

Supplemental Figure Legend

Supplemental Figure 1. Gene ontology enrichment analysis for protein biomarkers. Red bars are protein biomarkers with higher relative levels in women. Blue bars are protein biomarkers with higher relative levels in men. The bars indicate the log₁₀ of the FDR and all bars are statistically significant for each term.

Supplemental Figure 2. Heatmap of sex differences in biomarkers by menopausal and hormonal status. Heatmap displays relative sex differences in biomarker concentrations among (1) all women, (2) pre-menopausal women, (3) post-menopausal women, (4) post-menopausal women not on HRT, and (5) post-menopausal women on HRT compared with age distribution matched men. Positive β -coefficients (red) represent biomarkers that are higher in women and negative β (blue) represent biomarkers that are higher in men.

Supplemental Table 1. Biomarker assay performance characteristics

Abbreviation	Precision [§]		Accuracy [¥]	Linearity ^{**}	Detection [£]	
	Inter-CV, %	Intra-CV, %	Spike recovery %	% Of Origin	LLOQ (pg/mL)	ULOQ (pg/ml)
A1M	7.6	3.9	100.5	101.4	3640	71400000
ADAM15	3.15	6.1	100	100.5	39	14100
Adipsin	17.65	4.7	101.3	102.8	18600	7450000
ADM	8.6	5.65	109.1	95.4	11	827
AGP1	5.15	8.2	101.1	99.7	29400000	2270000000
ANGPTL3	4.4	14.8	89.6	113.5	1380	97700
APOA1	7.2	20.35	101.8	96.9	22500000	1590000000
APOB	13.4	4.8	98	103.1	56100000	3630000000
B2M	15.85	3.95	98.4	98.1	154000	12000000
BCHE	11.9	8.5	93.7	97.5	949	23300000
BIKUNIN	8.05	5	112.6	100.1	1918	499000000
NTproBNP	5.8	11.8	98.3	99.2	9.71	30100
C2	14	3.55	99.8	101	6760000	1090000000
CD14	14.95	3.55	100	100.2	2140000	63000000
CD163	3.85	6.65	100.2	103.3	5540	1180000
CD40L	4	14.45	90.6	96.6	19.4	2010
CD5L	9	2.7	99.8	106.3	2	908000
CDH13	3.7	7.25	100	106.4	4680	3420000
Ceruloplasmin	4.25	7.4	100.4	99	60500000	4120000000
CLEC3B	4.1	7.15	100.2	101.4	630000	10500000
clusterin	14.55	10.15	117.8	116.5	1.5	26700
CNTN1	5.7	7.7	100.7	98.6	4500	131000
COL18A1	4.45	15	88.6	119.1	2670	607000
CRP	12.2	6.65	104.6	97.6	20	3740
CXCL16	3.15	12.3	96.3	93.8	73.8	4070
Cystatin C	7.45	3.15	89.3	89	2480	2680000
DPP4	2.4	5.6	124.2	263.4	4420	577000
EFEMP1	9.4	4.3	99.7	97.8	4790	349000000
FBN	8.35	3.35	100.1	104.2	2740	3470000000
FGF23	5.6	13.7	91.6	101.4	18.7	11800
GAPDH	16.6	3.75	100.1	92.2	774	521000
GDF15	9.35	5.2	91.5	97	40	20600
GMP140	13.45	4.65	89.6	79	116	60500
GP5	11.35	3.7	104.9	100.4	65.4	94600
GRN	5.4	2.7	99.1	102.4	2820	367000
Hemopexin	4.05	6.65	99.7	101.1	76100000	1600000000
IGF1	5.25	7.3	88.9	105.2	285	422000
IGFBP1	6.15	2.5	99.8	101.5	979	267000
IGFBP2	9.45	4.4	99.8	98.8	5970	51100000
IGFBP3	16.6	4.15	101.1	113	272	618000
KLKB1	20.35	6.7	98.8	110.6	24	13900000
LDLR	3.65	6.8	100.1	109.3	7260	5230000

Leptin	6.4	11.4	97.9	132	397	161000
Leptin-R	5.75	9.9	92.9	117.5	911	293000
LPA	14.75	9	100	104.4	320	6390000
MCAM	8.1	4.15	95.8	99.6	29	486000
MCP1	4.7	12.4	94.8	100.9	5.67	5030
MMP8	6.95	15.4	100.3	106.8	68	53700
MMP9	9.05	4.3	81	74	243	974000
MPO	11.4	4.1	88.3	138	102	781100
Myoglobin	6.4	7.3	88.7	107.1	1710	285000
NCAM	5.75	2	100.1	100.2	13800	764000
Notch1	5.85	2.3	100	102	34	1480
NRCAM	2.95	6.7	97.9	95.9	943	566000
Osteocalcin	5.7	9.75	90.7	120.1	492	28800
PAI1	3.9	11.55	103.4	87.5	2420	205000
PMP2	3.9	6.2	98.2	120.5	81	59400
PON1	7.5	4.05	99.9	100.6	1190	149000
PPBP	6.2	3.4	97.9	97.7	222	16100000
REG1A	8.25	9.1	86.8	97.4	22600	980000
Resistin	4.8	11.1	101.3	91.5	236	31100
SAA1	22.65	11.05	97.5	100.3	19900	4960000
SDF1	12	5.9	101	102.5	59	17500
SERPINA10	6.5	4.05	100	112.1	28500	12000000
sGP130	6.5	3	101.1	94	417	229000
sICAM1	10.25	4.5	85.1	102.5	2020	128000
sRAGE	4.8	14.75	91.9	97.2	103	12600
TIMP1	10.85	4.85	86.1	93.1	273	93600
TSC22D3	12.6	10.6	100.4	102.1	974	198900
UCMGP	17.8	10.8	100.2	118.8	9110	339000
VEGF	5.15	14.35	92.8	102.7	9.18	1880

Supplemental Table 2. Age-adjusted and multivariable-adjusted associations of single circulating biomarkers with sex

Biomarker	Age-adjusted Model			MV-adjusted Model		
	β -coefficient*	SE	p-value	β -coefficient*	SE	p-value
CD56	-0.827	0.022	4.67E-290	-0.839	0.024	5.03E-254
Myoglobin	-0.884	0.020	<1.00E-500	-0.803	0.023	2.00E-252
GMP140	-0.445	0.023	2.53E-79	-0.338	0.025	4.72E-39
sGP130	-0.304	0.023	1.25E-39	-0.278	0.025	3.73E-27
BCHE	-0.428	0.023	1.63E-73	-0.274	0.025	2.31E-27
MMP8	-0.354	0.023	1.73E-52	-0.254	0.025	7.72E-23
OSTEO	-0.249	0.023	1.61E-25	-0.245	0.026	1.01E-20
AIM	-0.239	0.022	1.15E-26	-0.215	0.025	1.47E-17
IGFBP2	0.032	0.023	0.204	-0.188	0.023	1.03E-15
REG1A	-0.113	0.023	1.14E-06	-0.187	0.025	3.52E-13
MCP1	-0.268	0.022	6.63E-32	-0.182	0.025	1.05E-12
Tetranectin	-0.172	0.024	7.98E-13	-0.173	0.026	1.63E-10
CD163	-0.265	0.023	3.88E-29	-0.155	0.026	5.10E-09
MMP9	-0.249	0.024	2.16E-25	-0.152	0.026	6.13E-09
DPP4	-0.101	0.024	3.65E-05	-0.149	0.027	4.16E-08
GAPDH	-0.182	0.024	4.34E-14	-0.146	0.027	9.98E-08
MCAM	-0.020	0.023	0.430	-0.145	0.025	1.61E-08
TIMP1	-0.244	0.020	2.56E-32	-0.130	0.022	1.48E-08
PMP2	-0.130	0.024	9.74E-08	-0.112	0.027	5.03E-05
ADAM15	-0.114	0.024	2.95E-06	-0.105	0.027	0.0001
PAI1	-0.360	0.023	3.03E-54	-0.103	0.023	1.04E-05
Cystatin C	-0.231	0.021	3.74E-28	-0.099	0.023	2.28E-05
COL18A1	-0.180	0.023	8.95E-15	-0.094	0.026	0.0004
Adipsin	-0.205	0.022	5.78E-21	-0.064	0.023	0.008
NRCAM	-0.064	0.024	0.009	-0.053	0.027	0.065
ApoB	-0.385	0.023	5.85E-60	-0.028	0.017	0.122
LDLR	-0.062	0.024	0.012	-0.028	0.027	0.359
CDH13	-0.050	0.024	0.045	-0.025	0.027	0.406
VEGF	-0.076	0.023	0.002	-0.025	0.026	0.406

GDF15	-0.045	0.017	0.012	-0.003	0.019	0.880
PON1	0.174	0.023	1.09E-13	0.011	0.025	0.698
TSC22D3	0.008	0.024	0.758	0.015	0.027	0.616
Leptin R	0.084	0.023	0.0005	0.025	0.026	0.406
Notch1	-0.075	0.024	0.002	0.045	0.026	0.114
sICAM1	-0.097	0.023	4.90E-05	0.058	0.025	0.030
CD40L	0.034	0.024	0.186	0.082	0.026	0.003
LPA	0.077	0.024	0.002	0.085	0.027	0.002
ANGPTL3	-0.188	0.023	1.01E-15	0.096	0.023	4.97E-05
PPBP	0.090	0.024	0.0003	0.110	0.027	6.12E-05
UCMGP	-0.008	0.021	0.737	0.118	0.023	3.78E-07
B2M	-0.064	0.021	0.003	0.119	0.023	4.17E-07
AGP1	-0.119	0.024	8.73E-07	0.120	0.025	1.95E-06
Pzi	0.072	0.024	0.003	0.135	0.027	6.57E-07
APOA1	0.637	0.022	3.99E-167	0.151	0.021	1.68E-12
SDF1	0.208	0.024	4.93E-18	0.165	0.027	1.29E-09
CD5L	4.90E-05	0.023	0.998	0.182	0.026	3.05E-12
MPO	0.030	0.024	0.247	0.188	0.026	1.52E-12
BIKUNIN	0.170	0.024	1.25E-12	0.192	0.026	1.20E-12
GRN	0.143	0.024	2.50E-09	0.212	0.026	2.82E-15
Clusterin	0.197	0.024	3.04E-16	0.216	0.027	1.50E-15
IGFBP3	0.213	0.023	2.54E-19	0.235	0.026	1.28E-18
GP5	0.246	0.024	1.09E-24	0.235	0.027	2.98E-18
CXCL16	0.234	0.023	1.86E-23	0.266	0.026	2.02E-24
SRAGE	0.320	0.023	2.34E-41	0.281	0.026	3.73E-27
CD14	0.290	0.023	4.57E-35	0.291	0.026	1.30E-28
SAA1	0.186	0.023	1.18E-15	0.314	0.024	8.46E-37
FBN	0.159	0.022	2.82E-12	0.328	0.024	1.97E-40
FGF23	0.279	0.024	1.66E-31	0.353	0.027	2.29E-39
Resistin	0.194	0.024	4.30E-16	0.376	0.026	1.29E-46
CRP	0.188	0.023	1.98E-15	0.383	0.024	9.59E-57
ADM	0.304	0.021	6.97E-47	0.385	0.022	2.99E-65

C2	0.240	0.023	6.93E-24	0.389	0.025	5.68E-52
EFEMP1	0.347	0.020	3.19E-65	0.409	0.022	6.34E-74
IGFBP1	0.679	0.022	2.63E-193	0.413	0.022	9.45E-79
KLKB1	0.415	0.023	1.54E-68	0.443	0.025	5.94E-68
IGF1	0.508	0.022	1.97E-117	0.451	0.024	2.85E-77
CNTN1	0.518	0.023	8.27E-109	0.455	0.025	4.04E-72
BNP	0.560	0.020	1.57E-156	0.470	0.022	1.67E-94
Hemopexin	0.412	0.022	1.63E-72	0.579	0.024	3.23E-120
Ceruloplasmin	0.941	0.021	<1.00E-500	0.908	0.023	1.02E-294
Leptin	0.857	0.021	<1.00E-500	1.052	0.018	<1.00E-500

* β -coefficient: For women compared to men, 1 standard deviation increase in rank normalized biomarker.

+ β -coefficient: higher in women

- β -coefficient: higher in men

MV model adjusts for age, sex, SBP, HTN treatment, HDL, total cholesterol, BMI, DM, and smoking

Supplemental Table 3. Multivariable-adjusted associations of single circulating biomarkers with sex stratified by smoking status

Biomarker	Non-smoking (N=6079)			Smoking (N=1105)			Sex*smoking
	β -coefficient*	SE	p-value	β -coefficient*	SE	p-value	P _{int}
CD56	-0.836	0.026	2.74E-214	-0.855	0.060	1.80E-41	0.99
Myoglobin	-0.817	0.024	1.46E-222	-0.736	0.059	1.11E-32	0.85
GMP140	-0.335	0.028	4.33E-32	-0.361	0.063	4.77E-08	0.88
sGP130	-0.260	0.028	4.64E-20	-0.357	0.062	4.14E-08	0.79
BCHE	-0.294	0.027	2.72E-26	-0.173	0.062	0.010	0.18
MMP8	-0.244	0.028	8.52E-18	-0.314	0.064	3.19E-06	0.48
OSTEO	-0.255	0.028	9.13E-19	-0.209	0.065	0.002	0.65
A1M	-0.234	0.027	3.28E-17	-0.120	0.062	0.080	0.68
IGFBP2	-0.201	0.025	8.11E-15	-0.090	0.055	0.144	0.57
REG1A	-0.194	0.028	9.88E-12	-0.145	0.061	0.028	0.80
MCP1	-0.184	0.027	4.08E-11	-0.172	0.065	0.014	0.99
Tetranectin	-0.169	0.029	1.91E-08	-0.186	0.063	0.006	0.82
CD163	-0.158	0.029	1.06E-07	-0.140	0.061	0.035	0.71
MMP9	-0.142	0.028	1.07E-06	-0.212	0.062	0.001	0.71
DPP4	-0.136	0.029	7.00E-06	-0.211	0.065	0.002	0.71
GAPDH	-0.119	0.029	7.47E-05	-0.292	0.072	0.0001	0.38
MCAM	-0.152	0.027	8.49E-08	-0.106	0.063	0.131	0.43
TIMP1	-0.125	0.024	7.17E-07	-0.148	0.059	0.021	0.91
PMP2	-0.109	0.030	0.0005	-0.124	0.062	0.070	0.87
ADAM15	-0.095	0.029	0.002	-0.148	0.065	0.038	0.82
PAI1	-0.093	0.025	0.0003	-0.121	0.060	0.065	0.85
Cystatin C	-0.104	0.025	6.65E-05	-0.077	0.056	0.221	1.00
COL18A1	-0.104	0.028	0.0004	-0.049	0.066	0.529	0.99
Adipsin	-0.084	0.025	0.002	0.044	0.057	0.516	0.19
NRCAM	-0.047	0.029	0.150	-0.082	0.063	0.251	0.82
ApoB	-0.039	0.018	0.050	0.023	0.041	0.644	0.42
LDLR	-0.015	0.029	0.677	-0.092	0.065	0.210	0.66
CDH13	-0.014	0.029	0.679	-0.073	0.064	0.322	0.80

VEGF	-0.018	0.029	0.609	-0.083	0.066	0.265	0.45
GDF15	0.004	0.020	0.865	-0.036	0.047	0.520	0.71
PON1	0.035	0.027	0.261	-0.115	0.064	0.108	0.22
TSC22D3	0.020	0.029	0.573	-0.017	0.065	0.836	0.81
Leptin R	0.040	0.028	0.210	-0.058	0.066	0.455	0.22
Notch1	0.027	0.029	0.432	0.124	0.064	0.079	0.66
sICAM1	0.047	0.027	0.126	0.114	0.063	0.103	0.42
CD40L	0.100	0.028	0.0008	-0.025	0.069	0.769	0.42
LPA	0.071	0.029	0.023	0.160	0.064	0.021	0.43
ANGPTL3	0.093	0.025	0.0004	0.125	0.059	0.052	0.82
PPBP	0.126	0.029	3.99E-05	0.034	0.068	0.677	0.71
UCMGP	0.106	0.025	5.39E-05	0.196	0.055	0.0008	0.34
B2M	0.116	0.025	9.61E-06	0.145	0.056	0.017	0.80
AGP1	0.122	0.027	1.39E-05	0.126	0.060	0.056	0.68
Pzi	0.156	0.029	2.07E-07	0.011	0.066	0.884	0.14
APOA1	0.160	0.023	1.16E-11	0.129	0.052	0.022	0.80
SDF1	0.181	0.029	1.63E-09	0.094	0.067	0.210	0.46
CD5L	0.183	0.028	2.42E-10	0.179	0.061	0.007	0.85
MPO	0.192	0.028	6.54E-11	0.167	0.064	0.015	0.68
BIKUNIN	0.170	0.029	1.27E-08	0.299	0.067	2.49E-05	0.41
GRN	0.223	0.029	6.52E-14	0.172	0.063	0.011	0.61
Clusterin	0.203	0.029	1.14E-11	0.261	0.068	0.0003	0.58
IGFBP3	0.234	0.029	1.50E-15	0.245	0.066	0.0005	0.94
GP5	0.255	0.029	5.22E-18	0.153	0.068	0.040	0.61
CXCL16	0.266	0.028	1.12E-20	0.255	0.066	0.0002	0.76
SRAGE	0.286	0.028	4.86E-24	0.222	0.066	0.002	0.22
CD14	0.292	0.028	4.91E-24	0.308	0.063	3.00E-06	0.87
SAA1	0.334	0.026	2.21E-35	0.198	0.064	0.004	0.14
FBN	0.329	0.026	2.29E-34	0.316	0.060	4.69E-07	0.57
FGF23	0.331	0.029	3.38E-29	0.455	0.065	2.19E-11	0.35
Resistin	0.360	0.028	5.47E-36	0.441	0.064	3.891E-11	0.82
CRP	0.411	0.026	1.89E-54	0.230	0.059	0.0002	0.01

ADM	0.406	0.024	2.16E-60	0.289	0.055	4.91E-07	0.42
C2	0.405	0.028	3.80E-47	0.310	0.062	1.57E-06	0.41
EFEMP1	0.412	0.024	1.42E-62	0.398	0.054	2.24E-12	0.57
IGFBP1	0.446	0.023	4.20E-77	0.252	0.054	7.90E-06	0.003
KLKB1	0.467	0.027	3.67E-62	0.328	0.060	1.62E-07	0.10
IGF1	0.412	0.026	3.52E-55	0.628	0.060	7.65E-24	0.02
CNTN1	0.432	0.027	1.20E-55	0.553	0.064	1.28E-16	0.42
BNP	0.455	0.024	6.15E-75	0.544	0.056	1.14E-20	0.81
Hemopexin	0.587	0.026	5.94E-104	0.530	0.060	3.05E-17	0.42
Ceruloplasmin	0.945	0.026	1.49E-264	0.722	0.056	1.00E-34	0.0009
Leptin	1.071	0.020	<1.00E-500	0.950	0.047	5.99E-76	0.22

* β -coefficient: For women compared to men, 1 standard deviation increase in rank normalized biomarker.

+ β -coefficient: higher in women

- β -coefficient: higher in men

MV model adjusts for age, sex, SBP, HTN treatment, HDL, total cholesterol, BMI, and DM

Interaction term was fitted in a sex-pooled model.

Supplemental Table 4. Multivariable-adjusted associations of single circulating biomarkers with menopausal/hormone status

Biomarker	Women			Pre-menopausal women			Post-menopausal women			No HRT			HRT		
	β	SE	P	β	SE	P	β	SE	P	β	SE	p-value	β	SE	p-value
CD56	-0.839	0.024	5.03E-254	-0.786	0.061	1.04E-35	-0.679	0.033	2.82E-86	-0.522	0.038	6.74E-41	-0.914	0.048	2.27E-76
Myoglobin	-0.803	0.023	2.00E-252	-0.796	0.056	3.59E-43	-0.703	0.032	9.39E-103	-0.637	0.036	2.96E-67	-0.794	0.044	1.32E-66
GMP140	-0.338	0.025	4.72E-39	-0.529	0.064	1.43E-15	-0.234	0.036	1.89E-10	-0.180	0.040	2.42E-05	-0.346	0.050	2.26E-11
sGP130	-0.278	0.025	3.73E-27	-0.407	0.063	5.27E-10	-0.057	0.035	0.152	0.061	0.039	0.213	-0.289	0.049	1.09E-08
BCHE	-0.274	0.025	2.31E-27	-0.345	0.063	1.60E-07	-0.060	0.035	0.132	0.053	0.039	0.282	-0.232	0.049	5.37E-06
MMP8	-0.254	0.025	7.72E-23	-0.288	0.063	1.66E-05	-0.264	0.035	3.94E-13	-0.226	0.040	4.91E-08	-0.331	0.050	1.51E-10
OSTEO	-0.245	0.026	1.01E-20	-0.218	0.059	0.0005	-0.137	0.035	0.0002	0.095	0.039	0.027	-0.579	0.047	8.20E-33
AIM	-0.215	0.025	1.47E-17	-0.433	0.062	1.74E-11	-0.065	0.035	0.101	-0.038	0.040	0.457	-0.115	0.049	0.034
IGFBP2	-0.188	0.023	1.03E-15	-0.191	0.054	0.0009	-0.186	0.031	7.22E-09	-0.011	0.034	0.833	-0.580	0.043	9.11E-40
REG1A	-0.187	0.025	3.52E-13	-0.447	0.062	3.81E-12	-0.100	0.035	0.008	-0.011	0.039	0.849	-0.287	0.049	1.86E-08
MCP1	-0.182	0.025	1.05E-12	-0.359	0.062	3.83E-08	0.026	0.035	0.521	0.083	0.039	0.064	-0.093	0.049	0.092
Tetranectin	-0.173	0.026	1.63E-10	-0.139	0.061	0.042	0.069	0.036	0.091	0.329	0.039	1.19E-16	-0.406	0.048	2.98E-16
CD163	-0.155	0.026	5.10E-09	-0.330	0.065	1.63E-06	-0.003	0.037	0.935	0.056	0.041	0.282	-0.104	0.052	0.075
MMP9	-0.152	0.026	6.13E-09	-0.108	0.063	0.137	-0.114	0.035	0.003	-0.053	0.040	0.282	-0.224	0.051	3.27E-05
DPP4	-0.149	0.027	4.16E-08	-0.218	0.066	0.002	0.070	0.038	0.098	0.147	0.042	0.001	-0.064	0.053	0.292
GAPDH	-0.146	0.027	9.98E-08	-0.428	0.064	1.40E-10	-0.068	0.036	0.098	-0.037	0.041	0.481	-0.032	0.051	0.593
MCAM	-0.145	0.025	1.61E-08	-0.099	0.062	0.168	-0.039	0.035	0.363	0.107	0.040	0.014	-0.342	0.049	1.52E-11
TIMP1	-0.130	0.022	1.48E-08	-0.124	0.055	0.044	-0.028	0.030	0.422	0.030	0.035	0.490	-0.146	0.043	0.002
PMP2	-0.112	0.027	5.03E-05	-0.138	0.066	0.064	-0.040	0.037	0.370	-0.035	0.042	0.504	-0.055	0.052	0.356
ADAM15	-0.105	0.027	0.0001	-0.106	0.066	0.163	-0.036	0.037	0.406	-0.017	0.042	0.776	-0.078	0.052	0.186
PAI1	-0.103	0.023	1.04E-05	-0.080	0.055	0.201	-0.066	0.031	0.063	0.031	0.035	0.481	-0.230	0.044	5.58E-07
Cystatin C	-0.099	0.023	2.28E-05	-0.239	0.054	3.29E-05	0.033	0.030	0.370	0.113	0.034	0.002	-0.104	0.043	0.027
COL18A1	-0.094	0.026	0.0004	-0.287	0.062	1.37E-05	-0.040	0.037	0.369	0.003	0.041	0.971	-0.093	0.051	0.102
Adipsin	-0.064	0.023	0.008	0.117	0.056	0.063	-0.034	0.032	0.370	0.031	0.036	0.499	-0.145	0.044	0.003
NRCAM	-0.053	0.027	0.065	-0.094	0.067	0.213	-0.007	0.037	0.871	-0.005	0.042	0.952	-0.023	0.053	0.722

ApoB	-0.028	0.017	0.122	0.012	0.041	0.827	-0.024	0.023	0.370	-0.051	0.026	0.091	0.055	0.032	0.135
LDLR	-0.028	0.027	0.359	0.130	0.065	0.075	0.008	0.037	0.866	-0.011	0.041	0.850	0.020	0.052	0.746
CDH13	-0.025	0.027	0.406	-0.010	0.066	0.920	0.011	0.037	0.823	0.005	0.042	0.952	0.010	0.052	0.851
VEGF	-0.025	0.026	0.406	-0.188	0.065	0.008	-0.009	0.036	0.837	-0.036	0.041	0.484	0.078	0.051	0.183
GDF15	-0.003	0.019	0.880	-0.182	0.042	4.56E-05	-0.006	0.023	0.829	-0.034	0.026	0.288	0.010	0.033	0.793
PON1	0.011	0.025	0.698	-0.137	0.061	0.044	0.084	0.034	0.027	0.017	0.039	0.776	0.189	0.048	0.0001
TSC22D3	0.015	0.027	0.616	0.041	0.066	0.605	0.032	0.037	0.457	-0.059	0.042	0.270	-0.012	0.052	0.831
Leptin R	0.025	0.026	0.406	-0.038	0.065	0.635	0.065	0.037	0.115	0.054	0.042	0.285	0.086	0.051	0.137
Notch1	0.045	0.026	0.114	0.094	0.063	0.197	0.101	0.036	0.010	0.112	0.041	0.014	0.140	0.050	0.010
sICAM1	0.058	0.025	0.030	-0.134	0.065	0.064	0.186	0.034	1.85E-07	0.169	0.039	4.32E-05	0.191	0.050	0.0003
CD40L	0.082	0.026	0.003	-0.371	0.064	2.80E-08	0.102	0.036	0.008	0.108	0.041	0.015	0.100	0.050	0.075
Lpa	0.085	0.027	0.002	0.169	0.065	0.019	0.071	0.037	0.093	0.102	0.042	0.027	-0.024	0.052	0.715
ANGPTL3	0.096	0.023	4.97E-05	0.137	0.056	0.027	0.253	0.032	1.16E-14	0.414	0.036	1.73E-29	0.012	0.044	0.811
PPBP	0.110	0.027	6.12E-05	0.002	0.067	0.987	0.076	0.038	0.079	0.056	0.042	0.285	0.078	0.054	0.205
UCMGP	0.118	0.023	3.78E-07	0.248	0.056	2.85E-05	0.093	0.032	0.008	0.104	0.036	0.009	0.051	0.045	0.320
B2M	0.119	0.023	4.17E-07	0.082	0.055	0.193	0.175	0.030	2.43E-08	0.219	0.034	6.12E-10	0.123	0.043	0.009
AGP1	0.120	0.025	1.95E-06	0.079	0.060	0.246	0.147	0.034	3.10E-05	0.253	0.038	8.05E-11	-0.108	0.047	0.038
PZI	0.135	0.027	6.57E-07	0.160	0.065	0.027	0.217	0.037	1.01E-08	0.177	0.041	4.23E-05	0.325	0.052	1.40E-09
APOA1	0.151	0.021	1.68E-12	0.064	0.050	0.266	0.163	0.028	1.90E-08	0.049	0.031	0.212	0.319	0.039	3.62E-15
SDF1	0.165	0.027	1.29E-09	0.081	0.065	0.275	0.182	0.037	1.82E-06	0.210	0.042	1.27E-06	0.147	0.052	0.009
CD5L	0.182	0.026	3.05E-12	0.352	0.065	2.80E-07	0.132	0.037	0.0007	0.138	0.042	0.002	0.146	0.052	0.009
MPO	0.188	0.026	1.52E-12	0.238	0.064	0.0005	0.227	0.036	1.29E-09	0.372	0.041	7.75E-19	-0.072	0.050	0.205
BIKUNIN	0.192	0.026	1.20E-12	0.059	0.067	0.446	0.174	0.038	1.12E-05	0.198	0.043	1.01E-05	0.104	0.054	0.082
GRN	0.212	0.026	2.82E-15	0.084	0.065	0.263	0.304	0.037	5.95E-16	0.355	0.041	5.99E-17	0.211	0.052	0.0001
Clusterin	0.216	0.027	1.50E-15	0.208	0.062	0.002	0.287	0.033	3.77E-17	0.244	0.038	7.49E-10	0.377	0.048	3.31E-14
IGFBP3	0.235	0.026	1.28E-18	0.120	0.066	0.106	0.272	0.037	8.26E-13	0.335	0.042	6.33E-15	0.159	0.052	0.005
GP5	0.235	0.027	2.98E-18	0.287	0.065	3.29E-05	0.232	0.037	6.87E-10	0.182	0.042	3.07E-05	0.390	0.052	2.66E-13
CXCL16	0.266	0.026	2.02E-24	0.065	0.064	0.390	0.304	0.037	6.41E-16	0.290	0.042	1.51E-11	0.344	0.051	7.59E-11
SRAGE	0.281	0.026	3.73E-27	0.369	0.064	4.98E-08	0.370	0.037	6.13E-23	0.445	0.042	2.52E-25	0.280	0.051	9.45E-08

CD14	0.291	0.026	1.30E-28	0.331	0.063	5.17E-07	0.289	0.035	1.39E-15	0.392	0.039	2.52E-22	0.064	0.051	0.265
SAA1	0.314	0.024	8.46E-37	0.239	0.059	0.0002	0.381	0.033	2.09E-30	0.366	0.037	5.06E-22	0.419	0.047	3.36E-18
FBN	0.328	0.024	1.97E-40	0.257	0.059	3.94E-05	0.300	0.033	3.92E-19	0.361	0.037	2.12E-21	0.176	0.046	0.0003
FGF23	0.353	0.027	2.29E-39	0.485	0.067	3.81E-12	0.320	0.037	3.04E-17	0.298	0.042	5.43E-12	0.382	0.053	2.34E-12
Resistin	0.376	0.026	1.29E-46	0.508	0.064	1.76E-14	0.265	0.037	2.03E-12	0.206	0.041	1.78E-06	0.374	0.052	1.09E-12
CRP	0.383	0.024	9.59E-57	0.213	0.055	0.0003	0.376	0.031	1.70E-32	0.234	0.034	4.47E-11	0.626	0.044	3.41E-44
ADM	0.385	0.022	2.99E-65	0.634	0.051	8.72E-33	0.380	0.029	7.06E-38	0.300	0.033	2.78E-19	0.529	0.040	2.86E-37
C2	0.389	0.025	5.68E-52	0.293	0.061	6.71E-06	0.470	0.035	1.61E-39	0.389	0.039	3.14E-22	0.609	0.049	1.38E-33
EFEMP1	0.409	0.022	6.34E-74	0.302	0.056	2.53E-07	0.339	0.031	1.16E-26	0.368	0.036	7.78E-24	0.276	0.043	8.36E-10
IGFBP1	0.413	0.022	9.45E-79	0.326	0.051	8.09E-10	0.405	0.029	2.05E-41	0.218	0.032	6.44E-11	0.710	0.040	1.51E-64
KLKB1	0.443	0.025	5.94E-68	0.093	0.060	0.177	0.622	0.034	6.96E-72	0.503	0.037	2.00E-39	0.876	0.047	2.98E-71
IGF1	0.451	0.024	2.85E-77	0.500	0.056	4.69E-18	0.292	0.033	7.66E-18	0.476	0.037	1.69E-36	-0.050	0.044	0.323
CNTN1	0.455	0.025	4.04E-72	0.574	0.060	3.70E-20	0.500	0.034	1.21E-45	0.630	0.038	9.85E-57	0.303	0.048	1.01E-09
BNP	0.470	0.022	1.67E-94	0.471	0.059	1.20E-14	0.335	0.032	1.32E-24	0.279	0.036	9.56E-14	0.429	0.046	9.10E-20
Hemopexin	0.579	0.024	3.23E-120	0.569	0.059	1.29E-20	0.452	0.033	6.52E-40	0.374	0.037	1.82E-22	0.599	0.047	6.44E-36
Ceruloplasmin	0.908	0.023	1.02E-294	0.760	0.053	3.59E-43	0.857	0.030	1.17E-157	0.621	0.033	5.48E-74	1.288	0.042	2.63E-178
Leptin	1.052	0.018	<1.00E-500	1.024	0.044	4.72E-108	1.077	0.025	<1.00E-500	1.061	0.028	3.45E-258	1.121	0.035	1.05E-187

* β -coefficient: For women compared to men, 1 standard deviation increase in rank normalized biomarker.

+ β -coefficient: higher in women

- β -coefficient: higher in men

MV model adjusts for age, sex, SBP, HTN treatment, HDL, total cholesterol, BMI, and DM

Supplemental Table 5. Multivariable-adjusted associations of single circulating biomarkers with menopausal/hormone status compared with age distribution matched men

Biomarker	Women			Pre-menopausal women			Post-menopausal women			No HRT			HRT		
	β	SE	P	β	SE	P	β	SE	P	β	SE	p-value	β	SE	p-value
CD56	-0.839	0.024	5.03E-254	-0.835	0.049	2.05E-61	-0.630	0.033	3.10E-75	-0.552	0.042	2.34E-37	-0.933	0.053	2.02E-62
Myoglobin	-0.803	0.023	2.00E-252	-0.851	0.046	3.01E-69	-0.781	0.031	1.40E-127	-0.623	0.039	2.50E-53	-0.803	0.050	1.35E-53
GMP140	-0.338	0.025	4.72E-39	-0.642	0.052	1.30E-33	-0.307	0.035	7.22E-18	-0.181	0.044	0.0001	-0.295	0.055	3.55E-07
sGP130	-0.278	0.025	3.73E-27	-0.609	0.052	6.13E-30	-0.032	0.034	0.443	0.059	0.043	0.270	-0.269	0.055	2.63E-06
BCHE	-0.274	0.025	2.31E-27	-0.433	0.051	2.14E-16	-0.144	0.035	7.52E-05	0.029	0.043	0.619	-0.238	0.055	4.04E-05
MMP8	-0.254	0.025	7.72E-23	-0.418	0.051	2.27E-15	-0.351	0.035	8.11E-23	-0.228	0.044	9.31E-07	-0.345	0.056	3.76E-09
OSTEO	-0.245	0.026	1.01E-20	-0.280	0.051	8.70E-08	-0.186	0.035	4.13E-07	0.090	0.043	0.069	-0.536	0.054	4.16E-22
A1M	-0.215	0.025	1.47E-17	-0.533	0.049	4.92E-26	-0.042	0.034	0.314	-0.036	0.044	0.575	-0.067	0.056	0.302
IGFBP2	-0.188	0.023	1.03E-15	-0.359	0.044	2.22E-15	-0.005	0.034	0.901	0.028	0.037	0.586	-0.469	0.048	5.30E-21
REG1A	-0.187	0.025	3.52E-13	-0.428	0.050	1.65E-16	-0.028	0.034	0.490	0.001	0.042	0.990	-0.282	0.057	1.88E-06
MCP1	-0.182	0.025	1.05E-12	-0.387	0.049	1.65E-14	-0.029	0.034	0.490	0.068	0.043	0.193	-0.102	0.056	0.114
Tetranectin	-0.173	0.026	1.63E-10	-0.177	0.051	0.001	0.145	0.035	9.02E-05	0.358	0.042	3.11E-16	-0.393	0.054	3.54E-12
CD163	-0.155	0.026	5.10E-09	-0.347	0.052	9.12E-11	-0.093	0.035	0.014	0.037	0.045	0.575	-0.066	0.058	0.324
MMP9	-0.152	0.026	6.13E-09	-0.207	0.051	9.05E-05	-0.217	0.035	2.93E-09	-0.074	0.042	0.135	-0.236	0.058	0.0001
DPP4	-0.149	0.027	4.16E-08	-0.187	0.052	0.0007	0.167	0.036	8.93E-06	0.120	0.047	0.020	-0.037	0.059	0.578
GAPDH	-0.146	0.027	9.98E-08	-0.579	0.053	1.93E-26	-0.091	0.035	0.015	-0.014	0.045	0.795	-0.054	0.057	0.406
MCAM	-0.145	0.025	1.61E-08	-0.225	0.051	2.35E-05	0.138	0.035	0.0002	0.114	0.044	0.020	-0.332	0.055	8.76E-09
TIMP1	-0.130	0.022	1.48E-08	-0.319	0.047	2.87E-11	-0.143	0.030	5.36E-06	0.030	0.037	0.581	-0.077	0.048	0.162
PMP2	-0.112	0.027	5.03E-05	-0.106	0.055	0.074	-0.051	0.036	0.224	-0.046	0.047	0.472	0.028	0.058	0.675
ADAM15	-0.105	0.027	0.0001	-0.109	0.054	0.062	-0.032	0.035	0.458	-0.017	0.046	0.777	-0.013	0.058	0.825
PAI1	-0.103	0.023	1.04E-05	0.037	0.047	0.468	-0.250	0.033	2.48E-13	-0.013	0.037	0.783	-0.264	0.050	4.60E-07
Cystatin C	-0.099	0.023	2.28E-05	-0.501	0.047	2.34E-25	-0.092	0.030	0.005	0.089	0.037	0.033	-0.057	0.048	0.302
COL18A1	-0.094	0.026	0.0004	-0.232	0.049	6.23E-06	-0.062	0.036	0.127	0.005	0.046	0.945	-0.061	0.058	0.360
Adipsin	-0.064	0.023	0.008	0.104	0.046	0.034	-0.124	0.033	0.0004	0.030	0.040	0.586	-0.101	0.051	0.086

NRCAM	-0.053	0.027	0.065	-0.050	0.054	0.400	0.005	0.036	0.902	-0.015	0.047	0.795	0.044	0.059	0.511
ApoB	-0.028	0.017	0.122	0.071	0.034	0.053	-0.168	0.034	2.23E-06	-0.058	0.028	0.065	0.058	0.037	0.174
LDLR	-0.028	0.027	0.359	0.213	0.054	0.0001	-0.023	0.035	0.586	-0.026	0.046	0.699	0.071	0.058	0.301
CDH13	-0.025	0.027	0.406	0.040	0.055	0.504	-0.006	0.035	0.901	-0.014	0.046	0.795	0.078	0.058	0.256
VEGF	-0.025	0.026	0.406	-0.067	0.053	0.247	-0.036	0.035	0.405	-0.034	0.045	0.586	0.094	0.058	0.162
GDF15	-0.003	0.019	0.880	-0.184	0.039	4.35E-06	-0.065	0.024	0.010	-0.037	0.028	0.301	0.023	0.036	0.574
PON1	0.011	0.025	0.698	0.047	0.051	0.400	0.334	0.034	1.51E-21	0.046	0.043	0.429	0.232	0.053	3.17E-05
TSC22D3	0.015	0.027	0.616	-0.020	0.055	0.718	0.041	0.035	0.330	0.054	0.046	0.359	-0.038	0.057	0.566
Leptin R	0.025	0.026	0.406	0.065	0.052	0.253	0.142	0.035	0.0001	0.078	0.046	0.145	0.075	0.058	0.269
Notch1	0.045	0.026	0.114	0.262	0.052	1.13E-06	-0.066	0.036	0.098	0.098	0.045	0.059	0.120	0.057	0.061
sICAM1	0.058	0.025	0.030	-0.215	0.053	0.0001	0.041	0.034	0.318	0.157	0.042	0.0006	0.204	0.056	0.0006
CD40L	0.082	0.026	0.003	-0.383	0.053	2.66E-12	0.111	0.034	0.002	0.141	0.044	0.003	0.145	0.056	0.019
Lpa	0.085	0.027	0.002	0.244	0.052	6.45E-06	0.100	0.036	0.009	0.097	0.045	0.059	-0.019	0.059	0.780
ANGPTL3	0.096	0.023	4.97E-05	0.063	0.045	0.201	0.062	0.034	0.108	0.379	0.039	6.20E-21	-0.026	0.051	0.651
PPBP	0.110	0.027	6.12E-05	0.109	0.056	0.070	0.077	0.036	0.053	0.055	0.046	0.359	0.158	0.060	0.019
UCMGP	0.118	0.023	3.78E-07	0.078	0.045	0.112	0.030	0.033	0.450	0.113	0.040	0.011	0.044	0.051	0.455
B2M	0.119	0.023	4.17E-07	0.126	0.046	0.010	-0.002	0.030	0.954	0.214	0.037	3.14E-08	0.137	0.049	0.010
AGP1	0.120	0.025	1.95E-06	0.118	0.048	0.021	0.037	0.035	0.380	0.265	0.042	1.01E-09	-0.070	0.054	0.269
PZI	0.135	0.027	6.57E-07	0.253	0.054	6.80E-06	0.155	0.035	2.72E-05	0.137	0.045	0.005	0.320	0.059	2.37E-07
APOA1	0.151	0.021	1.68E-12	0.145	0.043	0.002	0.719	0.033	5.56E-95	0.084	0.034	0.027	0.336	0.044	3.62E-13
SDF1	0.165	0.027	1.29E-09	-0.102	0.055	0.083	0.226	0.035	6.06E-10	0.207	0.045	1.48E-05	0.224	0.057	0.0003
CD5L	0.182	0.026	3.05E-12	0.227	0.052	3.08E-05	-0.116	0.036	0.002	0.134	0.045	0.007	0.125	0.059	0.061
MPO	0.188	0.026	1.52E-12	0.059	0.051	0.287	0.069	0.036	0.095	0.384	0.046	4.26E-16	-0.019	0.057	0.778
BIKUNIN	0.192	0.026	1.20E-12	0.117	0.054	0.047	0.162	0.037	2.86E-05	0.183	0.047	0.0002	0.147	0.061	0.031
GRN	0.212	0.026	2.82E-15	0.157	0.053	0.005	0.231	0.036	2.92E-10	0.347	0.046	2.98E-13	0.218	0.058	0.0005
Clusterin	0.216	0.027	1.50E-15	0.392	0.056	1.28E-11	0.318	0.030	2.21E-25	0.207	0.040	5.16E-07	0.428	0.051	7.33E-16
IGFBP3	0.235	0.026	1.28E-18	0.141	0.053	0.012	0.272	0.036	1.82E-13	0.350	0.046	2.30E-13	0.159	0.059	0.015
GP5	0.235	0.027	2.98E-18	0.267	0.055	3.47E-06	0.214	0.035	3.43E-09	0.152	0.045	0.002	0.381	0.057	1.53E-10
CXCL16	0.266	0.026	2.02E-24	0.069	0.050	0.207	0.363	0.036	5.05E-23	0.292	0.046	6.16E-10	0.366	0.057	5.58E-10

SRAGE	0.281	0.026	3.73E-27	0.326	0.051	5.52E-10	0.354	0.037	8.03E-21	0.438	0.046	4.14E-20	0.252	0.058	4.04E-05
CD14	0.291	0.026	1.30E-28	0.373	0.051	1.72E-12	0.334	0.034	9.93E-22	0.400	0.042	4.14E-20	0.124	0.057	0.055
SAA1	0.314	0.024	8.46E-37	0.282	0.049	3.10E-08	0.288	0.032	4.93E-18	0.330	0.040	1.23E-15	0.411	0.053	5.60E-14
FBN	0.328	0.024	1.97E-40	0.319	0.051	1.03E-09	0.168	0.033	6.91E-07	0.349	0.040	5.63E-17	0.171	0.052	0.002
FGF23	0.353	0.027	2.29E-39	0.519	0.054	6.14E-21	0.252	0.035	3.09E-12	0.296	0.045	3.21E-10	0.388	0.058	1.71E-10
Resistin	0.376	0.026	1.29E-46	0.473	0.050	3.77E-20	0.028	0.037	0.528	0.178	0.046	0.0003	0.352	0.058	4.64E-09
CRP	0.383	0.024	9.59E-57	0.456	0.046	1.52E-21	0.263	0.033	3.74E-15	0.200	0.037	3.08E-07	0.600	0.049	3.86E-32
ADM	0.385	0.022	2.99E-65	0.700	0.044	4.45E-54	0.305	0.030	1.15E-23	0.278	0.035	2.24E-14	0.502	0.045	1.39E-27
C2	0.389	0.025	5.68E-52	0.467	0.050	5.37E-20	0.387	0.035	1.33E-26	0.399	0.043	1.55E-19	0.637	0.056	7.70E-28
EFEMP1	0.409	0.022	6.34E-74	0.241	0.045	3.10E-07	0.284	0.031	1.35E-19	0.365	0.038	4.14E-20	0.310	0.049	1.79E-09
IGFBP1	0.413	0.022	9.45E-79	0.375	0.042	1.48E-18	0.635	0.032	7.18E-81	0.246	0.035	9.47E-12	0.742	0.045	9.03E-55
KLKB1	0.443	0.025	5.94E-68	0.172	0.051	0.001	0.693	0.034	7.72E-87	0.482	0.040	3.31E-31	0.877	0.054	2.20E-54
IGF1	0.451	0.024	2.85E-77	0.505	0.045	1.83E-27	0.355	0.033	5.54E-25	0.447	0.041	8.00E-26	-0.048	0.051	0.406
CNTN1	0.455	0.025	4.04E-72	0.645	0.049	1.74E-37	0.536	0.034	7.71E-53	0.638	0.042	2.78E-48	0.295	0.054	1.79E-07
BNP	0.470	0.022	1.67E-94	0.479	0.045	1.25E-24	0.407	0.032	5.83E-35	0.277	0.041	3.75E-11	0.447	0.051	5.42E-17
Hemopexin	0.579	0.024	3.23E-120	0.812	0.048	3.12E-60	0.361	0.033	9.31E-26	0.378	0.041	2.02E-19	0.624	0.053	2.02E-29
Ceruloplasmin	0.908	0.023	1.02E-294	1.027	0.045	9.41E-103	0.926	0.030	6.13E-182	0.635	0.036	6.20E-65	1.274	0.048	1.10E-130
Leptin	1.052	0.018	<1.00E-500	1.075	0.035	2.32E-177	0.955	0.032	4.04E-169	1.060	0.031	2.27E-206	1.092	0.041	1.10E-131

*β-coefficient: For women compared to men, 1 standard deviation increase in rank normalized biomarker.

+ β-coefficient: higher in women

-β-coefficient: higher in men

MV model adjusts for age, sex, SBP, HTN treatment, HDL, total cholesterol, BMI, and DM

Supplemental Table 6. Event Rates, Time to Events, and Follow-up Times for Clinical Outcomes

Outcome	Women (N=3895, follow-up time=12.9 years)			Men (N=3289, follow-up time=12.4 years)		
	Events [±]	Event Rate [¥]	Time to event [§]	Events [±]	Event Rate [¥]	Time to event [§]
Heart Failure	117 (3%)	2.35 (1.92, 2.78)	9.2 ± 4.5	119 (4%)	2.94 (2.41, 3.47)	9.0 ± 4.6
All CVD	294 (8%)	6.24 (5.53, 6.95)	7.9 ± 4.5	326 (10%)	8.79 (7.84, 9.75)	7.3 ± 4.4
CV death	65 (2%)	1.29 (0.98, 1.61)	10.7 ± 3.6	91 (3%)	2.23 (1.77, 2.68)	9.3 ± 4.8
All cause death	381 (10%)	7.59 (6.83, 8.35)	10.1 ± 4.3	430 (13%)	10.52 (9.53, 11.51)	9.6 ± 4.5
Non-CV death	316 (8%)	6.29 (5.60, 6.99)	9.6 ± 4.4	339 (10%)	8.29 (7.41, 9.18)	10.0 ± 4.4

[±]Events reported as n/N (%).

[¥]Event rates reported as n/1000 person years.

[§]Time to event reported in years.

Abbreviations: CV = cardiovascular, CVD = cardiovascular disease

Supplemental Table 7. Sex-specific multivariable-adjusted associations of single biomarkers with cardiovascular outcomes, adjusted for lipid lowering medications

	Men		Women		p _{int} (sex)
	HR (95% CI)	p-value	HR (95% CI)	p-value	
Heart Failure					
CD14	1.36 (1.18-1.56)	0.002	1.56 (1.26-1.93)	0.001	0.009
ApoB	1.25 (1.02-1.53)	0.36	1.53 (1.14-2.05)	0.038	0.009
GMP140	0.99 (0.87-1.12)	0.98	1.02 (0.84-1.23)	0.93	0.01
PON1	0.96 (0.84-1.10)	0.93	0.96 (0.79-1.18)	0.85	0.02
SRAGE	0.93 (0.82-1.06)	0.73	0.95 (0.79-1.15)	0.83	0.03
Tetranectin	0.98 (0.86-1.11)	0.96	0.90 (0.74-1.09)	0.58	0.04
All CVD					
GDF15	1.37 (1.13-1.65)	0.09	1.59 (1.30-1.95)	0.0005	0.04
A1M	0.90 (0.81-1.02)	0.64	1.16 (1.02-1.31)	0.38	0.0008
CD14	0.99 (0.88-1.12)	0.92	1.27 (1.12-1.45)	0.012	0.003
SRAGE	1.08 (0.96-1.21)	0.80	0.90 (0.80-1.01)	0.07	0.03
CV death					
PPBP	0.97 (0.77-1.21)	0.91	0.65 (0.51-0.84)	0.031	0.02
REG1A	1.06 (0.85-1.32)	0.85	1.58 (1.18-2.14)	0.035	0.03
TSC22D3	0.93 (0.75-1.16)	0.52	1.28 (1.00-1.63)	0.15	0.04
All cause death					
REG1A	1.08 (0.97-1.20)	0.31	1.27 (1.13-1.43)	0.0008	0.03
CD56	0.95 (0.86-1.04)	0.45	1.10 (0.97-1.25)	0.25	0.25
Leptin	1.11 (0.96-1.29)	0.31	0.88 (0.77-1.02)	0.18	0.06

HR: hazards ratio per 1-SD increase in rank normalized biomarker

Multivariable model adjusts for age, SBP, HTN treatment, HDL cholesterol, total cholesterol, BMI, DM, smoking, and lipid lowering medications. Abbreviations: HR = hazards ratio, CV = cardiovascular, CVD = cardiovascular disease.

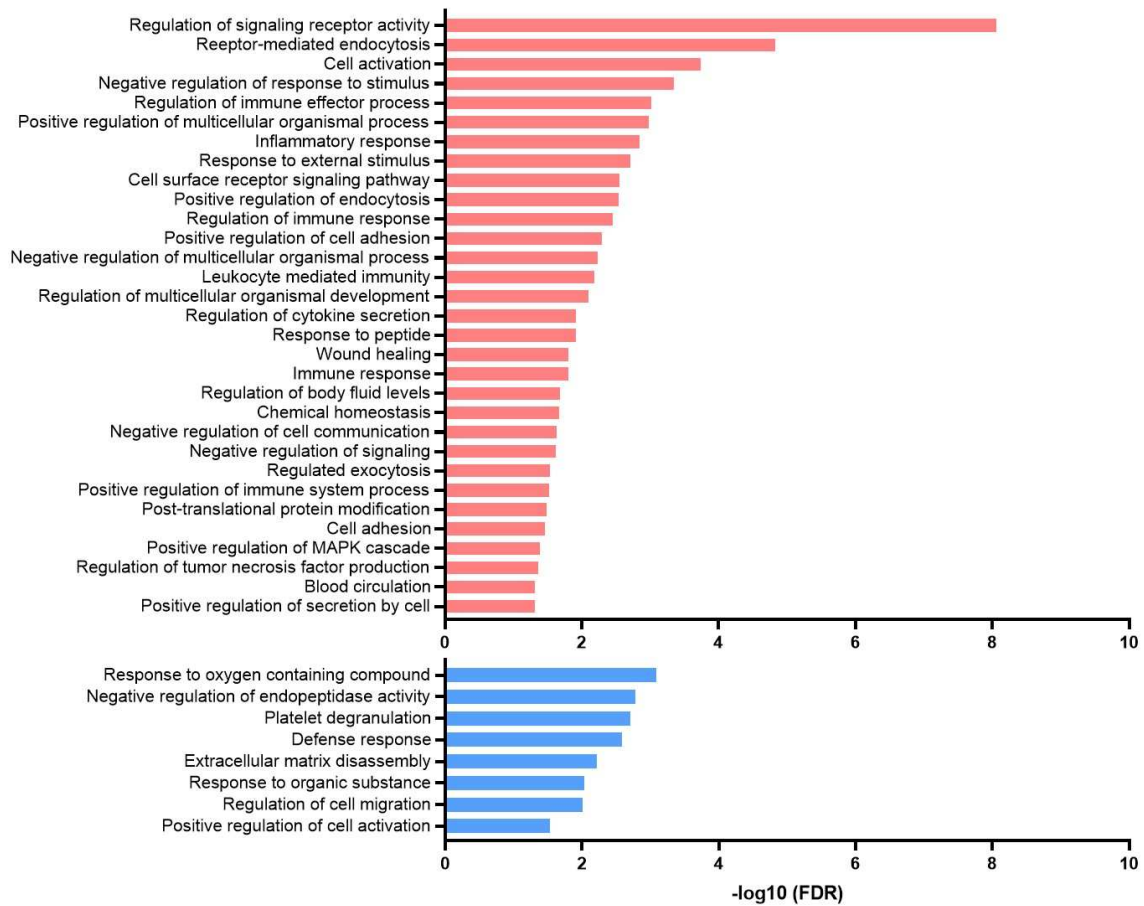
Supplemental Table 8. Sex-specific multivariable-adjusted associations of single biomarkers with cardiovascular outcomes, adjusted for menopause

	HR (95% CI)	p-value
Heart Failure		
CD14	1.60 (1.29-2.00)	0.0008
ApoB	1.52 (1.12-2.07)	0.041
GMP140	1.03 (0.85-1.26)	0.86
PON1	0.96 (0.78-1.17)	0.83
SRAGE	0.96 (0.79-1.16)	0.83
Tetranectin	0.91 (0.74-1.11)	0.64
All CVD		
GDF15	1.58 (1.27-1.98)	0.002
A1M	1.17 (1.03-1.34)	0.36
CD14	1.36 (1.18-1.56)	0.002
SRAGE	0.93 (0.82-1.06)	0.73
CV death		
PPBP	0.57 (0.43-0.76)	0.007
REG1A	1.41 (1.03-1.97)	0.11
TSC22D3	1.26 (0.96-1.64)	0.23
All cause death		
REG1A	1.23 (1.09-1.39)	0.008
CD56	1.13 (0.99-1.29)	0.19
Leptin	0.87 (0.75-1.01)	0.18

HR: hazards ratio per 1-SD increase in rank normalized biomarker

Multivariable model adjusts for age, SBP, HTN treatment, HDL cholesterol, total cholesterol, BMI, DM, smoking, and lipid lowering medications. Abbreviations: HR = hazards ratio, CV = cardiovascular, CVD = cardiovascular disease.

Supplemental Figure 1.



Supplemental Figure 2.

