277 4	0.82867785	0.38788930 51	-0.89813588	2.35028142 8	2.06694728 78	0.40732826 1	10.48852107	1
ieu-b-4809	GCST90274790	Fibroblast growth factor 5 levels	Prostate cancer || id:ieu-b-4809	Inverse variance weighted	32	-0.220	0.34740518 3	0.52528177 7	-0.901	0.46023375 3	0.80199729 45	0.40599218 75	1.58444431	1

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ieu-b-4809	GCST90274790	Fibroblast growth factor 5 levels	Prostate cancer || id:ieu-b-4809	Weighted median	32	-0.00866037	0.51027791	0.98645079	-1.00880931	0.99147757	0.99137405	0.364652902	2.695213056	1
ieu-b-4809	GCST90274791	Fms-related tyrosine kinase 3 ligand levels	Prostate cancer || id:ieu-b-4809	MR Egger	32	0.573566201	1.330303756	0.669438576	-2.03382916	3.180961562	1.774584305	0.130833578	24.06988712	1
ieu-b-4809	GCST90274791	Fms-related tyrosine kinase 3 ligand levels	Prostate cancer || id:ieu-b-4809	Inverse variance weighted	32	0.140177816	0.547262973	0.797840086	-0.932457611	1.212813243	1.150478354	0.393585242	3.362932102	1
ieu-b-4809	GCST90274791	Fms-related tyrosine kinase 3 ligand levels	Prostate cancer || id:ieu-b-4809	Weighted median	32	-0.061153779	0.467187991	0.895856326	-0.976842242	0.854534683	0.940678572	0.376498114	2.350280501	1
ieu-b-4809	GCST90274792	Glial cell line-derived neurotrophic factor levels	Prostate cancer || id:ieu-b-4809	Inverse variance weighted	32	0.128184255	0.320338228	0.689043939	-0.499678671	0.756047182	1.136762438	0.606725587	2.129840687	1
ieu-b-4809	GCST90274792	Glial cell line-derived neurotrophic factor levels	Prostate cancer || id:ieu-b-4809	MR Egger	32	-0.166141943	0.767330103	0.830048445	-1.670108945	1.337825059	0.846926011	0.188226558	3.810746337	1
ieu-b-4809	GCST90274792	Glial cell line-derived neurotrophic factor levels	Prostate cancer || id:ieu-b-4809	Weighted median	32	-0.010507651	0.473078177	0.982279455	-0.937740879	0.916725577	0.989547362	0.391511309	2.501087348	1
ieu-b-4809	GCST90274793	Hepatocyte growth factor levels	Prostate cancer || id:ieu-b-4809	Inverse variance weighted	32	-0.223964012	0.319673608	0.483551345	-0.850524283	0.402596259	0.7993439	0.427190904	1.495702893	1
ieu-b-4809	GCST90274793	Hepatocyte growth factor levels	Prostate cancer || id:ieu-b-4809	MR Egger	32	-0.519510153	0.766125311	0.502904973	-2.021115761	0.982095456	0.594811844	0.132507536	2.670045346	1

ieu-b-4809	GCST90274793	Hepatocyte growth factor levels	Prostate cancer || id:ieu-b-4809	Weighted median	32	0.076603259	0.46563772	0.86932764	-0.836046695	0.989253213	1.079613664	0.433420585	2.689222542	1
ieu-b-4809	GCST90274794	Interferon gamma levels	Prostate cancer || id:ieu-b-4809	MR Egger	33	0.938287496	0.903471 73	0.307053 81	-0.832517096	2.709092088	2.555601191	0.434953089	15.01563644	1
ieu-b-4809	GCST90274794	Interferon gamma levels	Prostate cancer || id:ieu-b-4809	Weighted median	33	0.38017 99 57	0.505268502	0.451791586	-0.610146308	1.370506221	1.462547761	0.543271378	3.937343356	1
ieu-b-4809	GCST90274794	Interferon gamma levels	Prostate cancer || id:ieu-b-4809	Inverse variance weighted	33	-0.284066465	0.380443357	0.455261475	-1.029735446	0.461602515	0.752716613	0.357101421	1.586161452 2	1
ieu-b-4809	GCST90274795	Interleukin-10 levels	Prostate cancer || id:ieu-b-4809	Weighted median	32	-0.525523862	0.462538502	0.255884073	-1.432099326	0.381051601	0.591245552	0.238807062	1.463823139	1
ieu-b-4809	GCST90274795	Interleukin-10 levels	Prostate cancer || id:ieu-b-4809	Inverse variance weighted	32	-0.218712828	0.326760962	0.5032812 6	-0.859164313	0.421738657	0.803552443	0.423515861	1.524610027	1
ieu-b-4809	GCST90274795	Interleukin-10 levels	Prostate cancer || id:ieu-b-4809	MR Egger	32	0.338570943	0.783385819	0.668694598	-1.196865263	1.874007149	1.402941274	0.302139858	6.514348129	1
ieu-b-4809	GCST90274796	Interleukin-10 receptor subunit alpha levels	Prostate cancer || id:ieu-b-4809	Inverse variance weighted	33	-0.293784881	0.354980617	0.407892404	-0.989546891	0.401977128	0.745436832	0.371745094	1.494777144	1
ieu-b-4809	GCST90274796	Interleukin-10 receptor subunit alpha levels	Prostate cancer || id:ieu-b-4809	MR Egger	33	-0.467701229	0.858018989	0.589558982	-2.149418448	1.21401599 9	0.626440658	0.116551919	3.366979294	1

ieu-b-4809	GCST90274796	Interleukin-10 receptor subunit alpha levels	Prostate cancer || id:ieu-b-4809	Weighted median	33	-0.255233238	0.52973046	0.629935822	-1.29350494	0.783038464	0.774735779	0.274307664	2.188110671	1
ieu-b-4809	GCST90274797	Interleukin-10 receptor subunit beta levels	Prostate cancer || id:ieu-b-4809	Weighted median	32	-0.433318501	0.448502575	0.333971651	-1.312383547	0.445746546	0.648353958	0.269177693	1.561655608	1
ieu-b-4809	GCST90274797	Interleukin-10 receptor subunit beta levels	Prostate cancer || id:ieu-b-4809	Inverse variance weighted	32	-0.204040309	0.316862697	0.519614867	-0.825091196	0.417010578	0.815429501	0.438195029	1.517418564	1
ieu-b-4809	GCST90274797	Interleukin-10 receptor subunit beta levels	Prostate cancer || id:ieu-b-4809	MR Egger	32	-0.336086197	0.764074645	0.663190876	-1.833672502	1.161500108	0.71456151	0.159825529	3.194722112	1
ieu-b-4809	GCST90274798	Interleukin-12 subunit beta levels	Prostate cancer || id:ieu-b-4809	Inverse variance weighted	32	-0.206946309	0.32571243	0.525190306	-0.845342639	0.431450022	0.813063303	0.4294102	1.539488195	1
ieu-b-4809	GCST90274798	Interleukin-12 subunit beta levels	Prostate cancer || id:ieu-b-4809	MR Egger	32	-0.193808836	0.788837164	0.807595879	-1.739929678	1.352312006	0.823815373	0.175532744	3.86635424	1
ieu-b-4809	GCST90274798	Interleukin-12 subunit beta levels	Prostate cancer || id:ieu-b-4809	Weighted median	32	-0.027636046	0.452808064	0.951333259	-0.915139851	0.859867759	0.972742336	0.400460617	2.362848207	1
ieu-b-4809	GCST90274799	Interleukin-13 levels	Prostate cancer || id:ieu-b-4809	MR Egger	33	0.19441257	0.944619445	0.8382846	-1.657041542	2.045866682	1.214597286	0.190702331	7.735860166	1
ieu-b-4809	GCST90274799	Interleukin-13 levels	Prostate cancer || id:ieu-b-4809	Inverse variance weighted	33	0.067651935	0.384385653	0.860293819	-0.685743944	0.821047815	1.069992817	0.503715354	2.272880148	1

id	GCST	exposure	outcome	method	nsnp	b	se	pval	lo_ci	up_ci				
ieu-b-4809	GCST90274799	Interleukin-13 levels	Prostate cancer || id:ieu-b-4809	Weighted median	33	0.07539457 9	0.50312298	0.88088043	-0.91072473 3	1.06151392	1.07830946	0.40223207	2.89074352	1
ieu-b-4809	GCST90274800	Interleukin-15 receptor subunit alpha levels	Prostate cancer || id:ieu-b-4809	MR Egger	32	0.99667014 3	0.83209489 1	0.24037916 9	-0.63423584 4	2.62757612 9	2.70924539 1	0.53034059 6	13.8401824	1
ieu-b-4809	GCST90274800	Interleukin-15 receptor subunit alpha levels	Prostate cancer || id:ieu-b-4809	Weighted median	32	-0.34668659 4	0.51343683 8	0.49953133 4	-1.35302297	0.65964960 8	0.70702688	0.25845781 3	1.93411518	1
ieu-b-4809	GCST90274800	Interleukin-15 receptor subunit alpha levels	Prostate cancer || id:ieu-b-4809	Inverse variance weighted	32	-0.01474366	0.34862717 2	0.96626715 7	-0.69805285 7	0.66856565 6	0.98536455 4	0.49755316 8	1.95143628 2	1
ieu-b-4809	GCST90274801	Interleukin-17A levels	Prostate cancer || id:ieu-b-4809	Inverse variance weighted	33	-0.49597806 4	0.43927113	0.25885502	-1.35694947 8	0.36499335	0.60897499	0.25744922	1.44050429	1
ieu-b-4809	GCST90274801	Interleukin-17A levels	Prostate cancer || id:ieu-b-4809	Weighted median	33	-0.46513893 8	0.51720338 5	0.36847442 4	-1.47885757 3	0.54857969 8	0.62804784	0.22789789 6	1.73079302 2	1
ieu-b-4809	GCST90274801	Interleukin-17A levels	Prostate cancer || id:ieu-b-4809	MR Egger	33	-0.21078577 2	1.07739009 2	0.84616497 1	-2.32247035 3	1.90089880 8	0.80994756 2	0.09803111 5	6.69190648 1	1
ieu-b-4809	GCST90274802	Interleukin-17C levels	Prostate cancer || id:ieu-b-4809	MR Egger	33	-1.39031877 2	0.85619580 8	0.11453803 03	-3.06846255 5	0.28782550 12	0.24899595 19	0.04649254 8	1.33352393 3	1
ieu-b-4809	GCST90274802	Interleukin-17C levels	Prostate cancer || id:ieu-b-4809	Inverse variance weighted	33	-0.51157610 66	0.35404401 46	0.14847200 57	-1.20550350 69	0.18235103 36	0.59954900 43	0.29954101 32	1.20003500 76	1

ieu-b-4809	GCST90274802	Interleukin-17C levels	Prostate cancer || id:ieu-b-4809	Weighted median	33	-0.5819297 27	0.522380228	0.26528 2807 03	-1.605794974	0.441935519	0.558818957	0.200729916	1.555715423	1
ieu-b-4809	GCST90274803	Interleukin-18 levels	Prostate cancer || id:ieu-b-4809	Inverse variance weighted	32	0.38107414 5	0.361436255	0.291730518	-0.32734 0914	1.089489205	1.463856139	0.720837957	2.972755215	1
ieu-b-4809	GCST90274803	Interleukin-18 levels	Prostate cancer || id:ieu-b-4809	MR Egger	32	0.6533761 25	0.877428989	0.462278079	-1.066384693	2.373136942	1.922018863	0.344250843	10.73100208	1
ieu-b-4809	GCST90274803	Interleukin-18 levels	Prostate cancer || id:ieu-b-4809	Weighted median	32	0.36588796 4	0.507748662	0.471150469	-0.629299414	1.361075342	1.441793701	0.532965058	3.900385296	1
ieu-b-4809	GCST90274804	interleukin-18 receptor 1 levels	Prostate cancer || id:ieu-b-4809	Inverse variance weighted	32	-0.41217016 2	0.324635625	0.204213129	-1.048455988	0.224115664	0.662211583	0.350478475	1.251215731	1
ieu-b-4809	GCST90274804	interleukin-18 receptor 1 levels	Prostate cancer || id:ieu-b-4809	Weighted median	32	-0.51655619 26	0.447463044	0.248326514	-1.393589484	0.360465632	0.596568071	0.248182855	1.433996974	1
ieu-b-4809	GCST90274804	interleukin-18 receptor 1 levels	Prostate cancer || id:ieu-b-4809	MR Egger	32	-0.40753884 7	0.777119689	0.603838619	-1.930693438	1.115615744	0.665285607	0.145047582	3.051446512	1
ieu-b-4809	GCST90274805	Interleukin-1-alpha levels	Prostate cancer || id:ieu-b-4809	MR Egger	33	2.0150638 6	0.856864981	0.025222264	0.335608498	3.694519222	7.501206396	1.398791289	40.22622807	1
ieu-b-4809	GCST90274805	Interleukin-1-alpha levels	Prostate cancer || id:ieu-b-4809	Weighted median	33	-0.5098133 4	0.514212461	0.321468368	-1.517669764	0.498043084	0.600607678	0.219222132	1.645498017	1

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id	GCST	exposure	outcome	method	nsnp									
ieu-b-4809	GCST90274805	Interleukin-1-alpha levels	Prostate cancer || id:ieu-b-4809	Inverse variance weighted	33	-0.06572854 2	0.36735627	0.85799838	-0.78574680 6	0.65428972 2	0.93638501 9	0.45577919 6	1.92377561 7	1
ieu-b-4809	GCST90274806	Interleukin-2 levels	Prostate cancer || id:ieu-b-4809	Inverse variance weighted	33	0.30735353 4	0.36491732 3	0.39964508 9	-0.40788441 9	1.02259148 7	1.35982162 6	0.66505574 2	2.78039078 2	1
ieu-b-4809	GCST90274806	Interleukin-2 levels	Prostate cancer || id:ieu-b-4809	Weighted median	33	0.34893708 5	0.50621735 1	0.49063267 7	-0.64324892 3	1.34112309 4	1.41756000 2	0.52558207 2	3.82333505 8	1
ieu-b-4809	GCST90274806	Interleukin-2 levels	Prostate cancer || id:ieu-b-4809	MR Egger	33	0.36759781 4	0.89632373 3	0.68454054 9	-1.38919669 7	2.12439232 5	1.44426106 1	0.24927546 8	8.36781103 5	1
ieu-b-4809	GCST90274807	Interleukin-20 levels	Prostate cancer || id:ieu-b-4809	MR Egger	33	0.51341981 5	1.08007334 1	0.63786539 6	-1.60352393 3	2.63036356 2	1.67099593 1	0.2011863	13.8788148	1
ieu-b-4809	GCST90274807	Interleukin-20 levels	Prostate cancer || id:ieu-b-4809	Weighted median	33	0.21238492 1	0.55419480 6	0.70154810 5	-0.87383689 9	1.29860674 2	1.23662379 6	0.41734715 4	3.66418794 9	1
ieu-b-4809	GCST90274807	Interleukin-20 levels	Prostate cancer || id:ieu-b-4809	Inverse variance weighted	33	0.10278482 4	0.44064873 2	0.81556110 3	-0.76088668 91	0.96645639	1.10825291 4	0.46725193 5	2.62861302 1	1
ieu-b-4809	GCST90274808	Interleukin-20 receptor subunit alpha levels	Prostate cancer || id:ieu-b-4809	MR Egger	33	0.81139276 6	1.02538070 2	0.43477682	-1.1983534 1	2.82113894 2	2.25104097 8	0.30169056 4	16.7959694 1	1
ieu-b-4809	GCST90274808	Interleukin-20 receptor subunit alpha levels	Prostate cancer || id:ieu-b-4809	Weighted median	33	0.26277618 8	0.52171751 8	0.61448962 2	-0.75979014 8	1.28534252 3	1.3005356 1	0.46776457 8	3.61590627 7	1

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ieu-b-4809	GCST90274808	Interleukin-20 receptor subunit alpha levels	Prostate cancer || id:ieu-b-4809	Inverse variance weighted	33	0.068442698	0.421663439	0.871057063	-0.758017643	0.894903038	1.070839262	0.468594428	2.447098502	1
ieu-b-4809	GCST90274809	Interleukin-22 receptor subunit alpha-1 levels	Prostate cancer || id:ieu-b-4809	Inverse variance weighted	33	-0.72325839	0.361164178	0.045222915	-1.43114018	-0.015376601	0.485168808	0.239036222	0.984741015	1
ieu-b-4809	GCST90274809	Interleukin-22 receptor subunit alpha-1 levels	Prostate cancer || id:ieu-b-4809	Weighted median	33	-0.751322612	0.530572999	0.156758263	-1.791245691	0.288600466	0.471742208	0.166752318	1.334558421	1
ieu-b-4809	GCST90274809	Interleukin-22 receptor subunit alpha-1 levels	Prostate cancer || id:ieu-b-4809	MR Egger	33	-1.008337527	0.87363904	0.257246565	-2.720670047	0.703994992	0.364824987	0.06583063	2.021813724	1
ieu-b-4809	GCST90274810	Interleukin-24 levels	Prostate cancer || id:ieu-b-4809	MR Egger	33	-0.189963201	0.971560227	0.846258829	-2.094221246	1.714294844	0.826989566	0.123166122	5.552758573	1
ieu-b-4809	GCST90274810	Interleukin-24 levels	Prostate cancer || id:ieu-b-4809	Inverse variance weighted	33	-0.063275773	0.395544974	0.872903823	-0.838543922	0.711992376	0.938684574	0.432339585	2.038047773	1
ieu-b-4809	GCST90274810	Interleukin-24 levels	Prostate cancer || id:ieu-b-4809	Weighted median	33	-0.064754989	0.519373981	0.900777743	-1.082727993	0.953218014	0.937297083	0.338670374	2.594043913	1
ieu-b-4809	GCST90274811	Interleukin-2 receptor subunit beta levels	Prostate cancer || id:ieu-b-4809	Weighted median	33	-0.341674789	0.516122153	0.507968833	-1.353274208	0.669924631	0.710579255	0.258392842	1.954090036	1
ieu-b-4809	GCST90274811	Interleukin-2 receptor subunit beta levels	Prostate cancer || id:ieu-b-4809	Inverse variance weighted	33	-0.225843472	0.35203028	0.521168274	-0.91582282	0.464135877	0.797842977	0.400187208	1.590639087	1

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ieu-b-4809	GCST90274811	Interleukin-2 receptor subunit beta levels	Prostate cancer || id:ieu-b-4809	MR Egger	33	0.49603137	0.85112306	0.56424616	-1.172170311	2.16423305	1.64219072	0.309694079	8.707920812	1
ieu-b-4809	GCST90274812	Interleukin-33 levels	Prostate cancer || id:ieu-b-4809	Inverse variance weighted	33	-0.27495668 5	0.38814021 9	0.47869984 6	-1.03571151 5	0.48579814 5	0.75960502 5	0.35497372 2	1.62547185 4	1
ieu-b-4809	GCST90274812	Interleukin-33 levels	Prostate cancer || id:ieu-b-4809	MR Egger	33	0.2621322 4	0.9481157 7	0.78401672 3	-1.59617466 9	2.12043914 8	1.29969840 3	0.20267031 8	8.33479689 7	1
ieu-b-4809	GCST90274812	Interleukin-33 levels	Prostate cancer || id:ieu-b-4809	Weighted median	33	0.13796215 9	0.51267884 5	0.78785230 8	-0.86688837 8	1.14281269 5	1.1479321 1	0.42025719 9	3.1355753 9	1
ieu-b-4809	GCST90274813	Interleukin-4 levels	Prostate cancer || id:ieu-b-4809	MR Egger	33	-0.50924366 3	1.0062074 7	0.61636542 4	-2.48141030 5	1.46292297 9	0.60094992 8	0.08362520 5	4.3185641 7	1
ieu-b-4809	GCST90274813	Interleukin-4 levels	Prostate cancer || id:ieu-b-4809	Weighted median	33	0.22734885 2	0.51436878 9	0.65849223 4	-0.78081397 4	1.23551167 8	1.25526769 5	0.45803303 3	3.44013831 5	1
ieu-b-4809	GCST90274813	Interleukin-4 levels	Prostate cancer || id:ieu-b-4809	Inverse variance weighted	33	-0.10557875 7	0.41093870 1	0.79723980 6	-0.9110186 1	0.69986109 7	0.89980360 4	0.40211441 8	2.0134730 1	1
ieu-b-4809	GCST90274814	Interleukin-5 levels	Prostate cancer || id:ieu-b-4809	Inverse variance weighted	33	-0.35879337 2	0.35967946 1	0.31850419 1	-1.06376511 6	0.34617837 1	0.6985186 7	0.34515381 7	1.41365474 8	1
ieu-b-4809	GCST90274814	Interleukin-5 levels	Prostate cancer || id:ieu-b-4809	MR Egger	33	-0.47304110 2	0.87867272 1	0.59417428 7	-2.19523963 4	1.24915743 1	0.6231044 6	0.11133187 9	3.48740334 1	1

id	GCST	exposure	outcome	method	nsnp									
ieu-b-4809	GCST90274814	Interleukin-5 levels	Prostate cancer || id:ieu-b-4809	Weighted median	33	-0.222130309	0.523615782	0.67140256	-1.248417243	0.804156624	0.800811004	0.286958623	2.234810918	1
ieu-b-4809	GCST90274815	Interleukin-6 levels	Prostate cancer || id:ieu-b-4809	Inverse variance weighted	32	-0.383064944	0.326747785	0.241053889	-1.023490602	0.257360714	0.681768621	0.359338441	1.29351163	1
ieu-b-4809	GCST90274815	Interleukin-6 levels	Prostate cancer || id:ieu-b-4809	Weighted median	32	-0.411403441	0.464362996	0.375643258	-1.321554912	0.49874803	0.662719509	0.266720253	1.646658413	1
ieu-b-4809	GCST90274815	Interleukin-6 levels	Prostate cancer || id:ieu-b-4809	MR Egger	32	-0.607121976	0.78225103	0.443753255	-2.140333994	0.926090042	0.544916898	0.117615554	2.524618702	1
ieu-b-4809	GCST90274816	Interleukin-7 levels	Prostate cancer || id:ieu-b-4809	Weighted median	32	-0.351250944	0.497470697	0.480142345	-1.326293509	0.623791621	0.703807115	0.265459363	1.865989772	1
ieu-b-4809	GCST90274816	Interleukin-7 levels	Prostate cancer || id:ieu-b-4809	MR Egger	32	0.222937817	0.950454388	0.816144427	-1.639952783	2.085828418	1.249742859	0.193998902	8.051258525	1
ieu-b-4809	GCST90274816	Interleukin-7 levels	Prostate cancer || id:ieu-b-4809	Inverse variance weighted	32	-0.061765509	0.391383379	0.874603905	-0.828876931	0.705345913	0.940103307	0.436539275	2.024546881	1
ieu-b-4809	GCST90274817	Interleukin-8 levels	Prostate cancer || id:ieu-b-4809	Weighted median	32	0.117337218	0.465165749	0.800849232	-0.79438765	1.029062086	1.124498567	0.451857846	2.798439907	1
ieu-b-4809	GCST90274817	Interleukin-8 levels	Prostate cancer || id:ieu-b-4809	Inverse variance weighted	32	-0.073114104	0.326014871	0.822550203	-0.712103251	0.565875042	0.929494764	0.490611233	1.760988048	1

ieu-b-4809	GCST90274817	Interleukin-8 levels	Prostate cancer || id:ieu-b-4809	MR Egger	32	0.140676412	0.780795659	0.858230192	-1.389683079	1.671035903	1.151052121	0.249154254	5.31767354	1
ieu-b-4809	GCST90274818	Latency-associated peptide transforming growth factor beta 1 levels	Prostate cancer || id:ieu-b-4809	MR Egger	32	0.523257063	0.773299849	0.503809239	-0.992410642	2.038924767	1.68751505	0.370682032	7.68234445	1
ieu-b-4809	GCST90274818	Latency-associated peptide transforming growth factor beta 1 levels	Prostate cancer || id:ieu-b-4809	Inverse variance weighted	32	-0.203801778	0.322910397	0.527948767	-0.836706156	0.429102601	0.81562403	0.433134855	1.535878608	1
ieu-b-4809	GCST90274818	Latency-associated peptide transforming growth factor beta 1 levels	Prostate cancer || id:ieu-b-4809	Weighted median	32	-0.298326512	0.473261341	0.528457011	-1.22591874	0.629265715	0.742059009	0.293487937	1.876232385	1
ieu-b-4809	GCST90274819	Leukemia inhibitory factor levels	Prostate cancer || id:ieu-b-4809	Inverse variance weighted	33	-0.430730636	0.354052716	0.223767085	-1.124673959	0.263212687	0.650033983	0.324758335	1.301103418	1
ieu-b-4809	GCST90274819	Leukemia inhibitory factor levels	Prostate cancer || id:ieu-b-4809	MR Egger	33	-0.791924031	0.85618586	0.362139603	-2.470048316	0.886200254	0.452972423	0.084580772	2.425894334	1
ieu-b-4809	GCST90274819	Leukemia inhibitory factor levels	Prostate cancer || id:ieu-b-4809	Weighted median	33	-0.316077849	0.517388585	0.541259179	-1.330159475	0.698003778	0.729002696	0.264435087	2.009736819	1
ieu-b-4809	GCST90274820	Leukemia inhibitory factor receptor levels	Prostate cancer || id:ieu-b-4809	Inverse variance weighted	32	-0.204890044	0.347805006	0.55579783	-0.886587855	0.476807768	0.814736897	0.412059363	1.610923744	1
ieu-b-4809	GCST90274820	Leukemia inhibitory factor receptor levels	Prostate cancer || id:ieu-b-4809	Weighted median	32	-0.16671664	0.502492781	0.740056011	-1.151602491	0.818169211	0.846439425	0.316129768	2.266346834	1

id	GCST	Exposure	Outcome	Method	nsnp									
ieu-b-4809	GCST90274820	Leukemia inhibitory factor receptor levels	Prostate cancer || id:ieu-b-4809	MR Egger	32	-0.248932289	0.843400194	0.769909919	-1.90199667	1.404132092	0.779632761	0.149270278	4.071991093	1
ieu-b-4809	GCST90274821	Monocyte chemoattractant protein-1 levels	Prostate cancer || id:ieu-b-4809	MR Egger	32	-0.419942751	0.778030154	0.59335277	-1.944881853	1.10499635	0.657084436	0.143004118	3.0192134 5	1
ieu-b-4809	GCST90274821	Monocyte chemoattractant protein-1 levels	Prostate cancer || id:ieu-b-4809	Weighted median	32	0.087013227	0.449677506	0.846566309	-0.794354685	0.96838114	1.090911109	0.451872741	2.6336774 5	1
ieu-b-4809	GCST90274821	Monocyte chemoattractant protein-1 levels	Prostate cancer || id:ieu-b-4809	Inverse variance weighted	32	-0.045924017	0.324575438	0.887483252	-0.682091875	0.59024384	0.955114531	0.505558321	1.804428354	1
ieu-b-4809	GCST90274822	Monocyte chemoattractant protein 2 levels	Prostate cancer || id:ieu-b-4809	Inverse variance weighted	32	-0.511342461	0.327601749	0.118555349	-1.153441888	0.130756966	0.599689978	0.315548815	1.139690764	1
ieu-b-4809	GCST90274822	Monocyte chemoattractant protein 2 levels	Prostate cancer || id:ieu-b-4809	Weighted median	32	-0.721082092	0.49121473	0.142115909	-1.683862964	0.24169878	0.48622583	0.185655409	1.273410558	1
ieu-b-4809	GCST90274822	Monocyte chemoattractant protein 2 levels	Prostate cancer || id:ieu-b-4809	MR Egger	32	0.729029082	0.784453523	0.360127622	-0.808499823	2.266557986	2.073066851	0.445525933	9.646141451	1
ieu-b-4809	GCST90274823	Monocyte chemoattractant protein-3 levels	Prostate cancer || id:ieu-b-4809	Weighted median	33	0.392307664	0.516054093	0.447131174	-0.619158359	1.403773687	1.480393105	0.538397384	4.070531935	1
ieu-b-4809	GCST90274823	Monocyte chemoattractant protein-3 levels	Prostate cancer || id:ieu-b-4809	MR Egger	33	0.617708531	1.116962239	0.584212442	-1.571537458	2.80695452	1.854673243	0.207725567	16.55941	1

id.exposure	GCST id	exposure	outcome	method	nsnp	b	se	pval	lo_ci	up_ci	or	or_lci95	or_uci95	
ieu-b-4809	GCST90274823	Monocyte chemoattractant protein-3 levels	Prostate cancer || id:ieu-b-4809	Inverse variance weighted	33	0.247561866	0.45551515	0.586801635	-0.645247827	1.14037156	1.280898605	0.524532533	3.127930363	1
ieu-b-4809	GCST90274824	Monocyte chemoattractant protein-4 levels	Prostate cancer || id:ieu-b-4809	Inverse variance weighted	32	-0.278163202	0.333080417	0.403648314	-0.931000819	0.374674415	0.757173239	0.394159031	1.454517768	1
ieu-b-4809	GCST90274824	Monocyte chemoattractant protein-4 levels	Prostate cancer || id:ieu-b-4809	MR Egger	32	-0.657115492	0.807530459	0.422208983	-2.239875193	0.925644208	0.518344348	0.106471792	2.523493392	1
ieu-b-4809	GCST90274824	Monocyte chemoattractant protein-4 levels	Prostate cancer || id:ieu-b-4809	Weighted median	32	-0.228814663	0.4909172	0.641146612	-1.191012375	0.733383049	0.795475951	0.303913434	2.082112595	1
ieu-b-4809	GCST90274825	Macrophage inflammatory protein 1a levels	Prostate cancer || id:ieu-b-4809	MR Egger	32	0.41776602	0.85946977	0.630446362	-1.266794728	2.102326769	1.51856532	0.281733208	8.185192828	1
ieu-b-4809	GCST90274825	Macrophage inflammatory protein 1a levels	Prostate cancer || id:ieu-b-4809	Inverse variance weighted	32	0.142385877	0.353573618	0.687165228	-0.550618415	0.835390169	1.153021487	0.576593126	2.305713492	1
ieu-b-4809	GCST90274825	Macrophage inflammatory protein 1a levels	Prostate cancer || id:ieu-b-4809	Weighted median	32	0.131468493	0.466083518	0.777889318	-0.782055202	1.044992189	1.140501974	0.457464862	2.843376313	1
ieu-b-4809	GCST90274826	Matrix metalloproteinase-1 levels	Prostate cancer || id:ieu-b-4809	Weighted median	32	0.44259537	0.492265749	0.368600225	-0.522245498	1.407436238	1.556742303	0.593187051	4.0854678	1
ieu-b-4809	GCST90274826	Matrix metalloproteinase-1 levels	Prostate cancer || id:ieu-b-4809	Inverse variance weighted	32	0.303488332	0.344414931	0.378225458	-0.371564933	0.978541598	1.354575786	0.689654223	2.660573225	1

ieu-b-4809	GCST90274826	Matrix metalloproteinase-1 levels	Prostate cancer || id:ieu-b-4809	MR Egger	32	0.210496565	0.838232594	0.803433817	-1.432439318	1.853432449	1.234290814	0.238725883	6.381686785	1
ieu-b-4809	GCST90274827	Matrix metalloproteinase-10 levels	Prostate cancer || id:ieu-b-4809	MR Egger	32	-0.878676811	0.782921998	0.270635427	-2.413203927	0.655850305	0.415332111	0.089527993	1.926780172	1
ieu-b-4809	GCST90274827	Matrix metalloproteinase-10 levels	Prostate cancer || id:ieu-b-4809	Weighted median	32	0.141149887	0.469056675	0.7634733	-0.778201196	1.060500971	1.151597245	0.459231336	2.887817339	1
ieu-b-4809	GCST90274827	Matrix metalloproteinase-10 levels	Prostate cancer || id:ieu-b-4809	Inverse variance weighted	32	0.073293618	0.327051153	0.822676032	-0.567726643	0.714313878	1.076046437	0.566812543	2.042784602	1
ieu-b-4809	GCST90274828	Neurturin levels	Prostate cancer || id:ieu-b-4809	Weighted median	33	-0.611239122	0.503437396	0.224697572	-1.597976418	0.375498174	0.542678008	0.202305486	1.455716433	1
ieu-b-4809	GCST90274828	Neurturin levels	Prostate cancer || id:ieu-b-4809	Inverse variance weighted	33	-0.409242191	0.351747871	0.24464567	-1.098668019	0.280183637	0.664153361	0.333314757	1.32337281	1
ieu-b-4809	GCST90274828	Neurturin levels	Prostate cancer || id:ieu-b-4809	MR Egger	33	-0.693083349	0.861979586	0.427485496	-2.382563337	0.99639664	0.500031917	0.092313643	2.708504507	1
ieu-b-4809	GCST90274829	Neurotrophin-3 levels	Prostate cancer || id:ieu-b-4809	Weighted median	32	0.572829842	0.473073851	0.225946117	-0.354394906	1.50005459	1.773278054	0.701597848	4.48193373	1
ieu-b-4809	GCST90274829	Neurotrophin-3 levels	Prostate cancer || id:ieu-b-4809	MR Egger	32	0.727594853	0.770934285	0.352819693	-0.783436345	2.238626052	2.070095732	0.456833473	9.380434201	1

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ieu-b-4809	GCST90274829	Neurotrophin-3 levels	Prostate cancer || id:ieu-b-4809	Inverse variance weighted	32	0.20090685	0.32187442	0.53251088	-0.429967056	0.831780756	1.222510889	0.650530526	2.297406219	1
ieu-b-4809	GCST90274830	Osteoprotegerin levels	Prostate cancer || id:ieu-b-4809	Inverse variance weighted	32	-0.342885274	0.311487589	0.27098408	-0.953400949	0.2676304	0.70971963	0.385427971	1.306864033	1
ieu-b-4809	GCST90274830	Osteoprotegerin levels	Prostate cancer || id:ieu-b-4809	MR Egger	32	0.222941047	0.747784232	0.767654868	-1.242716049	1.688598142	1.249746895	0.288599303	5.411888686	1
ieu-b-4809	GCST90274830	Osteoprotegerin levels	Prostate cancer || id:ieu-b-4809	Weighted median	32	-0.004625915	0.466803901	0.992093285	-0.91956156	0.910309731	0.995384769	0.398693806	2.485092125	1
ieu-b-4809	GCST90274831	Oncostatin-M levels	Prostate cancer || id:ieu-b-4809	Inverse variance weighted	32	-0.480611905	0.328879184	0.14391582	-1.125215105	0.163991295	0.618404871	0.32458264	1.178204059	1
ieu-b-4809	GCST90274831	Oncostatin-M levels	Prostate cancer || id:ieu-b-4809	MR Egger	32	-0.836992548	0.797017778	0.302033094	-2.399147393	0.725162298	0.433010827	0.090795333	2.065066229	1
ieu-b-4809	GCST90274831	Oncostatin-M levels	Prostate cancer || id:ieu-b-4809	Weighted median	32	-0.334479631	0.488790118	0.493785032	-1.292508262	0.623549	0.715710423	0.274581197	1.865537098	1
ieu-b-4809	GCST90274832	Programmed cell death 1 ligand 1 levels	Prostate cancer || id:ieu-b-4809	Weighted median	32	-0.371827083	0.5023955	0.459234279	-1.356522263	0.612868098	0.689473454	0.25755493	1.845717513	1
ieu-b-4809	GCST90274832	Programmed cell death 1 ligand 1 levels	Prostate cancer || id:ieu-b-4809	Inverse variance weighted	32	-0.255118562	0.347111324	0.46235388	-0.935456757	0.425219632	0.774824628	0.39240659	1.529926404	1

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id	GCST	exposure	outcome	method	nsnp	b	se	pval						
ieu-b-4809	GCST90274832	Programmed cell death 1 ligand 1 levels	Prostate cancer || id:ieu-b-4809	MR Egger	32	-0.081365416	0.84479516	0.923911902	-1.737163931	1.574433098	0.921856768	0.176018895	4.828003838	1
ieu-b-4809	GCST90274833	Stem cell factor levels	Prostate cancer || id:ieu-b-4809	Weighted median	32	-0.73656776	0.483662523	0.127784707	-1.684546306	0.211410786	0.478754298	0.185528586	1.235419743	1
ieu-b-4809	GCST90274833	Stem cell factor levels	Prostate cancer || id:ieu-b-4809	Inverse variance weighted	32	-0.441032823	0.378455257	0.243877359	-1.182805127	0.30073948	0.643371589	0.306417991	1.350857371	1
ieu-b-4809	GCST90274833	Stem cell factor levels	Prostate cancer || id:ieu-b-4809	MR Egger	32	-0.83750111	0.918084773	0.368922327	-2.636947265	0.961945046	0.43279067	0.071557949	2.616781286	1
ieu-b-4809	GCST90274834	SIR2-like protein 2 levels	Prostate cancer || id:ieu-b-4809	MR Egger	32	1.6928528 8	0.976238074	0.093174652	-0.220573744	3.606279504	5.434963909	0.802058489	36.8288776 3	1
ieu-b-4809	GCST90274834	SIR2-like protein 2 levels	Prostate cancer || id:ieu-b-4809	Weighted median	32	0.225755203	0.523679373	0.6663997 9	-0.800656367	1.252166774	1.253268832	0.449034136	3.497913939	1
ieu-b-4809	GCST90274834	SIR2-like protein 2 levels	Prostate cancer || id:ieu-b-4809	Inverse variance weighted	32	0.148328587	0.420927019	0.7245491 6	-0.6766883 7	0.973345543	1.159893959	0.508297501	2.646784596	1
ieu-b-4809	GCST90274835	Signaling lymphocytic activation molecule levels	Prostate cancer || id:ieu-b-4809	Inverse variance weighted	32	0.397032595	0.325894733	0.223115769	-0.241721081	1.035786271	1.487404411	0.785275175	2.817320543	1
ieu-b-4809	GCST90274835	Signaling lymphocytic activation molecule levels	Prostate cancer || id:ieu-b-4809	MR Egger	32	0.929283559	0.7825961 2	0.244372498	-0.604604837	2.463171955	2.532694001	0.546290258	11.74199762	1

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ieu-b-4809	GCST90274835	Signaling lymphocytic activation molecule levels	Prostate cancer || id:ieu-b-4809	Weighted median	32	0.316803649	0.460289279	0.491282295	-0.585363338	1.218970636	1.372733008	0.556903481	3.383702879	1
ieu-b-4809	GCST90274836	Sulfotransferase 1A1 levels	Prostate cancer || id:ieu-b-4809	MR Egger	33	1.222561541	0.883422388	0.176275177	-0.50894634	2.954069422	3.395875276	0.60112863	19.18386233	1
ieu-b-4809	GCST90274836	Sulfotransferase 1A1 levels	Prostate cancer || id:ieu-b-4809	Inverse variance weighted	33	0.385651123	0.365893351	0.291883504	-0.331499845	1.10280209	1.470571532	0.717846268	3.012595773	1
ieu-b-4809	GCST90274836	Sulfotransferase 1A1 levels	Prostate cancer || id:ieu-b-4809	Weighted median	33	0.145173426	0.545279176	0.790056783	-0.92357376	1.213920611	1.156240074	0.397097371	3.36665817	1
ieu-b-4809	GCST90274837	STAM binding protein levels	Prostate cancer || id:ieu-b-4809	MR Egger	32	1.570207985	0.947397281	0.107863104	-0.286690686	3.427106656	4.807648009	0.750743908	30.78743513	1
ieu-b-4809	GCST90274837	STAM binding protein levels	Prostate cancer || id:ieu-b-4809	Weighted median	32	0.597060496	0.528831537	0.258890103	-0.439449316	1.633570308	1.81677054	0.64439118	5.122129691	1
ieu-b-4809	GCST90274837	STAM binding protein levels	Prostate cancer || id:ieu-b-4809	Inverse variance weighted	32	0.127191148	0.407013277	0.754661499	-0.670554876	0.924937171	1.135634071	0.511424722	2.52170982	1
ieu-b-4809	GCST90274838	Transforming growth factor-alpha levels	Prostate cancer || id:ieu-b-4809	MR Egger	32	-0.543465829	0.836808147	0.520988819	-2.183609797	1.096678139	0.580732043	0.112634209	2.994203159	1
ieu-b-4809	GCST90274838	Transforming growth factor-alpha levels	Prostate cancer || id:ieu-b-4809	Weighted median	32	0.24648375	0.494288263	0.618016128	-0.722321245	1.215288744	1.279518391	0.485623695	3.371267358	1

ieu-b-4809	GCST90274838	Transforming growth factor-alpha levels	Prostate cancer || id:ieu-b-4809	Inverse variance weighted	32	0.155287447	0.348441335	0.65584062	-0.527657577	0.838232464	1.167993649	0.589985352	2.312276331	1
ieu-b-4809	GCST90274839	Tumor necrosis factor levels	Prostate cancer || id:ieu-b-4809	Weighted median	33	0.956510636	0.556843762	0.08584476	-0.134903138	2.04792441	2.602599195	0.873800546	7.751794852	1
ieu-b-4809	GCST90274839	Tumor necrosis factor levels	Prostate cancer || id:ieu-b-4809	Inverse variance weighted	33	0.195379979	0.457792452	0.669534298	-0.701893227	1.092653186	1.215772867	0.495646045	2.982175851	1
ieu-b-4809	GCST90274839	Tumor necrosis factor levels	Prostate cancer || id:ieu-b-4809	MR Egger	33	-0.014343287	1.123757485	0.98989812	-2.216907959	2.188221384	0.985759087	0.108945452	8.919334927	1
ieu-b-4809	GCST90274840	TNF-beta levels	Prostate cancer || id:ieu-b-4809	MR Egger	33	-0.268386977	1.019619473	0.794120654	-2.266841144	1.730067191	0.764611837	0.103639044	5.641032922	1
ieu-b-4809	GCST90274840	TNF-beta levels	Prostate cancer || id:ieu-b-4809	Weighted median	33	-0.093163254	0.529195148	0.860256965	-1.130385745	0.944059236	0.911044756	0.322908672	2.570394108	1
ieu-b-4809	GCST90274840	TNF-beta levels	Prostate cancer || id:ieu-b-4809	Inverse variance weighted	33	-0.000280181	0.415835145	0.999462403	-0.815317066	0.814756704	0.999719859	0.442499004	2.258626092	1
ieu-b-4809	GCST90274841	Tumor necrosis factor receptor superfamily member 9 levels	Prostate cancer || id:ieu-b-4809	Weighted median	33	0.165116275	0.507350975	0.744842159	-0.829291637	1.159524187	1.179530261	0.436358277	3.188415826	1
ieu-b-4809	GCST90274841	Tumor necrosis factor receptor superfamily member 9 levels	Prostate cancer || id:ieu-b-4809	MR Egger	33	-0.182462623	0.860102164	0.833386011	-1.868262865	1.503337619	0.833215787	0.154391628	4.496672233	1

id	GCST id	exposure	outcome	method	nsnp								
ieu-b-4809	GCST90274841	Tumor necrosis factor receptor superfamily member 9 levels	Prostate cancer || id:ieu-b-4809	Inverse variance weighted	33	0.055859483	0.35572536	0.875221358	-0.641362214	0.753081181	1.057449084	0.526574628	2.123532936	1
ieu-b-4809	GCST90274842	Tumor necrosis factor ligand superfamily member 14 levels	Prostate cancer || id:ieu-b-4809	MR Egger	33	0.68758784	1.203350228	0.571852038	-1.670978608	3.046154287	1.988912167	0.188062936	21.03429682	1
ieu-b-4809	GCST90274842	Tumor necrosis factor ligand superfamily member 14 levels	Prostate cancer || id:ieu-b-4809	Weighted median	33	-0.228338206	0.571498695	0.689493271	-1.348475649	0.891799236	0.795855051	0.259635735	2.439514969	1
ieu-b-4809	GCST90274842	Tumor necrosis factor ligand superfamily member 14 levels	Prostate cancer || id:ieu-b-4809	Inverse variance weighted	33	0.183956632	0.491544706	0.708224342	-0.779470991	1.147384255	1.201963695	0.458648576	3.149942677	1
ieu-b-4809	GCST90274843	TNF-related apoptosis-inducing ligand levels	Prostate cancer || id:ieu-b-4809	Inverse variance weighted	32	-0.322971174	0.323509182	0.318115991	-0.95704917	0.311106823	0.723994724	0.384024406	1.36493502	1
ieu-b-4809	GCST90274843	TNF-related apoptosis-inducing ligand levels	Prostate cancer || id:ieu-b-4809	Weighted median	32	-0.169927222	0.458028267	0.710639589	-1.067662625	0.727808181	0.843726219	0.343811195	2.070537387	1
ieu-b-4809	GCST90274843	TNF-related apoptosis-inducing ligand levels	Prostate cancer || id:ieu-b-4809	MR Egger	32	0.062928024	0.774459885	0.935779568	-1.5808694	1.455013351	0.939011057	0.205796101	4.284540668	1
ieu-b-4809	GCST90274844	TNF-related activation-induced cytokine levels	Prostate cancer || id:ieu-b-4809	Inverse variance weighted	32	-0.470679423	0.325972926	0.148760966	-1.109586357	0.168227512	0.624577772	0.329695309	1.183205773	1
ieu-b-4809	GCST90274844	TNF-related activation-induced cytokine levels	Prostate cancer || id:ieu-b-4809	Weighted median	32	-0.445271839	0.450033208	0.322457713	-1.327336926	0.436793249	0.640650099	0.265182522	1.547736048	1

id.exposure	id	exposure	outcome	method	nsnp	b	se	pval	lo_ci	or	or_lci95	or_uci95		
ieu-b-4809	GCST90274844	TNF-related activation-induced cytokine levels	Prostate cancer || id:ieu-b-4809	MR Egger	32	-0.404516345	0.780572116	0.608098706	-1.934437693	1.125405003	0.667299476	0.144505502	3.081464599	1
ieu-b-4809	GCST90274845	Thymic stromal lymphopoietin levels	Prostate cancer || id:ieu-b-4809	Weighted median	33	-0.2696462	0.512836185	0.599031329	-1.274805124	0.735512723	0.763649626	0.279485428	2.086551542	1
ieu-b-4809	GCST90274845	Thymic stromal lymphopoietin levels	Prostate cancer || id:ieu-b-4809	Inverse variance weighted	33	0.139297262	0.375664871	0.710785058	-0.597005885	0.87560041	1.149465742	0.550457303	2.400316035	1
ieu-b-4809	GCST90274845	Thymic stromal lymphopoietin levels	Prostate cancer || id:ieu-b-4809	MR Egger	33	-0.15140088	0.921025542	0.870496859	-1.956610942	1.653809183	0.859503072	0.141336608	5.226851991	1
ieu-b-4809	GCST90274846	Tumor necrosis factor ligand superfamily member 12 levels	Prostate cancer || id:ieu-b-4809	Weighted median	32	0.303198031	0.46954861	0.518459185	-0.617117245	1.223513306	1.354182607	0.539497437	3.399108889	1
ieu-b-4809	GCST90274846	Tumor necrosis factor ligand superfamily member 12 levels	Prostate cancer || id:ieu-b-4809	MR Egger	32	0.467235922	0.770188743	0.548646242	-1.042334014	1.976805858	1.595577791	0.352630676	7.219645546	1
ieu-b-4809	GCST90274846	Tumor necrosis factor ligand superfamily member 12 levels	Prostate cancer || id:ieu-b-4809	Inverse variance weighted	32	0.019874074	0.32167299	0.950735266	-0.610604986	0.650353134	1.020072878	0.543022249	1.916217391	1
ieu-b-4809	GCST90274847	Urokinase-type plasminogen activator levels	Prostate cancer || id:ieu-b-4809	Weighted median	32	0.882755559	0.492420349	0.073022986	-0.082388324	1.847899443	2.417552246	0.920914276	6.346474381	1
ieu-b-4809	GCST90274847	Urokinase-type plasminogen activator levels	Prostate cancer || id:ieu-b-4809	Inverse variance weighted	32	0.451953246	0.321233581	0.159448069	-0.177664572	1.081571063	1.571378478	0.837223204	2.949309466	1

ieu-b-4809	GCST90274847	Urokinase-type plasminogen activator levels	Prostate cancer || id:ieu-b-4809	MR Egger	32	-0.0398995 55	0.768 8827 02	0.958 9580 3	-1.546 9096 52	1.467 1105 41	0.960 8859 5	0.212 9049 09	4.336 6863 45	1
ieu-b-4809	GCST90274848	Vascular endothelial growth factor A levels	Prostate cancer || id:ieu-b-4809	Inverse variance weighted	32	-0.242 1130 91	0.324 6156 97	0.455 7608 73	-0.878 3598 58	0.394 1336 75	0.784 9674	0.415 4637 73	1.483 0987 89	1
ieu-b-4809	GCST90274848	Vascular endothelial growth factor A levels	Prostate cancer || id:ieu-b-4809	MR Egger	32	0.282 7577 51	0.778 2618 16	0.718 9138 67	-1.242 6354 07	1.808 1509 1	1.326 7837 11	0.288 6225 77	6.099 1591 04	1
ieu-b-4809	GCST90274848	Vascular endothelial growth factor A levels	Prostate cancer || id:ieu-b-4809	Weighted median	32	-0.147 6242 72	0.476 2368 58	0.756 5755 73	-1.081 0485 15	0.785 7999 7	0.862 7552 15	0.339 2396 41	2.194 1615 03	1

Supplementary Table 5. Heterogeneity of significant traits in bidirectional two-sample Mendelian randomization analyses.

id.exposure	id.outcome	outcome	exposure	method	Q	Q_df	Q_pval
GCST90274766	ieu-b-4809	Prostate cancer || id:ieu-b-4809	C-C motif chemokine 20 levels	Inverse variance weighted	33.60840476	20	0.028898972
GCST90274766	ieu-b-4809	Prostate cancer || id:ieu-b-4809	C-C motif chemokine 20 levels	MR Egger	31.65184139	19	0.03419374
GCST90274767	ieu-b-4809	Prostate cancer || id:ieu-b-4809	C-C motif chemokine 23 levels	Inverse variance weighted	22.74886198	24	0.53466111
GCST90274767	ieu-b-4809	Prostate cancer || id:ieu-b-4809	C-C motif chemokine 23 levels	MR Egger	22.54817447	23	0.487398416
GCST90274778	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Fractalkine levels	Inverse variance weighted	46.22606992	21	0.001192275
GCST90274778	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Fractalkine levels	MR Egger	44.58852835	20	0.001254334
GCST90274784	ieu-b-4809	Prostate cancer || id:ieu-b-4809	C-X-C motif chemokine 9 levels	Inverse variance weighted	52.41689251	23	0.000439456
GCST90274784	ieu-b-4809	Prostate cancer || id:ieu-b-4809	C-X-C motif chemokine 9 levels	MR Egger	48.9150106	22	0.000820288
GCST90274787	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Fibroblast growth factor 19 levels	Inverse variance weighted	13.34563864	20	0.862066581
GCST90274787	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Fibroblast growth factor 19 levels	MR Egger	12.18208843	19	0.877695213
GCST90274789	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Fibroblast growth factor 23 levels	Inverse variance weighted	7.761995709	13	0.858752606
GCST90274789	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Fibroblast growth factor 23 levels	MR Egger	5.399395571	12	0.943292617
GCST90274815	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Interleukin-6 levels	Inverse variance weighted	5.027429265	7	0.656615762
GCST90274815	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Interleukin-6 levels	MR Egger	4.407260151	6	0.62174053
GCST90274818	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Latency-associated peptide transforming growth factor beta 1 levels	Inverse variance weighted	17.45555995	19	0.559034204
GCST90274818	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Latency-associated peptide transforming growth factor beta 1 levels	MR Egger	15.24730321	18	0.644922175

GCST90274828	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Neurturin levels	Inverse variance weighted	7.167793007	13	0.893298549
GCST90274828	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Neurturin levels	MR Egger	5.899108049	12	0.921082213
ieu-b-4809	GCST90274809	Interleukin-22 receptor subunit alpha-1 levels	Prostate cancer || id:ieu-b-4809	Inverse variance weighted	28.35395261	32	0.651748745
ieu-b-4809	GCST90274809	Interleukin-22 receptor subunit alpha-1 levels	Prostate cancer || id:ieu-b-4809	MR Egger	28.22552437	31	0.609500404

Supplementary Table 6. Pleiotropy of significant traits in bidirectional two-sample Mendelian randomization analyses.

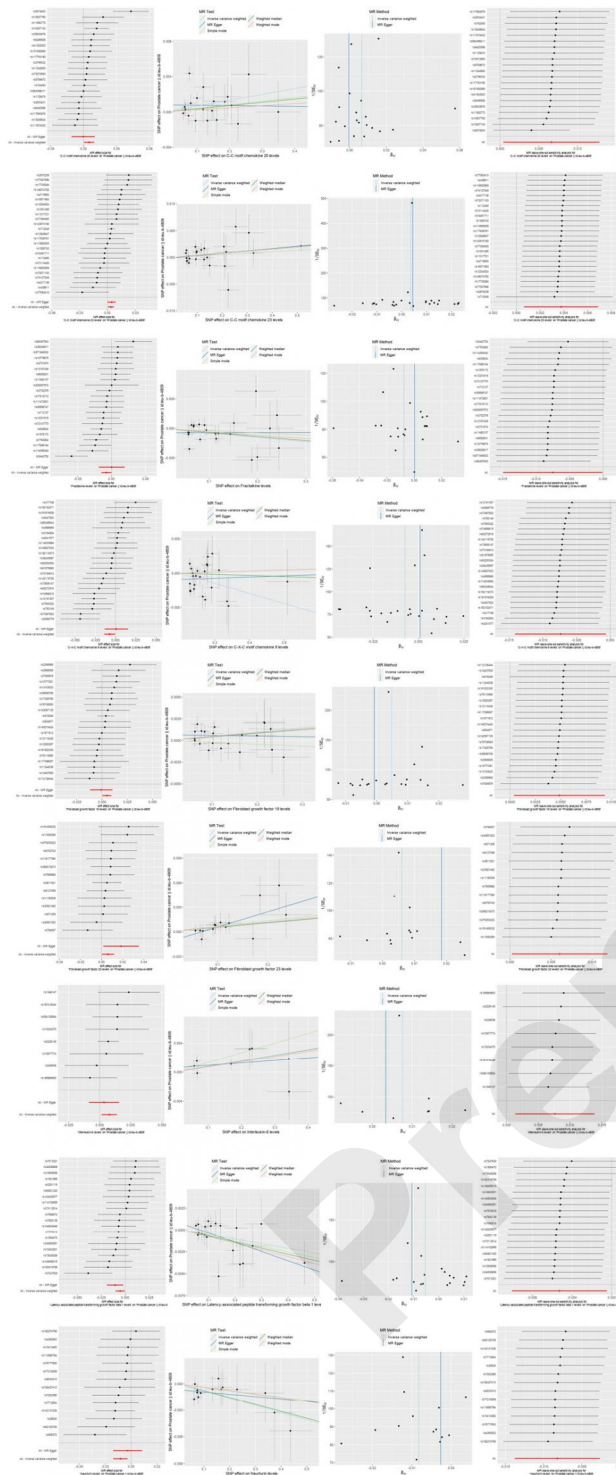| id.exposure	id.outcome	outcome	exposure	egger_intercept	se	pval
GCST9027 4766	ieu-b-4809	Prostate cancer || id:ieu-b-4809	C-C motif chemokine 20 levels	0.00079834 3	0.000736 657	0.292042 493
GCST9027 4767	ieu-b-4809	Prostate cancer || id:ieu-b-4809	C-C motif chemokine 23 levels	-0.00014442 2	0.000322 384	0.658357 841
GCST9027 4778	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Fractalkine levels	-0.00072837 1	0.000849 872	0.401577 51
GCST9027 4784	ieu-b-4809	Prostate cancer || id:ieu-b-4809	C-X-C motif chemokine 9 levels	-0.00092638 9	0.000738 163	0.222649 941
GCST9027 4787	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Fibroblast growth factor 19 levels	0.00065224	0.000604 665	0.294234 809
GCST9027 4789	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Fibroblast growth factor 23 levels	-0.00125594 9	0.000817 103	0.150214 006
GCST9027 4815	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Interleukin-6 levels	0.00059362 3	0.000753 799	0.460952 119
GCST9027 4818	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Latency-associated peptide transforming growth factor beta 1 levels	0.00071643 7	0.000482 118	0.154578 933
GCST9027 4828	ieu-b-4809	Prostate cancer || id:ieu-b-4809	Neurturin levels	-0.00067724 4	0.000601 268	0.282034 905
ieu-b-4809	GCST9027 4809	Interleukin-22 receptor subunit alpha-1 levels	Prostate cancer || id:ieu-b-4809	0.00244192 7	0.006814 004	0.722496 281

Figure 2. Causal effects of significant inflammatory cytokines on Prostate cancer by forward mendelian randomized analysis.

exposure	outcome	method	nsnp	OR(95%CI)	pval
CCL20	PCA	Inverse variance weighted	21	1.0067(1.0004, 1.0129)	0.0361
		Weighted median	21	1.0036(0.9968, 1.0105)	0.2970
		MR Egger	21	0.9996(0.9856, 1.0138)	0.9565
CCL23	PCA	Inverse variance weighted	25	1.0038(1.0006, 1.0069)	0.0187
		Weighted median	25	1.0041(1.0001, 1.0081)	0.0466
		MR Egger	25	1.0045(1.0000, 1.0090)	0.0607
CX3CL1	PCA	Inverse variance weighted	22	0.9925(0.9852, 0.9999)	0.0471
		Weighted median	22	0.9932(0.9855, 1.0010)	0.0858
		MR Egger	22	1.0002(0.9812, 1.0195)	0.9841
CXCL9	PCA	Inverse variance weighted	24	0.9927(0.9860, 0.9994)	0.0320
		Weighted median	24	0.9992(0.9920, 1.0064)	0.8229
		MR Egger	24	1.0009(0.9865, 1.0156)	0.9040
FGF19	PCA	Inverse variance weighted	21	1.0049(1.0004, 1.0094)	0.0336
		Weighted median	21	1.0041(0.9973, 1.0110)	0.2352
		MR Egger	21	0.9992(0.9882, 1.0104)	0.8949
FGF23	PCA	Inverse variance weighted	14	1.0061(1.0002, 1.0119)	0.0419
		MR Egger	14	1.0186(1.0016, 1.0359)	0.0531
		Weighted median	14	1.0055(0.9978, 1.0132)	0.1632
IL-6	PCA	Inverse variance weighted	8	1.0076(1.0014, 1.0139)	0.0166
		Weighted median	8	1.0077(0.9998, 1.0158)	0.0573
		MR Egger	8	1.0034(0.9913, 1.0157)	0.6036
TGF-β	PCA	Inverse variance weighted	20	0.9947(0.9900, 0.9995)	0.0312
		Weighted median	20	0.9930(0.9864, 0.9998)	0.0424
		MR Egger	20	0.9894(0.9810, 0.9979)	0.0253
NRTN	PCA	Inverse variance weighted	14	0.9918(0.9863, 0.9974)	0.0040
		Weighted median	14	0.9922(0.9845, 0.9999)	0.0470
		MR Egger	14	0.9974(0.9863, 1.0086)	0.6528
PCA	IL22RA1	Inverse variance weighted	33	0.4852(0.2390, 0.9847)	0.0452
		Weighted median	33	0.4717(0.1668, 1.3346)	0.1568
		MR Egger	33	0.3648(0.0658, 2.0218)	0.2572

0.9   1.1

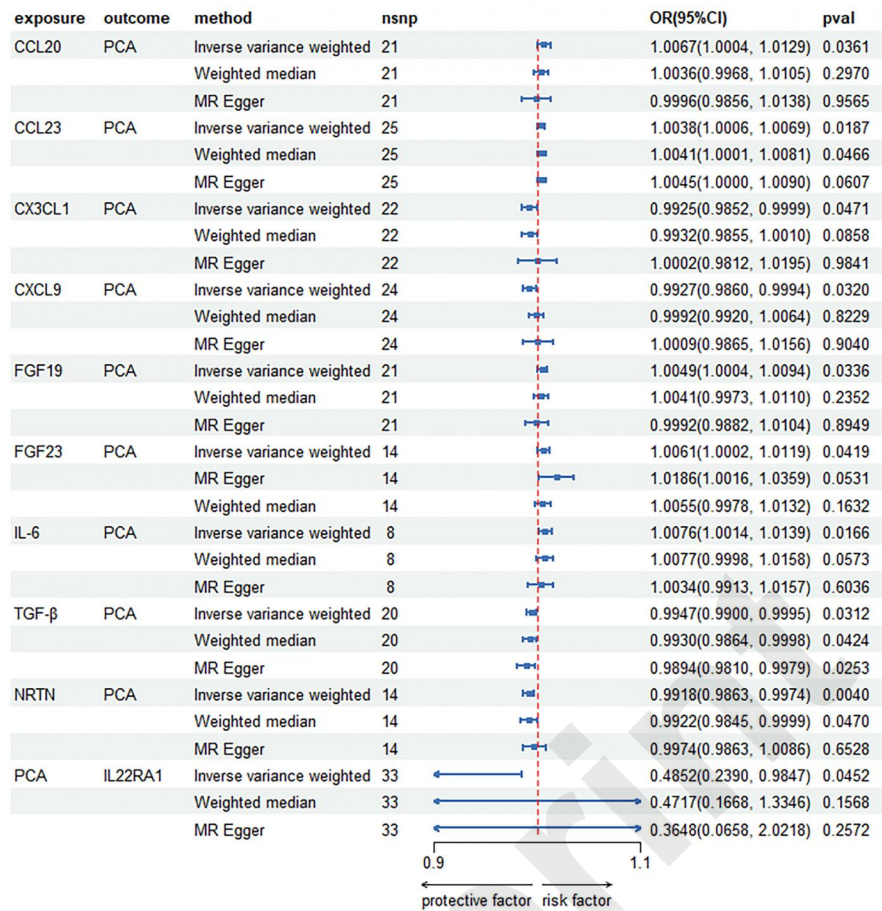protective factor   risk factor
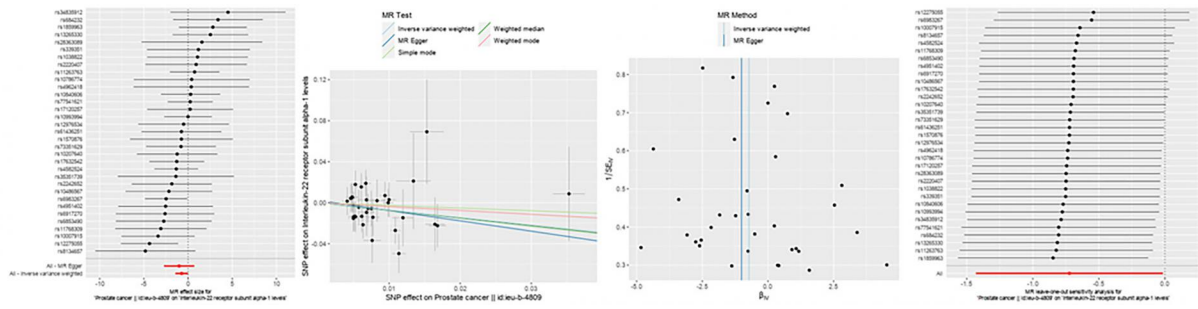
Figure 1. Causal correlations of cytokines on Prostate cancer.

Figure 3. Causal effects of Prostate cancer on significant inflammatory cytokines(IL-22) by inverse mendelian randomized analysis.