

Supplemental Table 1. Primer sequences

Primer name	Primer sequence (5'-3') forward	Primer sequence (5'-3') reverse	AT ^A (°C)	Product size (bp)
RT-PCR <i>p16</i>	5'-CACCGGAGGAAGAAAGAG	5'-ATCATCATGACCTGGATCG	58	273
RT-PCR β -actin	5'-TGACCCAGATCATGTTGAG	5'-ATCTCTTGCTCGAAGTCCAG	58	325
Sequencing PCR <i>p16</i>	5'-TTTAGAGGATTTGAGGGATAGGG	5'-ACCTAATTCCAATTCCTACAAACT	60	385
MethyLight <i>p16</i>	5'-TGGAG TTTTCGGTTGATTGGTT	5'-ACAACGCCCGCACCTCCT	60	70

Notes. ^A AT: annealing temperature

Supplemental table 2. CpG site-specific methylation of *p16^{INK4α}* gene in PAHs-exposed workers and controls (%)

	PAHs-exposed workers		Controls		<i>P</i> [#]
	Mean ± SD	median (25th-75th)	Mean ± SD	median (25th-75th)	
CpG site 1	3.62±9.12	0(0-0)	0.85±3.93	0(0-0)	0.045
CpG site 2	9.42±21.27	0(0-12.5)	1.06±4.21	0(0-0)	0.002
CpG site 3	2.57±7.34	0(0-0)	2.97±9.38	0(0-0)	0.86
CpG site 4	0(0-0)	0(0-0)	0(0-0)	0(0-0)	—
CpG site 5	0(0-0)	0(0-0)	0(0-0)	0(0-0)	—
CpG site 6	2.9±7.47	0(0-0)	1.48±5.73	0(0-0)	0.267
CpG site 7	2.9±7.77	0(0-0)	0.64±2.77	0(0-0)	0.069
CpG site 8	3.07±7.56	0(0-0)	0.42±3.25	0(0-0)	0.004
CpG site 9	2.54±7.29	0(0-0)	0(0-0)	0(0-0)	0.004
CpG site 10	3.26±7.63	0(0-0)	1.91±6.49	0(0-0)	0.177
CpG site 11	5.62±10.83	0(0-12.5)	1.27±6.01	0(0-0)	0.002
CpG site 12	3.44±8.81	0(0-0)	0.64±3.61	0(0-0)	0.019
CpG site 13	5.07±11.61	0(0-0)	1.48±4.08	0(0-0)	0.132
CpG site 14	3.99±9.7	0(0-0)	2.33±6.35	0(0-0)	0.393
CpG site 15	4.53±14.22	0(0-0)	4.03±7.85	0(0-12.5)	0.298
CpG site 16	7.43±15.36	0(0-12.5)	2.75±6.59	0(0-0)	0.058
CpG site 17	8.51±16.53	0(0-12.5)	4.03±11.24	0(0-0)	0.024
CpG site 18	5.80±13.14	0(0-0)	0(0-0)	0(0-0)	< 0.001
CpG site 19	0(0-0)	0(0-0)	0(0-0)	0(0-0)	—
CpG site 20	6.88±13.98	0(0-12.5)	0.21±1.63	0(0-0)	< 0.001
CpG site 21	8.51±18.0	0(0-12.5)	0.85±3.17	0(0-0)	0.001
CpG site 22	11.23±21.02	0(0-12.5)	0.64±3.61	0(0-0)	< 0.001
CpG site 23	5.80±14.63	0(0-0)	0.64±3.61	0(0-0)	0.002
CpG site 24	9.39±17.83	0(0-12.5)	0.64±2.77	0(0-0)	< 0.001
CpG site 25	4.71±10.95	0(0-0)	1.91±5.09	0(0-0)	0.179
CpG site 26	8.51±15.08	0(0-12.5)	1.91±5.09	0(0-0)	0.007
CpG site 27	14.38±25.26	0(0-12.5)	4.23±11.04	0(0-0)	0.005
CpG site 28	12.32±21.81	0(0-12.5)	3.6±10.65	0(0-0)	0.005
CpG site 29	9.30±15.91	0(0-12.5)	2.75±7.37	0(0-0)	0.003
CpG site 30	8.51±16.95	0(0-12.5)	2.12±5.76	0(0-0)	0.021
CpG site 31	10.14±20.37	0(0-12.5)	0.42±2.28	0(0-0)	< 0.001
CpG site 32	13.76±22.29	0(0-25)	4.66±8.65	0(0-12.5)	0.025
CpG site 33	19.30±26.04	0(0-37.5)	4.87±10.39	0(0-0)	0.001
CpG site 34	27.89±31.66	0(0-50)	3.18±7.55	0(0-0)	< 0.001
CpG site 35	11.59±18.48	0(0-12.5)	6.14±11.46	0(0-12.5)	0.074

Notes.[#]Mann-Whitney *U*-test between exposed workers and controls

Supplemental table 3. The frequencies of *p16^{INK4α}* copies with different number of methylated-CpG sites between two groups of subjects

Number of methylated CpG sites in each DNA molecule (35 CpG sites)	Number of clones examined	
	Control group (59×8=472)	PAHs-exposed group (67×8=536)
0	352 (75%)	204 (38.3%)
1-5	110 (23%)	237 (44%)
6-10	8 (2%)	73 (14%)
11-15	2 (0.5%)	18 (3%)
>15	0	4 (0.7%)

Supplemental Table 4. The relationships between $p16^{INK4\alpha}$ methylation and the levels of urinary 1-OHP and CBMN in PBLs

	1-OHP		CBMN	
	<i>r</i>	<i>P</i>	<i>r</i>	<i>P</i>
CpG site 1	0.193	0.029	0.099	0.268
CpG site 2	0.308	<0.001	0.064	0.470
CpG site 3	0.020	0.821	0.002	0.986
CpG site 4	—	—	—	—
CpG site 5	—	—	—	—
CpG site 6	0.198	0.025	0.114	0.200
CpG site 7	0.256	0.004	0.216	0.014
CpG site 8	0.282	0.001	0.184	0.037
CpG site 9	0.293	0.001	0.165	0.063
CpG site 10	0.057	0.525	0.041	0.648
CpG site 11	0.198	0.025	0.189	0.033
CpG site 12	0.105	0.239	0.127	0.154
CpG site 13	0.089	0.317	0.045	0.615
CpG site 14	0.021	0.818	0.055	0.539
CpG site 15	-0.099	0.266	-0.010	0.914
CpG site 16	0.138	0.121	0.128	0.149
CpG site 17	0.163	0.066	0.128	0.149
CpG site 18	0.309	<0.001	0.169	0.057
CpG site 19	—	—	—	—
CpG site 20	0.282	0.001	0.198	0.025
CpG site 21	0.252	0.004	0.236	0.007
CpG site 22	0.278	0.002	0.212	0.016
CpG site 23	0.200	0.023	0.202	0.022
CpG site 24	0.265	0.002	0.213	0.016
CpG site 25	0.102	0.253	0.077	0.385
CpG site 26	0.242	0.006	0.154	0.083
CpG site 27	0.176	0.046	0.199	0.024
CpG site 28	0.276	0.002	0.182	0.040
CpG site 29	0.231	0.009	0.130	0.145
CpG site 30	0.137	0.122	0.043	0.627
CpG site 31	0.356	<0.001	0.265	0.002
CpG site 32	0.189	0.032	0.105	0.238
CpG site 33	0.244	0.006	0.173	0.052
CpG site 34	0.369	<0.001	0.293	0.001
CpG site 35	0.173	0.051	0.078	0.379