

Table S1. Details of the Six Inflammatory Measures in the UKB Cohort

ID	Trait	Unit	Measured method
30600	ALB	g/L	BCG analysis
30610	ALP	g/L	AMP(IFCC) analysis
30630	APOA1	g/L	Immunoturbidimetric analysis
30710	CRP	mg/L	Immunoturbidimetric - high sensitivity analysis
30750	HbA1c	mmol/mol	HPLC analysis
30870	TG	mmol/L	GPO-POD analysis

Notes: ALB:Albumin; ALP:Alkaline phosphatase; APOA1:Apolipoprotein A1; CRP:C-reaction protein; HbA1c:Glycosylated hemoglobin; TG:Triglyceride.

Table S2. Information Related to the 14 Diseases in the UKB Cohort

Diseases/conditions type	ICD 10 Description	Self-reported ID	ICD10 classification
Hypertension		1065/1072	I10
Type 2 diabetes		1223	E11
Cancer	Malignant neoplasm of tonsil/oropharynx/ oesophagus/stomach/colon/ liver and intrahepatic bile ducts/ pancreas/ trachea/ breast/ corpus uteri/ovary/ prostate/ kidney, except renal pelvis/ bladder/ meninges		C09,C10,C15,C16,C18,C 22,C25,C33,C50,C54,C5 6,C61 C64, C67, C70
	Multiple myeloma and malignant plasma cell neoplasms		C90
COPD	Chronic Obstructive pulmonary disease	1112	J44
Heart problems	Rheumatic heart disease	1066	I01-I09
	Congestive heart failure		I11
	Angina and infarction		I20-I22, I24
	Ischaemic/ pulmonary heart disease diseases of pericardium		I25, I27
	Other heart problems		I34-I52
	Cerebrovascular disorders		I68- I67, I64
Stroke	Stroke, not specified as haemorrhage or infarction	1081	I64
Psychiatric problems	Anxiety disorders	1287	F41
Arthritis	unspecified	1538	M13
Asthma	Asthma	1111	J45
High cholesterol	/	1473	/
Cataract	/	1278	H25
Parkinson's diseases	Parkinson's diseases	1062	G20
Hip fracture		1648	S720-S722
Depression	Depressive episode	1286	F32
	Recurrent depressive disorder		F33
	Persistent mood [affective] disorders		F34
	Other mood [affective] disorders		F38
	Unspecified mood [affective] disorder		F39

Table S3. Logistic Analysis Between Inflammatory Markers and Different Disease

Disease	Inflammatory Markers	Model 1		Model 2	
		OR (95%CI)	P	OR (95%CI)	P
Hypertension	TG	1.315 (1.305, 1.324)	< 2E-16	1.248 (1.239, 1.257)	< 2E-16
Hypertension	CRP	1.051 (1.049, 1.053)	< 2E-16	1.042 (1.04, 1.044)	< 2E-16
Hypertension	ALB	0.966 (0.963, 0.968)	< 2E-16	1.002 (0.999, 1.005)	1.67E-01
Hypertension	ALP	1.009 (1.008, 1.009)	< 2E-16	1.005 (1.005, 1.005)	< 2E-16
Hypertension	ApoA	0.476 (0.463, 0.49)	< 2E-16	0.486 (0.47, 0.503)	< 2E-16
Hypertension	HbA1c	1.084 (1.082, 1.085)	< 2E-16	1.057 (1.056, 1.058)	< 2E-16
Type 2 diabetes	TG	1.463 (1.447, 1.478)	< 2E-16	1.396 (1.38, 1.412)	< 2E-16
Type 2 diabetes	CRP	1.047 (1.045, 1.049)	< 2E-16	1.039 (1.036, 1.041)	< 2E-16
Type 2 diabetes	ALB	0.934 (0.929, 0.939)	< 2E-16	0.969 (0.963, 0.975)	< 2E-16
Type 2 diabetes	ALP	1.008 (1.007, 1.008)	< 2E-16	1.005 (1.005, 1.006)	< 2E-16
Type 2 diabetes	ApoA	0.104 (0.097, 0.111)	< 2E-16	0.141 (0.131, 0.152)	< 2E-16
Type 2 diabetes	HbA1c	1.213 (1.21, 1.215)	< 2E-16	1.195 (1.192, 1.198)	< 2E-16
Cancer	TG	1.093 (1.077, 1.109)	< 2E-16	1.048 (1.032, 1.065)	2.83E-09
Cancer	CRP	1.026 (1.023, 1.029)	< 2E-16	1.019 (1.016, 1.022)	< 2E-16
Cancer	ALB	0.929 (0.923, 0.934)	< 2E-16	0.959 (0.952, 0.965)	< 2E-16
Cancer	ALP	1.005 (1.005, 1.006)	< 2E-16	1.003 (1.003, 1.004)	< 2E-16
Cancer	ApoA	0.798 (0.752, 0.848)	1.97E-13	0.761 (0.71, 0.815)	6.36E-15
Cancer	HbA1c	1.025 (1.023, 1.027)	< 2E-16	1.012 (1.01, 1.014)	< 2E-16
COPD	TG	1.165 (1.148, 1.181)	< 2E-16	1.039 (1.022, 1.056)	6.70E-06
COPD	CRP	1.055 (1.052, 1.057)	< 2E-16	1.042 (1.04, 1.045)	< 2E-16
COPD	ALB	0.882 (0.876, 0.887)	< 2E-16	0.929 (0.923, 0.936)	< 2E-16
COPD	ALP	1.009 (1.008, 1.009)	< 2E-16	1.005 (1.004, 1.005)	< 2E-16
COPD	ApoA	0.617 (0.579, 0.659)	< 2E-16	1.019 (0.946, 1.098)	6.17E-01
COPD	HbA1c	1.043 (1.041, 1.044)	< 2E-16	1.022 (1.02, 1.024)	< 2E-16
Heart problem	TG	1.182 (1.172, 1.191)	< 2E-16	1.08 (1.07, 1.09)	< 2E-16
Heart problem	CRP	1.036 (1.034, 1.037)	< 2E-16	1.028 (1.026, 1.029)	< 2E-16
Heart problem	ALB	0.929 (0.926, 0.932)	< 2E-16	0.959 (0.956, 0.963)	< 2E-16
Heart problem	ALP	1.006 (1.006, 1.006)	< 2E-16	1.003 (1.003, 1.004)	< 2E-16
Heart problem	ApoA	0.333 (0.322, 0.345)	< 2E-16	0.449 (0.431, 0.468)	< 2E-16
Heart problem	HbA1c	1.053 (1.051, 1.054)	< 2E-16	1.032 (1.03, 1.033)	< 2E-16
Stroke	TG	1.079 (1.053, 1.106)	7.63E-10	0.972 (0.947, 0.999)	4.02E-02
Stroke	CRP	1.028 (1.023, 1.032)	< 2E-16	1.016 (1.012, 1.021)	3.51E-12
Stroke	ALB	0.936 (0.927, 0.946)	< 2E-16	0.972 (0.961, 0.982)	7.62E-08
Stroke	ALP	1.005 (1.004, 1.005)	< 2E-16	1.003 (1.002, 1.004)	< 2E-16
Stroke	ApoA	0.355 (0.319, 0.395)	< 2E-16	0.595 (0.528, 0.671)	< 2E-16
Stroke	HbA1c	1.039 (1.037, 1.042)	< 2E-16	1.025 (1.022, 1.028)	< 2E-16
Psychiatric problems	TG	1.096 (1.081, 1.111)	< 2E-16	1.116 (1.1, 1.132)	< 2E-16
Psychiatric problems	CRP	1.022 (1.019, 1.025)	< 2E-16	1.015 (1.012, 1.017)	< 2E-16
Psychiatric problems	ALB	0.959 (0.953, 0.964)	< 2E-16	0.98 (0.974, 0.986)	4.07E-11
Psychiatric problems	ALP	1.004 (1.004, 1.004)	< 2E-16	1.002 (1.002, 1.003)	< 2E-16
Psychiatric problems	ApoA	0.933 (0.882, 0.988)	< 2E-16	0.804 (0.754, 0.858)	3.62E-11
Psychiatric problems	HbA1c	1.012 (1.01, 1.015)	< 2E-16	1.007 (1.005, 1.01)	4.81E-12

Arthritis	TG	1.125 (1.112, 1.138)	< 2E-16	1.116 (1.102, 1.131)	< 2E-16
Arthritis	CRP	1.033 (1.031, 1.036)	< 2E-16	1.025 (1.022, 1.027)	< 2E-16
Arthritis	ALB	0.933 (0.929, 0.938)	< 2E-16	0.971 (0.966, 0.977)	< 2E-16
Arthritis	ALP	1.005 (1.005, 1.006)	< 2E-16	1.002 (1.002, 1.003)	< 2E-16
Arthritis	ApoA	0.954 (0.908, 1.002)	6.24E-02	0.726 (0.686, 0.769)	< 2E-16
Arthritis	HbA1c	1.024 (1.023, 1.026)	< 2E-16	1.011 (1.009, 1.012)	< 2E-16
Asthma	TG	1.026 (1.017, 1.036)	6.53E-08	1.037 (1.027, 1.047)	2.51E-13
Asthma	CRP	1.029 (1.027, 1.031)	< 2E-16	1.027 (1.025, 1.029)	< 2E-16
Asthma	ALB	0.959 (0.956, 0.963)	3.11E-106	0.962 (0.959, 0.966)	< 2E-16
Asthma	ALP	1.002 (1.002, 1.002)	< 2E-16	1.002 (1.001, 1.002)	< 2E-16
Asthma	ApoA	1.062 (1.025, 1.101)	1.02E-03	1.083 (1.039, 1.128)	1.39E-04
Asthma	HbA1c	1.012 (1.01, 1.013)	< 2E-16	1.012 (1.01, 1.013)	< 2E-16
High cholesterol	TG	1.277 (1.266, 1.288)	< 2E-16	1.218 (1.207, 1.229)	< 2E-16
High cholesterol	CRP	1.005 (1.003, 1.007)	1.14E-05	0.994 (0.992, 0.997)	1.19E-06
High cholesterol	ALB	1.038 (1.034, 1.042)	< 2E-16	1.082 (1.078, 1.086)	< 2E-16
High cholesterol	ALP	1.003 (1.003, 1.004)	< 2E-16	1.001 (1.001, 1.001)	4.69E-06
High cholesterol	ApoA	0.578 (0.557, 0.601)	< 2E-16	0.702 (0.672, 0.733)	< 2E-16
High cholesterol	HbA1c	1.063 (1.062, 1.065)	< 2E-16	1.048 (1.047, 1.05)	< 2E-16
Cataract	TG	1.059 (1.046, 1.073)	< 2E-16	1.028 (1.014, 1.043)	1.26E-04
Cataract	CRP	1.021 (1.018, 1.023)	< 2E-16	1.01 (1.007, 1.013)	2.73E-12
Cataract	ALB	0.928 (0.923, 0.933)	< 2E-16	0.976 (0.971, 0.981)	< 2E-16
Cataract	ALP	1.005 (1.004, 1.005)	< 2E-16	1.001 (1.001, 1.002)	8.02E-05
Cataract	ApoA	1.176 (1.118, 1.237)	2.58E-10	0.87 (0.82, 0.923)	3.61E-06
Cataract	HbA1c	1.035 (1.034, 1.037)	< 2E-16	1.021 (1.02, 1.023)	< 2E-16
Parkinson's disease	TG	0.973 (0.935, 1.012)	1.70E-01	0.886 (0.848, 0.925)	5.85E-08
Parkinson's disease	CRP	1.004 (0.995, 1.013)	3.66E-01	0.995 (0.986, 1.004)	3.05E-01
Parkinson's disease	ALB	0.944 (0.93, 0.958)	5.23E-14	0.979 (0.964, 0.994)	7.51E-03
Parkinson's disease	ALP	1.003 (1.002, 1.004)	1.46E-06	1.001 (0.999, 1.002)	3.41E-01
Parkinson's disease	ApoA	0.508 (0.435, 0.592)	4.64E-18	0.691 (0.581, 0.823)	3.23E-05
Parkinson's disease	HbA1c	1.016 (1.012, 1.021)	1.13E-13	1.001 (0.996, 1.007)	6.21E-01
Hip fracture	TG	0.897 (0.867, 0.928)	4.32E-10	0.856 (0.825, 0.889)	2.93E-16
Hip fracture	CRP	1.023 (1.017, 1.028)	< 2E-16	1.011 (1.005, 1.017)	1.54E-04
Hip fracture	ALB	0.929 (0.918, 0.94)	< 2E-16	0.976 (0.964, 0.988)	1.02E-04
Hip fracture	ALP	1.005 (1.004, 1.005)	< 2E-16	1.003 (1.002, 1.004)	7.10E-10
Hip fracture	ApoA	1.847 (1.653, 2.063)	< 2E-16	1.402 (1.235, 1.593)	1.99E-07
Hip fracture	HbA1c	1.021 (1.018, 1.024)	< 2E-16	1.008 (1.004, 1.012)	7.05E-05
Depression	TG	1.134 (1.123, 1.146)	< 2E-16	1.158 (1.145, 1.17)	< 2E-16
Depression	CRP	1.028 (1.026, 1.03)	< 2E-16	1.021 (1.019, 1.023)	< 2E-16
Depression	ALB	0.949 (0.945, 0.954)	< 2E-16	0.965 (0.96, 0.969)	< 2E-16
Depression	ALP	1.004 (1.004, 1.004)	< 2E-16	1.003 (1.002, 1.003)	< 2E-16
Depression	ApoA	0.822 (0.787, 0.858)	< 2E-16	0.769 (0.732, 0.809)	< 2E-16
Depression	HbA1c	1.016 (1.015, 1.018)	< 2E-16	1.014 (1.012, 1.016)	< 2E-16

Notes: Model 1: unadjusted covariates. Model 2: adjusted for age, sex, smoking, drinking, BMI, and TDI.

Table S4. Logistic Analysis Between Inflammatory Markers and Different Comorbidities

Comorbidities	Inflammatory Markers	Model 1		Model 2	
		OR (95%CI)	P	OR (95%CI)	P
Cardiovascular-metabolic comorbidities	TG	1.32 (1.31, 1.331)	< 2E-16	1.239 (1.228, 1.249)	< 2E-16
Cardiovascular-metabolic comorbidities	CRP	1.04 (1.038, 1.041)	< 2E-16	1.03 (1.029, 1.032)	< 2E-16
Cardiovascular-metabolic comorbidities	ALB	0.963 (0.96, 0.966)	< 2E-16	1.006 (1.002, 1.01)	2.85E-04
Cardiovascular-metabolic comorbidities	ALP	1.007 (1.007, 1.008)	< 2E-16	1.004 (1.004, 1.004)	< 2E-16
Cardiovascular-metabolic comorbidities	ApoA	0.303 (0.293, 0.314)	< 2E-16	0.379 (0.363, 0.395)	< 2E-16
Cardiovascular-metabolic comorbidities	HbA1c	1.121 (1.119, 1.122)	< 2E-16	1.093 (1.091, 1.095)	< 2E-16
Psycho-metabolic comorbidities	TG	1.247 (1.233, 1.261)	< 2E-16	1.228 (1.213, 1.242)	< 2E-16
Psycho-metabolic comorbidities	CRP	1.037 (1.035, 1.039)	< 2E-16	1.027 (1.025, 1.03)	< 2E-16
Psycho-metabolic comorbidities	ALB	0.947 (0.942, 0.952)	< 2E-16	0.977 (0.972, 0.982)	< 2E-16
Psycho-metabolic comorbidities	ALP	1.007 (1.006, 1.007)	< 2E-16	1.004 (1.004, 1.004)	< 2E-16
Psycho-metabolic comorbidities	ApoA	0.594 (0.565, 0.626)	< 2E-16	0.588 (0.554, 0.624)	< 2E-16
Psycho-metabolic comorbidities	HbA1c	1.039 (1.037, 1.04)	< 2E-16	1.028 (1.027, 1.03)	< 2E-16

Notes: Model 1: unadjusted covariates. Model 2: adjusted for age, sex, smoking, drinking, BMI, and TDI.