

## Supplemental Materials

### DNA Methylation Modifies Urine Biomarker Levels in 1,6-Hexamethylene Diisocyanate (HDI) Exposed Workers: A Pilot Study

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#### Supplemental Material: Tables

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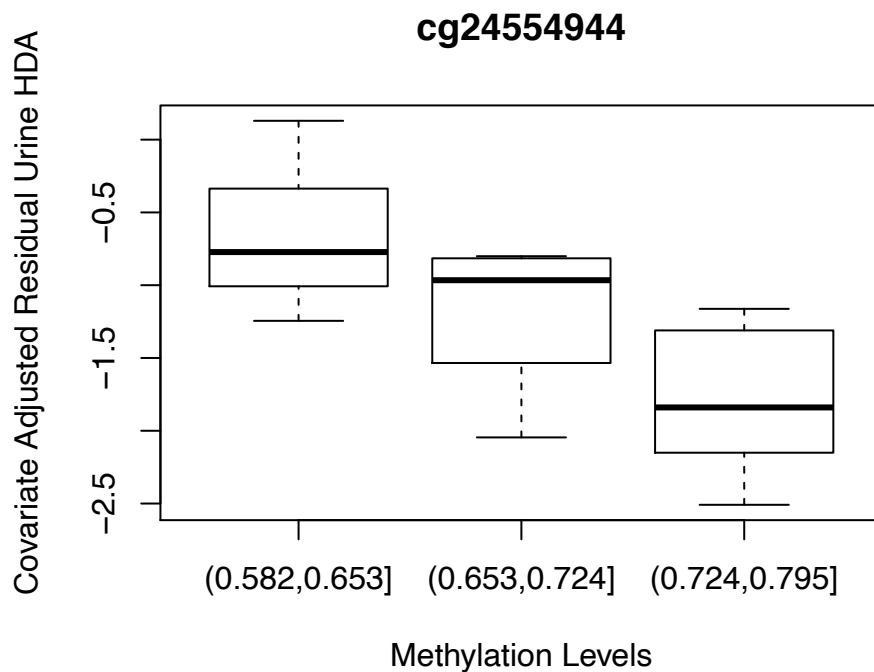
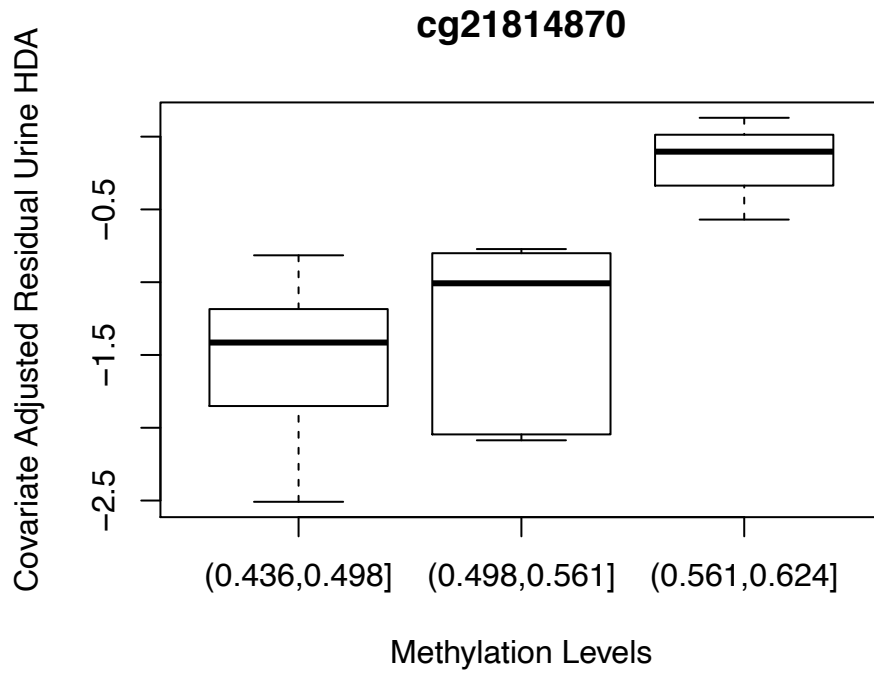
#### Supplemental Material: Figures

Supplemental Material, Figure 1: DNA methylation vs. creatinine adjusted urinary HDA levels for the two most significant CpGs in the 20 automotive spray-painters. Creatinine adjusted urinary HDA levels in the figure have been adjusted for age, ethnicity, and smoking status..... 3

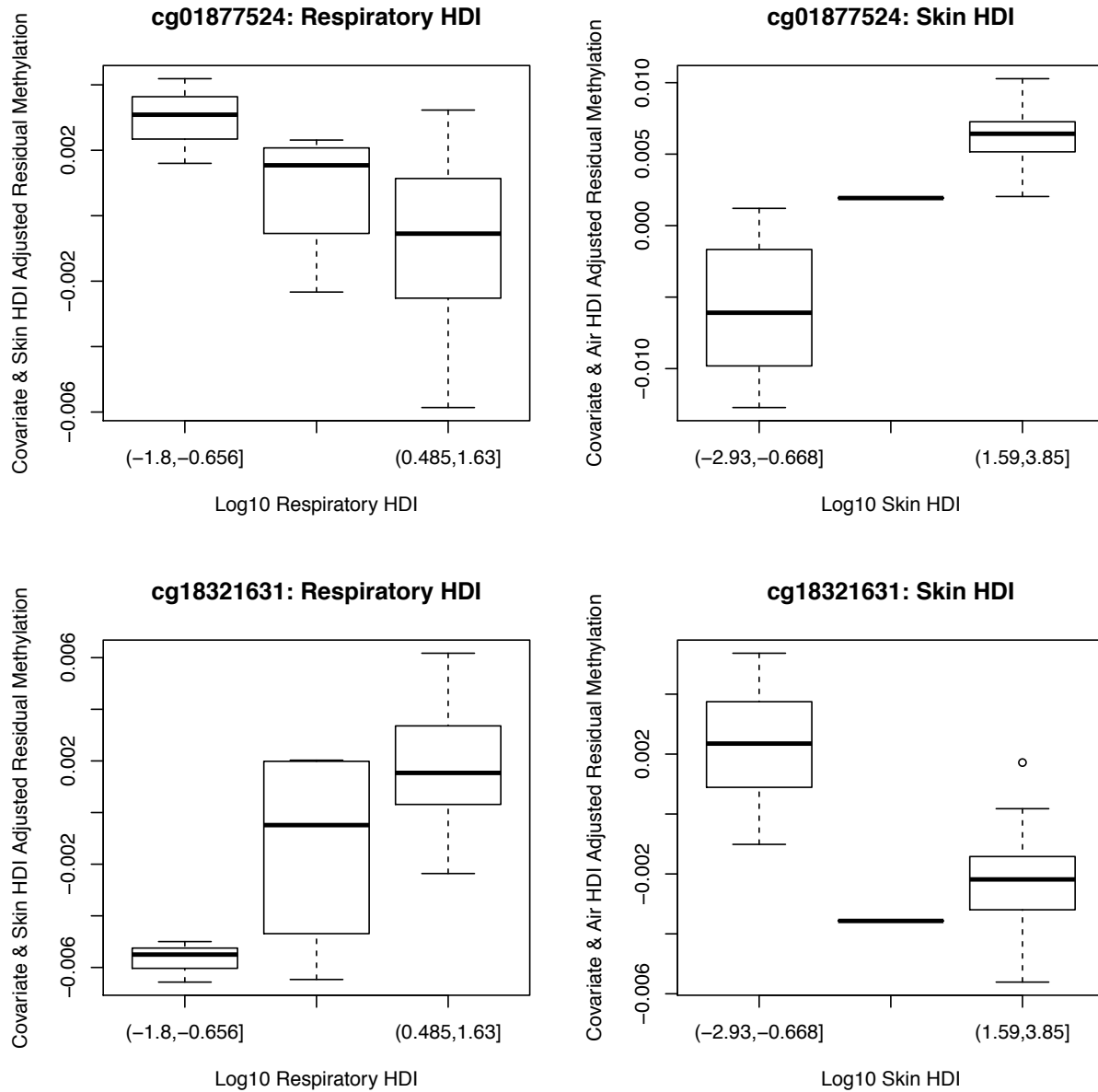
Supplemental Material, Figure 2: DNA methylation vs. HDI levels measured in the breathing zone or in the skin for the two most significant CpGs in the 20 automotive spray-painters. DNA methylation levels in the figure have been adjusted for age, ethnicity, and smoking status..... 4

**Supplemental Table 1.** Model 2: Genic and intergenic sequences of the 30 differentially methylated CpGs statistically associated (FDR <0.05) with HDI inhalation and skin exposure in the 20 automotive spray-painters.

Name	Coordinate	Beta ± STD	Gene	Chr	CPG Islands	Relation	Enhancer	Regulatory	p-value	FDR
cg01877524	117156569	0.983 ± 0.009	<i>DSCAML1</i>	11	117651216-117651429	Island	No		1.33 × 10 <sup>-11</sup>	1.08 × 10 <sup>-6</sup>
cg18321631	151118586	0.052 ± 0.009	<i>ATOX1</i>	5	151137992-151138418	Island	No	Promoter	1.31 × 10 <sup>-8</sup>	0.00091
cg10115148	2862768	0.648 ± 0.050		1	2876545-2876808	N_Shelf	No		1.26 × 10 <sup>-7</sup>	0.00762
cg27369325	97760076	0.961 ± 0.009	<i>FARP1</i>	13			Yes		2.31 × 10 <sup>-7</sup>	0.01204
cg12813323	13716491	0.011 ± 0.005	<i>FAM210A; RNMT</i>	18	13725979-13727370	Island	No	Promoter	2.48 × 10 <sup>-7</sup>	0.01204
cg16411204	101369803	0.064 ± 0.008	<i>SLC25A28</i>	10	101379708-101381445	Island	No		3.85 × 10 <sup>-7</sup>	0.01550
cg27484662	75227180	0.973 ± 0.015	<i>ATP9B</i>	18	77125676-77125885	S_Shore	Yes		4.25 × 10 <sup>-7</sup>	0.01550
cg23576507	20641684	0.046 ± 0.010	<i>ZNF219; TMEM253</i>	14	21571835-21572520	Island	No	Promoter	4.27 × 10 <sup>-7</sup>	0.01550
cg17345081	142451632	0.109 ± 0.025	<i>NMBR</i>	6	142409473-142410112	Island	No		4.82 × 10 <sup>-7</sup>	0.01550
cg19951424	86983212	0.073 ± 0.008	<i>ISG20</i>	15			No	Promoter	4.95 × 10 <sup>-7</sup>	0.01550
cg03895392	72213387	0.124 ± 0.014	<i>ISLR2</i>	15	74425091-74428821	Island	No		5.11 × 10 <sup>-7</sup>	0.01550
cg09949666	43645491	0.882 ± 0.031	<i>COA1</i>	7			No		5.61 × 10 <sup>-7</sup>	0.01603
cg25090499	24941165	0.097 ± 0.012	<i>ATP8A2</i>	13	26042693-26043486	Island	No		7.12 × 10 <sup>-7</sup>	0.01877
cg14931122	19999698	0.070 ± 0.010	<i>CYTSB</i>	17	20059028-20060060	Island	No	Unclassified	7.40 × 10 <sup>-7</sup>	0.01877
cg15966253	23822484	0.039 ± 0.007	<i>UBE2E1</i>	3	23847871-23848633	N_Shore	No	Promoter	7.73 × 10 <sup>-7</sup>	0.01877
cg24783119	39716696	0.897 ± 0.019	<i>LCA5L</i>	21			Yes		1.17 × 10 <sup>-6</sup>	0.02711
cg21869524	95212932	0.646 ± 0.036	<i>C5orf27</i>	5			No		1.39 × 10 <sup>-6</sup>	0.03072
cg21011830	17831855	0.040 ± 0.008	<i>RPL18AP3</i>	19	17970454-17971123	Island	No	Promoter	1.57 × 10 <sup>-6</sup>	0.03312
cg11880644	70523769	0.897 ± 0.020	<i>ICT1</i>	17	73008562-73009170	S_Shelf	No		1.75 × 10 <sup>-6</sup>	0.03324
cg21875866	46505991	0.902 ± 0.033		13			Yes		1.87 × 10 <sup>-6</sup>	0.03324
cg04003051	1159431	0.848 ± 0.017	<i>CACNoIH</i>	16	1219429-1219641	Island	Yes		1.90 × 10 <sup>-6</sup>	0.03324
cg00303776	103444243	0.091 ± 0.012	<i>FBXW4</i>	10	103454126-103454478	Island	No		1.93 × 10 <sup>-6</sup>	0.03324
cg12731671	5981516	0.296 ± 0.030	<i>LRRN4</i>	20	6032675-6033517	Island	Yes		1.98 × 10 <sup>-6</sup>	0.03324
cg08266223	167864145	0.854 ± 0.034		6	168120634-168120892	S_Shore	No		1.99 × 10 <sup>-6</sup>	0.03324
cg06448442	137536612	0.961 ± 0.014	<i>IL22RA2</i>	6			No		2.21 × 10 <sup>-6</sup>	0.03573
cg15768103	127130406	0.078 ± 0.009	<i>GYPC</i>	2	127413696-127414171	Island	No		2.46 × 10 <sup>-6</sup>	0.03852
cg26874634	46377277	0.051 ± 0.008		17	49021856-49022279	Island	No	Promoter	3.23 × 10 <sup>-6</sup>	0.04896
cg09612946	219829924	0.844 ± 0.027	<i>TUBA4B</i>	2	220117937-220119334	S_Shelf	No		3.36 × 10 <sup>-6</sup>	0.04927
cg01073708	110625648	0.885 ± 0.033	<i>EBAG9</i>	8	110551736-110552643	S_Shelf	No		3.47 × 10 <sup>-6</sup>	0.04927
cg17639059	55769375	0.062 ± 0.010	<i>NAB2</i>	12	57480797-57483116	Island	No		3.55 × 10 <sup>-6</sup>	0.04927



**Supplemental Figure 1.** DNA methylation vs. creatinine adjusted urinary HDA levels for the two most significant CpGs in the 20 automotive spray-painters. Creatinine adjusted urinary HDA levels in the figure have been adjusted for age, ethnicity, and smoking status.



**Supplemental Figure 2.** DNA methylation vs. HDI levels measured in the breathing zone or in the skin for the two most significant CpGs in the 20 automotive spray-painters. DNA methylation levels in the figures have been adjusted for age, ethnicity, and smoking status.