

*Supplementary Materials*

# Effect of Coffee and Cocoa-Based Confectionery Containing Coffee on Markers of DNA Damage and Lipid Peroxidation Products: Results from a Human Intervention Study

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**Table S1.** Analysis of carry over effects for endogenous and oxidatively induced-DNA damage after each treatment ( $n = 21$ ).

Variable	1C-3C	3C-PC	1C-PC	p-value
DNA strand breaks (% DNA in tail, PBS)	5.66 ± 2.61	7.04 ± 4.89	4.26 ± 3.17	0.09
H <sub>2</sub> O <sub>2</sub> -induced DNA damage (% DNA in tail)	2.88 ± 1.51	4.02 ± 4.61	2.42 ± 3.21	0.21
DNA strand breaks (% DNA in tail, EB)	4.55 ± 3.18	6.12 ± 3.90	5.61 ± 3.70	0.10
FPG-sensitive sites (% DNA in tail)	1.23 ± 1.68	2.11±4.88	3.65 ± 5.71	0.14

Data reported as the absolute value of carry-over effect size ± standard errors. Legend: 1C: group consuming 1 cup of espresso coffee/day; 3C: group consuming 3 cups of espresso coffee/day; PC: group consuming 1 cup of espresso coffee plus 2 cocoa-based products containing coffee twice per day; FPG: formamidopyrimidine DNA glycosylase.

**Table S2.** Markers of DNA oxidation catabolites in plasma after each treatment ( $n = 21$ ).

Variable	1C-3C	3C-PC	1C-PC	p-value
8-OH-guanine (nM)	12.37 ± 23.7	3.31 ± 24.28	3.73 ± 14.29	0.32
8-NO <sub>2</sub> -cGMP(nM)	57.51 ± 74.7	153.30 ± 105.23	18.69 ± 38.60	0.21
8-OH-2'-deoxy-guanosine (nM)	10.98 ± 20.15	1.60 ± 14.5	2.46 ± 7.37	0.19
cGMP (nM)	58.35 ± 58.93	34.19 ± 45.60	6.30 ± 168.12	0.51

Data reported as the absolute value of carry-over effect size ± standard errors. Legend: 1C: group consuming 1 cup of espresso coffee/day; 3C: group consuming 3 cups of espresso coffee/day; PC: group consuming 1 cup of espresso coffee plus 2 cocoa-based products containing coffee twice per day; GMP: guanosine monophosphate.

**Table S3.** Analysis of carry over effects in lipid peroxidation products ( $n = 21$ ).

Variable	1C-3C	3C-PC	1C-PC	p-value
<b>Oxylipins from Arachidonic Acid</b>				
<b>PGs</b>				
<b>D-Pathway</b>				
2.3-dinor-11 $\beta$ -PGF <sub>2</sub>	0.62 ± 0.64	-0.47 ± 0.94	-0.52 ± 0.64	0.84
11- $\beta$ -PGF <sub>2<math>\alpha</math></sub>	0.08 ± 0.05	-0.04 ± 0.06	0 ± 0.07	0.12
Tetranor PGDM	0 ± 0.03	0 ± 0.02	0.01 ± 0.02	0.76
PGDM	0.04 ± 0.03	-0.04 ± 0.05	-0.05 ± 0.05	0.91
Tetranor PGJM	nd	nd	nd	-
Tetranor PGDM lactone	nd	nd	nd	-
<b>E-Pathway</b>				
Tetranor PGAM	-8.3 ± 8.03	-9.47 ± 13.95	-11.38 ± 26.21	0.53
Tetranor PGEM	0.04 ± 0.03	-0.04 ± 0.05	-0.04 ± 0.05	0.97
20-OH-PGE <sub>2</sub>	0.07 ± 0.05	-0.06 ± 0.05	-0.02 ± 0.06	0.78
PGE <sub>2</sub>	nd	nd	nd	-
<b>F-Pathway</b>				
Tetranor PGFM	-0.1 ± 0.12	-0.1 ± 0.09	-0.04 ± 0.09	0.56
PGF <sub>2<math>\alpha</math></sub>	0.02 ± 0.05	-0.16 ± 0.12	-0.1 ± 0.15	0.16
20-OH-PGF <sub>2<math>\alpha</math></sub>	0.06 ± 0.08	-0.48 ± 0.86	-0.11 ± 0.87	0.22
19(R)-OH-PGF <sub>2<math>\alpha</math></sub>	nd	nd	nd	-
<b>I-Pathway</b>				
6-keto-PGF <sub>1<math>\alpha</math></sub>	nd	nd	nd	-
<b>F<sub>2</sub>-IsoPs</b>				
<b>15 series</b>				
2.3-dinor-15-F <sub>2t</sub> -IsoP (2.3-dinor-8-iso-PGF <sub>2<math>\alpha</math></sub> )	0.01 ± 0.03	-0.01 ± 0.04	-0.02 ± 0.04	0.88
15- <i>epi</i> -15-F <sub>2t</sub> -IsoP (8-iso-15(R)-PGF <sub>2<math>\alpha</math></sub> )	0.71 ± 0.3	-0.5 ± 0.56	-0.4 ± 0.48	0.43
15-F <sub>2t</sub> -IsoP (8-iso-PGF <sub>2<math>\alpha</math></sub> )	0.07 ± 0.05	-0.01 ± 0.08	-0.03 ± 0.07	0.31
9- <i>epi</i> -15-F <sub>2t</sub> -IsoP (8-iso-PGF <sub>2<math>\beta</math></sub> )	0.002 ± 0.002	-0.01 ± 0	0 ± 0.01	0.43
15-keto-15-F <sub>2t</sub> -IsoP (8-iso-15-keto-PGF <sub>2<math>\alpha</math></sub> )	0.01 ± 0.01	-0.4 ± 0.44	0 ± 0.02	0.55
ent-15- <i>epi</i> -15-F <sub>2t</sub> -IsoP (ent-8-iso-15S-PGF <sub>2<math>\alpha</math></sub> )	0.06 ± 0.08	-0.04 ± 0.44	-0.11 ± 0.12	0.67
2.3-dinor-15- <i>epi</i> -15-F <sub>2t</sub>	0.68 ± 0.69	-0.57 ± 1.09	-0.59 ± 0.73	0.56
<b>5 series</b>				
5-F <sub>2t</sub> -IsoP	5.49 ± 2.48	-5.35 ± 5.87	-4.69 ± 4.59	0.81
5- <i>epi</i> -5F <sub>2t</sub> -IsoP	0.34 ± 0.27	-0.08 ± 0.46	-0.27 ± 0.36	0.44
<b>E2-IsoPs</b>				
<b>15 series</b>				
15-keto-15-E <sub>2t</sub> -IsoP (8-iso-15-keto-PGE <sub>2</sub> )	0.52 ± 0.52	0.03 ± 0.28	0.31 ± 0.48	0.32
<b>Oxylipins from Dihomo-<math>\gamma</math>-linolenic acid</b>				
<b>PGs</b>				
PGE <sub>1</sub>	0.05 ± 0.04	-0.01 ± 0.06	-0.03 ± 0.05	0.91
PGD <sub>2</sub>	0.06 ± 0.09	-0.07 ± 0.04	-0.03 ± 0.12	0.92
PGF <sub>1<math>\alpha</math></sub>	0.1 ± 0.13	-0.02 ± 0.11	0.03 ± 0.14	0.33
<b>IsoPs</b>				
15-F <sub>1t</sub> -IsoP (8-iso-PGF <sub>1<math>\alpha</math></sub> )	0.002 ± 0.002	-0.001 ± 0.001	0 ± 0.002	0.72
15-E <sub>1t</sub> -IsoP (8-iso-PGE <sub>1</sub> )	3.43 ± 3.41	0.18 ± 1.83	2.04 ± 3.16	0.54

Data reported as the absolute value of carry-over effect size ± standard errors. Legend: 1C: group consuming 1 cup of espresso coffee/day; 3C: group consuming 3 cups of espresso coffee/day; PC: group consuming 1 cup of espresso coffee plus 2 cocoa-based products containing coffee twice per day; E2-IsoPs 15-series: total E2-isoprostanes 15-series; F2-IsoPs 15 series: total F2-isoprostanes 15 series; F2-IsoPs 5 series: total F2-isoprostanes 5 series; IsoPs: isoprostanes; PG: prosta-

glandins; PGs D-Pathway: total prostaglandins D-pathway; PGs E-Pathway: total prostaglandins E-pathway; PGs F-Pathway: total prostaglandins F-pathway; PGs I-Pathway: total prostaglandins I-pathway; IsoPs from DGLA: total isoprostanes from dihomo- $\gamma$ -linolenic acid; PGs from DGLA: prostaglandins from dihomo- $\gamma$ -linolenic acid; NS: not significant.