Online Appendix

Supplementary Figure S1: Histograms and density plots of $\log_{10}$-transformed interleukin levels. (A) IL-1RA, (B) Low IL-1RA, (C) High IL1RA, (D) IL-6, E

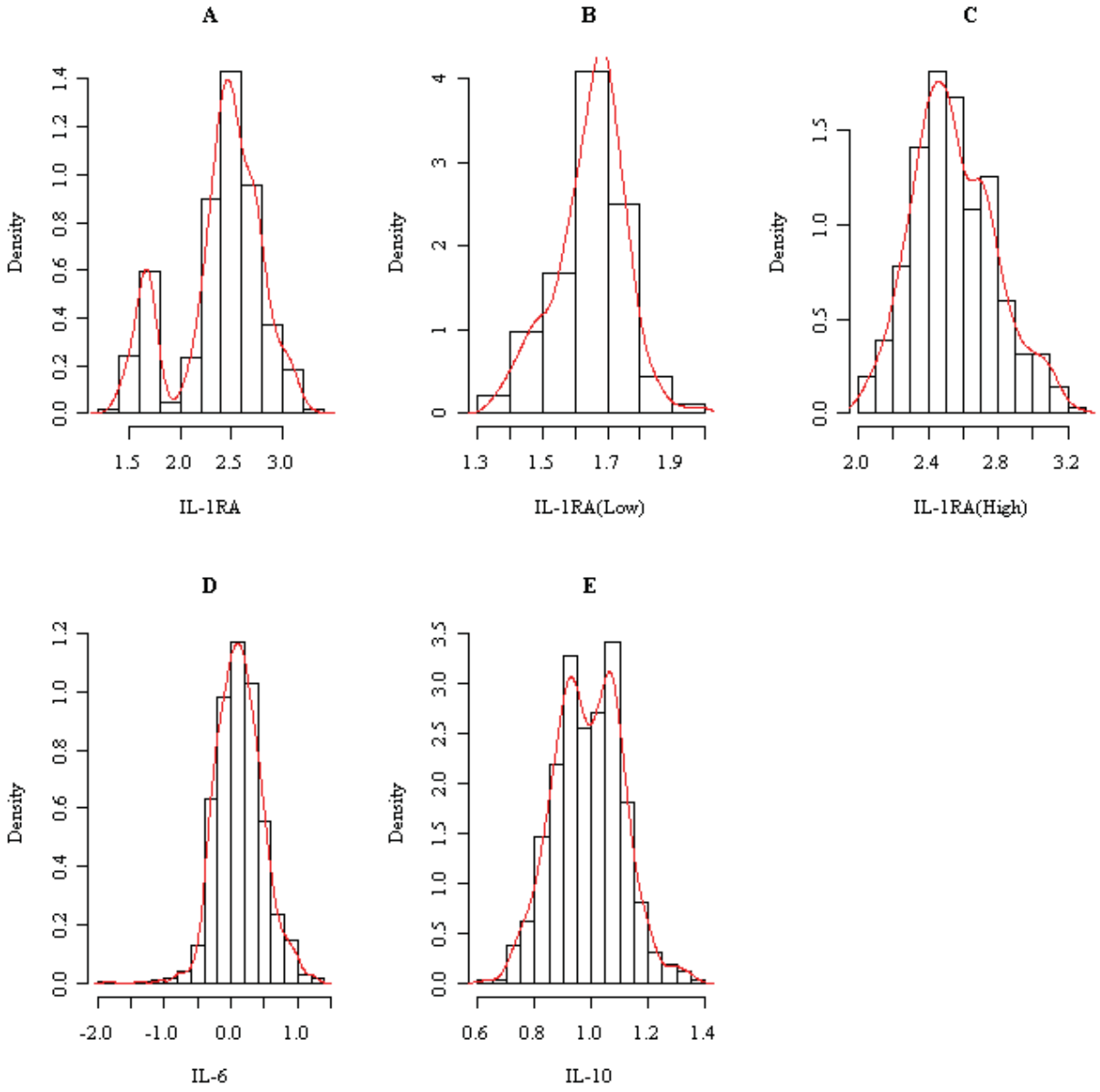
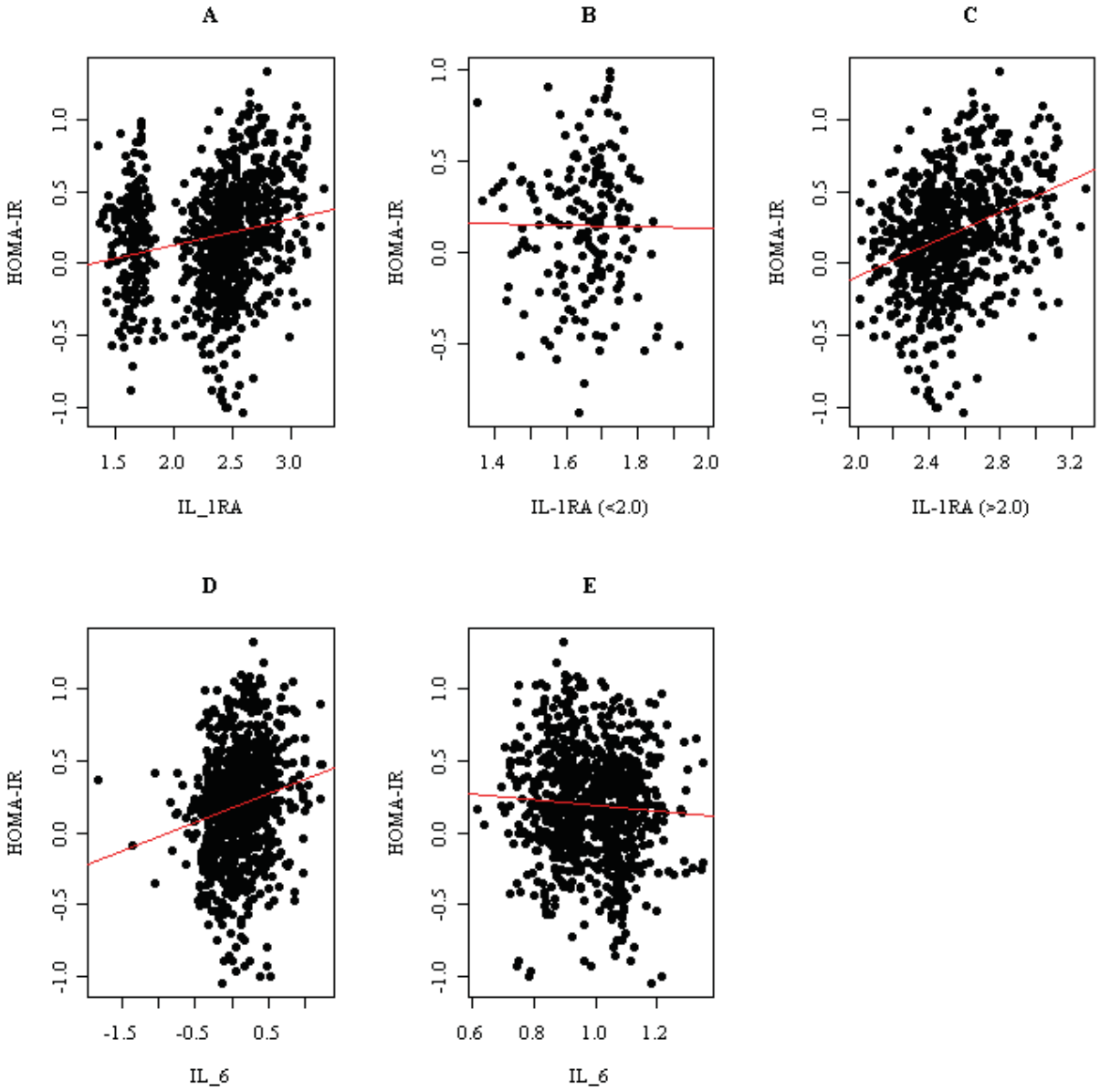

A
Density
0.0
0.2
0.4
0.6
0.8
1.0
1.2
1.4
1.5
2.0
2.5
3.0
IL-1RA
B
Density
0
1
2
3
4
1.3
1.5
1.7
1.9
IL-1RA(Low)
C
Density
0.0
0.5
1.0
1.5
2.0
2.4
2.8
3.2
IL-1RA(High)
D
Density
0.0
0.2
0.4
0.6
0.8
1.0
1.2
-2.0
-1.0
0.0
1.0
IL-6
E
Density
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
0.6
0.8
1.0
1.2
1.4
IL-10

Figure 2 Legend

Figure 2 Scatter plots and regression lines of HOMA-IR on interleukins. (A) IL-1RA, (B) Low IL-1RA, (C) High IL-1RA, (D) IL-6, and (E) IL-10. The red line is the fitted regression line of $\log_{10}$-transformed values of HOMA-IR and interleukins.


A
B
C
D
E
HOMA-IR
IL_1RA
IL-1RA (<2.0)
IL-1RA (>2.0)
IL_6
IL_6

Supplementary Table S1: Association between interleukins and measures of obesity adjusted for age and sex

Interleukins* (n=1020)	Measure of Obesity	β (SE)	*P*-value	Adjusted R^2
IL-6				
	Obese	0.177 (0.022)	<0.001	0.109
	BMI	0.782 (0.097)	<0.001	0.109
	WC	1.303 (0.140)	<0.001	0.127
	HC	1.256 (0.187)	<0.001	0.092
	WHR	1.260 (0.154)	<0.001	0.108
	PFM§	0.008 (0.001)	<0.001	0.089
IL-1RA				
	Obese	0.222 (0.026)	<0.001	0.081
	BMI	0.949 (0.116)	<0.001	0.075
	WC	1.360 (0.170)	<0.001	0.073
	HC	1.246 (0.225)	<0.001	0.042
	WHR	1.286 (0.186)	<0.001	0.057
	PFM	0.009 (0.001)	<0.001	0.049
IL-10				
	Obese	-0.010 (0.008)	0.199	0.006
	BMI	-0.032 (0.036)	0.374	0.006
	WC	0.010 (0.052)	0.845	0.005
	HC	-0.040 (0.068)	0.555	0.005
	WHR	0.066 (0.056)	0.238	0.006
	PFM	<0.001 (<0.0001)	0.927	0.004

*Each model represents regression of an interleukin on a measure of obesity.

WC – Waist circumference; HC – Hip circumference; WHR – waist-to-hip ratio; PFM – percent fat mass

Supplementary Table S2: Characteristics of African American participants grouped by low *vs*. high IL-1RA levels

Variable	**Low IL-1RA**[*]	**High IL-1RA**[†]	***P*-value**
	(Mean (SD) or Percent)	(Mean (SD) or Percent)	
Age (yrs)	42.11 (11.07)	43.41 (10.79)	0.147
BMI (kg/m^2)	27.65 (1.28)	28.78 (1.28)	0.052
Obese	30.4%	41.8%	0.003
WC (cm)	89.97 (1.18)	92.53 (1.18)	0.042
HC (cm)	107.07 (1.14)	107.49 (1.14)	0.718
WHR	0.844 (0.072)	0.862 (0.074)	0.002
PFM¶	34.30 (10.77)	35.32 (10.90)	0.250
Sex (Female)	53.26%	55.76%	0.703
Fasting Glucose (mg/dl)	85.77 (9.19)	84.52 (11.01)	0.116
Fasting Insulin (μU/ml)	6.41 (2.33)	7.51 (2.54)	0.030
HOMA-IR	1.40 (2.33)	1.60 (2.46)	0.051
IL-6 (pg/ml)	1.01 (2.36)	1.42 (2.17)	1.24×10^{-6}
IL-10 (pg/ml)	9.12 (1.26)	9.87 (1.33)	7.92×10^{-5}

[*] IL-1RA < 100 pg/ml (*n* = 183).
[†] IL-1RA > 100 pg/ml (*n* = 835).
WC – Waist circumference; HC – Hip circumference; WHR – waist-to-hip ratio; PFM – percent fat mass;

(Female) refers to proportion female

Supplementary Table S3: Association between stratified IL-1RA and obesity adjusted for age and sex

IL-1RA*	Measure of Obesity	β (SE)	*P*-value	Adjusted R^2
Low				
	Obesity	0.026 (0.018)	0.134	0.002
	BMI	0.077 (0.075)	0.307	-0.005
	WC	0.073 (0.111)	0.510	-0.008
	HC	0.083 (0.144)	0.564	-0.009
	WHR	0.066 (0.128)	0.610	-0.009
	PFM	<0.001 (<0.001)	0.749	-0.010
High				
	Obesity	0.186 (0.015)	<0.001	0.177
	BMI	0.912 (0.069)	<0.001	0.201
	WC	1.30 (0.101)	<0.001	0.193
	HC	1.42 (0.136)	<0.001	0.147
	WHR	0.917 (0.116)	<0.001	0.099
	PFM	0.009 (<0.001)	<0.001	0.148

*Each model represents regression of a grouping of IL-1RA on a measure of obesity.

WC – Waist circumference; HC – Hip circumference; WHR – waist-to-hip ratio; PFM – percent fat mass

Supplementary Table S4: Model fitting of HOMA-IR regressed on interleukins given measures of obesity

Base Predictor*	**IL-6**	**IL-10**	**IL-1RA**	**IL-1RA Low**	**IL-1RA High**
Obese	0.181	0.212	0.142	0.697	0.041
BMI	0.266	0.190	0.262	0.733	0.122
WC	0.266	0.182	0.262	0.787	0.098
HC	0.198	0.168	0.120	0.810	0.042
WHR	0.074	0.136	0.061	0.861	0.005
PFM	0.174	0.142	0.087	0.857	0.025

*Each model represents regression of HOMA-IR on an interleukin given a listed measure of obesity.

WC – Waist circumference; HC – Hip circumference; WHR – waist-to-hip ratio; PFM – percent fat mass

Shown are likelihood ratio test *p*-values for the null *vs*. the alternative model with HOMA-IR regressed on the measure of obesity without (under the null) or with (under the alternative) the interleukin.

Supplementary Table S5: Model fitting of HOMA-IR regressed on measures of obesity given interleukins

Base Predictor	Obese	BMI	WC	HC	WHR	PFM
IL-6	<0.001	<0.001	<0.001	<0.001	0.002	<0.001
IL-10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
IL-1RA	<0.001	<0.001	<0.001	<0.001	0.003	<0.001
IL-1RA Low	0.014	0.004	0.005	0.008	0.100	0.016
IL-1RA High	0.005	<0.001	<0.001	0.002	0.044	0.001

* Shown are likelihood ratio test *p*-values for the null *vs*. the alternative model with HOMA-IR regressed on an interleukin without (under the null) or with (under the alternative) the listed measure of obesity.

IL-1RA < 100 (n = 183).

IL-1RA > 100 (n = 835).