# Supplemental table 6. Data on known toxicants/carcinogens from studies not contributing to meta-analyses[1]

<table>
<tr><th>Study ID</th><th>Time point</th><th>Data</th><th>Direction over time[2] (↓ decline; ↔ equivocal; ↑ increase)</th></tr>
<tr><td>Goniewicz 2017</td><td>2 weeks</td><td>
<table>
<tr><th rowspan="2">Outcome (ng/g)</th><th colspan="2">Baseline (n=20)</th><th colspan="2">Week 1 (n=18)</th><th colspan="2">Week 2 (n=18)</th></tr>
<tr><th>Mean</th><th>SD</th><th>Mean</th><th>SD</th><th>Mean (absolute)</th><th>SD</th></tr>
<tr><td>1-Hydroxyfluorene</td><td>1414</td><td>864</td><td>441</td><td>492</td><td>592</td><td>833</td></tr>
<tr><td>1-Hydroxyphenanthrene</td><td>488</td><td>211</td><td>407</td><td>196</td><td>584</td><td>415</td></tr>
<tr><td>1-Hydroxypyrene</td><td>778</td><td>338</td><td>606</td><td>279</td><td>746</td><td>627</td></tr>
<tr><td>2-HPMA</td><td>45</td><td>24</td><td>24</td><td>18</td><td>21</td><td>15</td></tr>
<tr><td>2-Hydroxyfluorene</td><td>1029</td><td>463</td><td>738</td><td>315</td><td>842</td><td>495</td></tr>
<tr><td>2-Hydroxyphenanthrene</td><td>655</td><td>333</td><td>755</td><td>492</td><td>968</td><td>800</td></tr>
<tr><td>2-Naphthol</td><td>24</td><td>13</td><td>15</td><td>8</td><td>19</td><td>14</td></tr>
<tr><td>3-, 4-Hydroxyphenanthrenes</td><td>1314</td><td>669</td><td>1098</td><td>544</td><td>1410</td><td>1262</td></tr>
<tr><td>3-HPMA</td><td>937</td><td>700</td><td>492</td><td>455</td><td>410</td><td>465</td></tr>
<tr><td>3-Hydroxyfluorene</td><td>679</td><td>312</td><td>367</td><td>192</td><td>451</td><td>349</td></tr>
<tr><td>AAMA</td><td>254</td><td>148</td><td>163</td><td>188</td><td>110</td><td>97</td></tr>
<tr><td>CNEMA</td><td>212</td><td>178</td><td>51</td><td>58</td><td>45</td><td>66</td></tr>
<tr><td>HEMA</td><td>3821</td><td>3120</td><td>1400</td><td>864</td><td>1480</td><td>1573</td></tr>
<tr><td>HPMMA</td><td>1857</td><td>1379</td><td>632</td><td>387</td><td>616</td><td>575</td></tr>
<tr><td>MHBMA</td><td>1912</td><td>1283</td><td>300</td><td>478</td><td>305</td><td>887</td></tr>
<tr><td>SPMA</td><td>792</td><td>674</td><td>159</td><td>193</td><td>188</td><td>481</td></tr>
</table>
</td><td>↓ 1-Hydroxyfluorene<br>↑ 1-Hydroxyphenanthrene<br>↓ 1-Hydroxypyrene<br>↓ 2-HPMA<br>↓ 2-Hydroxyfluorene<br>↑ 2-Hydroxyphenanthrene<br>↓ 2-Naphthol<br>↑ 3-, 4-Hydroxyphenanthrenes<br>↓ 3-HPMA<br>↓ 3-Hydroxyfluorene<br>↓ AAMA<br>↓ CNEMA<br>↓ HEMA<br>↓ HPMMA<br>↓ MHBMA<br>↓ SPMA</td></tr>
<tr><td>Hickling 2019</td><td>6 weeks</td><td>
<table>
<tr><th rowspan="2">Outcome</th><th colspan="2">Baseline (n=8)</th><th colspan="2">Week 6 (n=8)</th></tr>
<tr><th>Mean</th><th>SD</th><th>Mean</th><th>SD</th></tr>
<tr><td>3HPMA (ng/ml)</td><td>2438.25</td><td>1803.18</td><td>1180.75</td><td>932.5878</td></tr>
<tr><td>Formic Acid</td><td>6.6375</td><td>4.73707</td><td>7.775</td><td>6.82888</td></tr>
</table>
</td><td>↓ 3-HPMA<br>↑ Formic acid</td></tr>
</table>

[1] NS: not specified; all studies provided all participants with nicotine EC unless otherwise stated
[2] Where reported

| Study ID | Time point | Data | Direction over time[2] (↓ decline; ↔ equivocal; ↑ increase) |
|---|---|---|---|
| McRobbie 2015 | 4 weeks | Of the 33 people that completed four-week follow-up, 16 were EC users only, and 17 were dual users. Both groups showed a significant decrease in 3-HMPA in ng/mg creatinine (EC users: 1623 (SD 850) to 343 (SD 178), P < 0.001; Dual users: 2443 (SD 1105) to 969 (SD 807), P < 0.001). | ↓ |
| Pulvers 2018 | 4 weeks | “Statistically significant differences in log-transformed NNAL levels (mean difference = 0.35, 95% CI = 0.09–0.69, p < .01). Of the eight VOCs measured, there were two significant decreases in log-transformed values of the benzene metabolite, PMA (mean differences = 0.57, 95%CI = 0.12–1.03, p = .01), and the acrylonitrile metabolite, CNEMA (mean differences = 0.60, 95%CI = 0.25–0.96, p = .001).” See paper for crude data on all outcomes. | ↓ NNAL<br>↓ PMA<br>↓ HEMA<br>↑ MMA<br>↓ CNEMA<br>↓ 3-HPMA<br>↓ 2-HPMA<br>↓ AAMA<br>↓ HPMMA |