

1

Supplementary Information

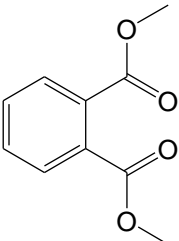
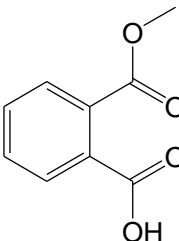
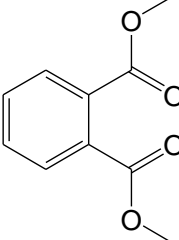
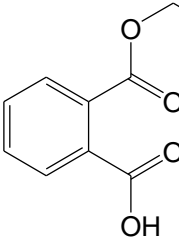
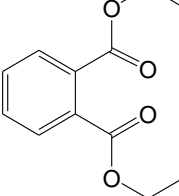
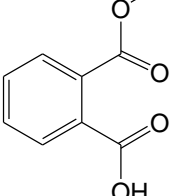
2 **Title: Positive Association between Urinary Concentration of Phthalate**3 **Metabolites and Oxidation of DNA and Lipid in Adolescents and Young Adults**

4 Chien-Yu Lin, Pau-Chung Chen, Chia-Jung Hsieh, Chao-Yu Chen, Anren Hu,

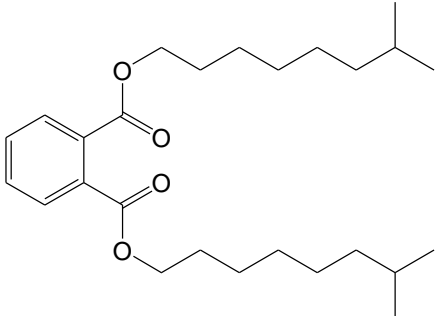
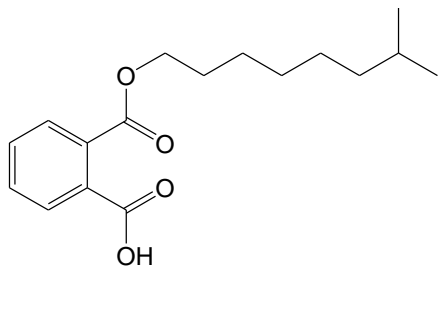
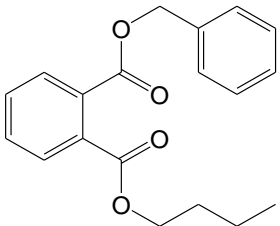
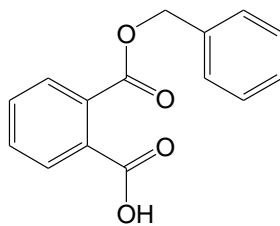
5 Fung-Chang Sung, Hui-Ling Lee, and Ta-Chen Su

6

7 Supplementary Figure S1: The structures of the nine phthalates and their
8 metabolites

No.	Phthalates	Metabolites
1	Dimethyl phthalate (DMP) 	Mono-methyl phthalate (MMP) 
2	Diethyl phthalate (DEP) 	Monoethyl phthalate (MEP) 
3	Dibutyl phthalate (DBP)  Butylbenzyl phthalate (BBzP) minor	Mono-n-butyl phthalate (MnBP) 

4	Di-isobutyl phthalate (DiBP) 	Mono-isobutyl phthalate (MiBP)
5	Di-2-ethylhexyl phthalate (DEHP) 	Mono-2-ethylhexyl phthalate (MEHP)
6	Di-2-ethylhexyl phthalate (DEHP) 	Mono-2-ethyl-5-hydroxyhexyl phthalate (MEHHP)
7	Di-2-ethylhexyl phthalate (DEHP) 	Mono-2-ethyl-5-oxo-hexyl phthalate (MEOHP)
8	Diisononyl phthalate (DINP) 	Monoisononyl phthalate (MiNP)

		
9	Butylbenzyl phthalate (BBzP) 	Monobenzyl phthalate (MBzP) 

1 Supplementary Table S2.: Basic demographics of the sample subjects including geometric means and their 95% confidence intervals of the urinary phthalate
2 metabolites

	No.	Σ MEHP ($\mu\text{mol/L}$)	MMP ($\mu\text{g/L}$)	MiBP ($\mu\text{g/L}$)	MEP ($\mu\text{g/L}$)	MnBP ($\mu\text{g/L}$)	MBzP ($\mu\text{g/L}$)
Overall	751	0.33 (0.30-0.35)	10.98 (10.37-11.62)	22.07 (20.35-23.97)	45.64 (41.69-49.74)	51.95 (47.97-55.67)	2.82 (2.58-3.08)
Age							
12-19	217	0.37* (0.32-0.42)	11.87 (10.67-13.21)	26.50** (22.92-30.63)	42.84 (35.98-51.01)	57.47 (50.20-65.83)	2.81 (2.39-3.30)
20-30	534	0.31* (0.28-0.34)	10.63 (9.93-11.38)	20.49** (18.67-22.47)	46.83 (41.89-52.35)	49.86 (45.74-54.33)	2.82 (2.54-3.12)
Gender							
Female	449	0.33 (0.30-0.36)	10.59 (9.83-11.40)	21.99 (19.87-24.34)	54.38** (48.23-61.31)	51.54 (46.90-56.66)	2.64 (2.36-2.96)
Male	302	0.32 (0.29-0.36)	11.58 (10.58-12.68)	22.17 (19.59-25.08)	35.17** (30.39-40.69)	52.56 (46.85-58.97)	3.10 (2.70-3.55)
Household income							
<50000 NTD per month	292	0.34 (0.30-0.38)	10.89 (9.93-11.95)	21.70 (19.14-24.61)	44.19 (38.02-51.37)	51.75 (46.06-58.15)	2.72 (2.37-3.12)
\geq 50000 NTD per month	458	0.32 (0.29-0.35)	11.02 (10.24-11.87)	22.28 (20.15-24.63)	46.76 (41.47-52.72)	52.10 (47.47-57.23)	2.89 (2.58-3.23)
Smoking status							
Non-current smoker	622	0.33	10.92	22.43	47.23	53.43	2.83

		(0.31-0.36)	(10.25-11.63)	(20.57-24.46)	(42.61-52.35)	(49.30-57.86)	(2.57-3.11)
< 10 cigarettes/day	47	0.35	11.98	22.86	48.96	48.03	2.98
		(0.26-0.47)	(9.51-15.09)	(16.71-31.28)	(33.68-71.16)	(35.91-64.20)	(2.10-4.21)
10–19 cigarettes/day	48	0.31	11.41	19.66	37.29	51.14	2.79
		(0.24-0.42)	(9.08-14.34)	(14.41-26.79)	(25.76-54.00)	(38.36-68.17)	(1.98-3.93)
≥ 20 cigarettes/day	34	0.23	10.06	18.34	29.45	35.38	2.43
		(0.16-0.32)	(7.67-13.20)	(12.69-26.50)	(18.97-45.70)	(25.13-49.80)	(1.62-3.65)
Current alcohol consumption							
No	682	0.33	10.83	21.66	45.41	51.41	2.79
		(0.30-0.35)	(10.20-11.51)	(19.95-23.50)	(41.14-50.10)	(47.61-55.48)	(2.54-3.05)
Yes	69	0.32	12.54	26.54	48.01	57.61	3.14
		(0.25-0.40)	(10.37-15.17)	(20.51-34.36)	(35.23-65.43)	(45.29-73.26)	(2.36-4.18)
Body mass index (kg/m ²)							
<24	588	0.32	10.99	21.85	47.90	49.59*	2.69*
		(0.29-0.34)	(10.29-11.73)	(20.01-23.88)	(43.08-53.25)	(45.70-53.84)	(2.44-2.97)
≥24	163	0.36	10.94	22.85	38.34	61.44*	3.32*
		(0.31-0.42)	(9.67-12.39)	(19.32-27.03)	(31.37-46.85)	(52.56-71.81)	(2.76-4.00)
Hypertension							
No	690	0.32	11.15	21.86	46.73	51.62	2.83
		(0.30-0.35)	(10.50-11.83)	(20.15-23.71)	(42.39-51.52)	(47.85-55.70)	(2.59-3.10)
Yes	61	0.35	9.22	24.52	34.97	55.81	2.65
		(0.27-0.46)	(7.53-11.29)	(18.63-32.27)	(25.18-48.57)	(43.21-72.10)	(1.96-3.60)
DM							

No	735	0.33 (0.30-0.35)	11.10 (10.48-11.76)	22.15 (20.47-23.97)	46.11 (41.93-50.70)	52.19 (48.47-56.15)	2.84 (2.61-3.10)
Yes	16	0.28 (0.17-0.47)	6.48 (4.37-9.60)	18.43 (10.77-31.53)	28.45 (14.97-54.05)	42.00 (25.51-69.20)	1.82 (1.01-3.30)
LDL-C (mg/dL)							
<130	626	0.33 (0.30-0.35)	11.14 (10.45-11.87)	22.15 (20.33-24.14)	47.19 (42.61-52.30)	51.94 (47.94-56.26)	2.86 (2.60-3.15)
≥130	125	0.31 (0.26-0.38)	10.20 (8.86-11.74)	21.64 (17.95-26.21)	38.63 (30.69-48.57)	51.98 (43.47-62.12)	2.60 (2.10-3.22)
Triglyceride (mg/dL)							
<160	715	0.33 (0.30-0.35)	11.21** (10.58-11.89)	22.18 (20.47-24.02)	46.97** (42.69-51.68)	51.93 (48.18-55.98)	2.79 (2.55-3.05)
≥160	36	0.33 (0.24-0.46)	7.16** (5.51-9.30)	19.92 (13.93-28.50)	25.84** (16.88-39.57)	52.21 (37.41-72.82)	3.48 (2.34-5.17)

1 *P < 0.05

2 **P < 0.01

3 \sum MEHP, sum of (MEHP/278)+(MEHHP/294)+(MEOHP/292)

Supplementary Table S3: Basic demographics of the sample subjects including geometric means and their 95% confidence intervals of the urinary 8-OHdG and 8-isoPGF_{2α}

	No.	8-OHdG (μg/L)	8-isoPGF _{2α} (μg/L)
Overall	751	2.95 (2.79-3.10)	1.28 (1.20-1.36)
Age			
12-19	217	3.03 (2.75-3.35)	1.05(0.93-1.19)**
20-30	534	2.91 (2.73-3.10)	1.39 (1.28-1.50)**
Gender			
Female	449	2.61 (2.44-2.79)**	1.20 (1.10-1.31)*
Male	302	3.54 (3.26-3.84)**	1.41 (1.27-1.57)*
Household income			
<50000 NT dollars per month	292	3.01 (2.77 -3.28)	1.25 (1.12-1.40)
≥50000 NT dollars per month	458	2.90 (2.71-3.10)	1.30 (1.19-1.41)
Smoking status			
Non-current smoker	622	2.91 (2.74-3.08)	1.24 (1.15-1.33)
< 10 cigarettes/day	47	2.80 (2.26-3.46)	1.54 (1.18-2.01)
10–19 cigarettes/day	48	3.51 (2.85-4.33)	1.50 (1.15-1.95)
≥ 20 cigarettes/day	34	3.17(2.47-4.06)	1.44 (1.05-1.97)
Current alcohol consumption			
No	682	2.91 (2.75-3.08)	1.28 (1.20-1.38)
Yes	69	3.31 (2.78-3.95)	1.24 (0.99-1.54)
Body mass index (kg/m ²)			
<24	588	3.01 (2.83-3.19)	1.26 (1.16-1.36)
≥24	163	2.74 (2.44-3.07)	1.37 (1.18-1.58)
Hypertension			
No	690	2.95 (2.79-3.11)	1.27 (1.18-1.36)
Yes	61	2.96 (2.46-2.57)	1.43 (1.13-1.80)
DM			
No	735	2.98 (2.83-3.15)**	1.28 (1.19-1.37)
Yes	16	1.68 (1.17-2.41)**	1.34 (0.85-2.13)
LDL-C (mg/dL)			
<130	626	2.99(2.83-3.17)	1.28(1.19-1.37)
≥130	125	2.72(2.39-3.10)	1.30(1.10-1.53)
Triglyceride (mg/dL)			
<160	715	2.98(2.82-3.15)	1.28(1.20-1.37)
≥160	36	2.35(1.85-2.99)	1.22(0.90-1.66)

*P < 0.05

**P < 0.01