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Supplemental Material

U-Shaped Association between Plasma Manganese Levels and Type 2 Diabetes

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Table of Contents

Table S1 Association of the MnSOD Val16Ala polymorphism and T2D.

Table S2 ORs for the association between the MnSOD Val16Ala polymorphism and T2D in subgroups.

Table S3 ORs for the association between T2D and plasma manganese concentrations, according to the MnSOD Val16Ala polymorphism genotypes.

Table S1 Association of the MnSOD Val16Ala polymorphism and T2D.

	Controls, n (%)	Cases, n (%)	Crude OR (95% CI)	P value	Adjusted OR^a (95% CI)	P value
Genotypes						
TT	1206(74.72)	1184(73.36)	1		1	
CT	378(23.42)	392(24.29)	1.06(0.90-1.24)	0.51	1.03(0.85-1.25)	0.77
CC	30(1.86)	38(2.35)	1.29(0.79-2.10)	0.3	1.07(0.60-1.92)	0.81
CT+CC	408(25.28)	430(26.64)	1.07(0.92-1.26)	0.38	1.03(0.85-1.25)	0.74
TT+CT	1584(98.14)	1576(97.65)	1		1	
CC	30(1.86)	38(2.35)	1.27(0.78-2.07)	0.33	1.07(0.60-1.90)	0.83

^a adjusted for age, sex, BMI, current smoking status, current alcohol drinking status, physical activity, family history of diabetes and hypertension.

Table S2 ORs for the association between the MnSOD Val16Ala polymorphism and T2D in subgroups.

Groups	MnSOD Val16Ala genotype			P value for interaction
	TT	CT	CC	
Levels of Mn				
Low	1	1.23(0.89-1.69)	0.79(0.34-1.84)	0.54
Moderate	1	0.99(0.69-1.43)	0.90(0.32-2.52)	
High	1	0.88(0.60-1.31)	2.81(0.55-14.38)	
Sex				
Male	1	1.06(0.82-1.38)	0.95(0.42-2.16)	0.35
Female	1	0.95(0.70-1.30)	1.48(0.63-3.51)	
Age				
< 55	1	1.11(0.79-1.56)	0.89(0.29-2.67)	0.55
≥ 55	1	1.00(0.78-1.28)	1.12(0.57-2.21)	
BMI				
< 24	1	0.91(0.69-1.21)	0.79(0.33-1.88)	0.42
≥ 24	1	1.13(0.85-1.50)	1.37(0.60-3.11)	
Physical activity				
No or rare	1	1.08(0.85-1.37)	1.00(0.50-1.99)	0.06
Yes	1	0.90(0.63-1.29)	1.30(0.44-3.85)	

Adjusted for age, sex, BMI, current smoking status, current alcohol drinking status, physical activity, family history of diabetes and hypertension.

Table S3 ORs for the association between T2D and plasma manganese concentrations, according to the MnSOD Val16Ala polymorphism genotypes.

Variables	Tertiles of plasma manganese concentration			P value for interaction
	1 (Lowest)	2	3(Highest)	
TT				
N(NGT/T2D)	410/575	386/272	410/337	
OR	1.82(1.43-2.32)	1	1.68(1.28-2.21)	
CT				
N(NGT/T2D)	115/188	142/95	121/109	0.54
OR	2.19(1.42-3.38)	1	1.57(0.97-2.53)	
CC				
N(NGT/T2D)	13/17	13/10	4/11	
OR	2.59(0.48-14.06)	1	4.52(0.47-43.3)	
CT&CC				
N(NGT/T2D)	128/205	115/105	125/120	0.84
OR	2.41(1.61-3.61)	1	1.59(1.02-2.49)	

Adjusted for age, sex, BMI, current smoking status, current alcohol drinking status, physical activity, family history of diabetes, hypertension, plasma iron, plasma copper, and plasma selenium.