# Supporting Information

## Estimation of Children's Soil and Dust Ingestion Rates and health risk in E-Waste Dismantling area

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**There are 10 pages including 4 figures and 6 tables.**

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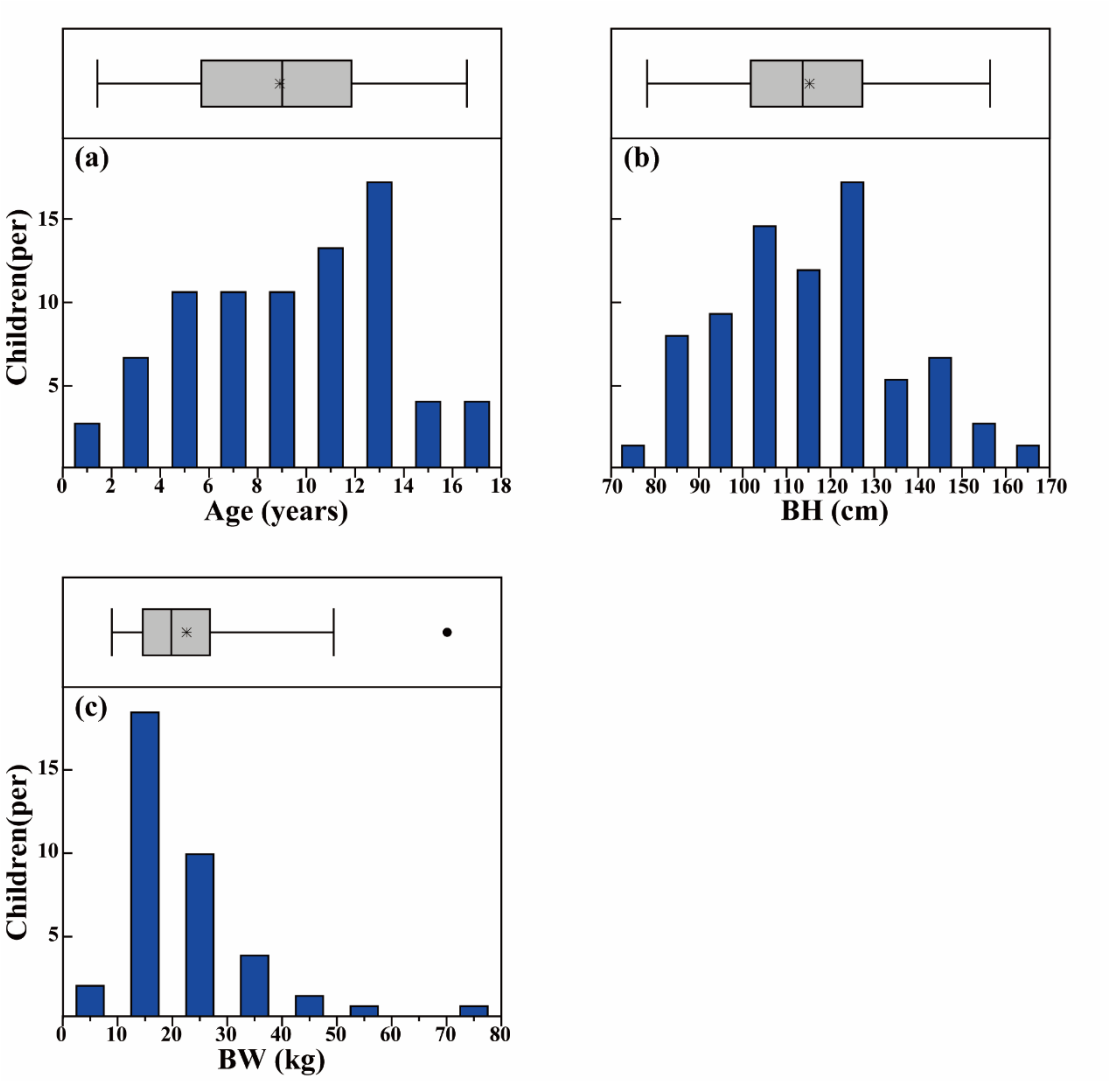


**Figure S1.** Histogram and basic statistical parameters of investigated child population age (**a**), height (**b**), and weight (**c**). The * represents mean values, and dot sign represents outliers.

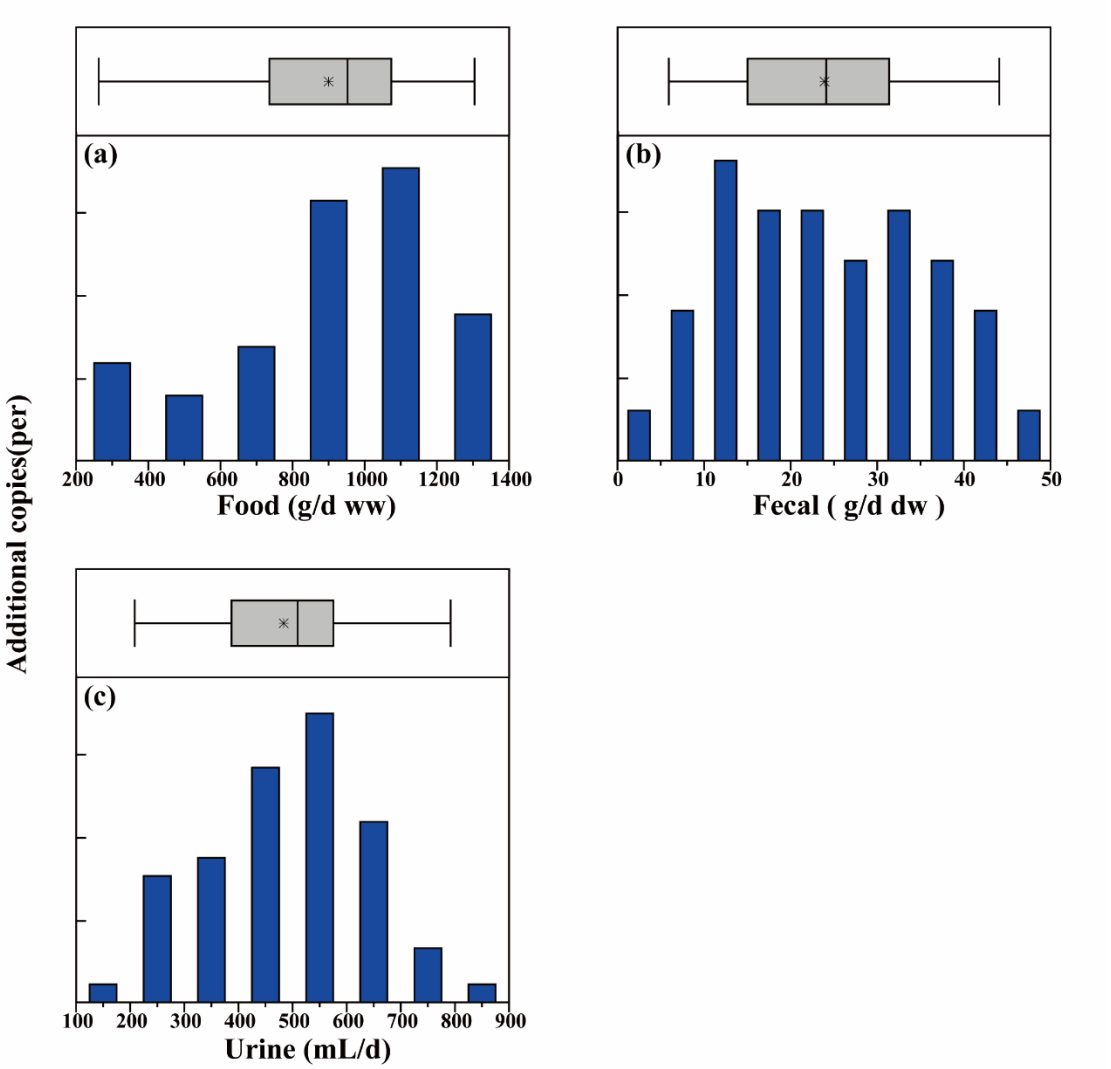


**Figure S2.** Histogram and basic statistical parameters of daily food ingestion (**a**) (g/d, ww) and feces (**b**) (g/d, dw) and urine (**c**) (mL/d) excretion for investigated child population. The * represents mean values.

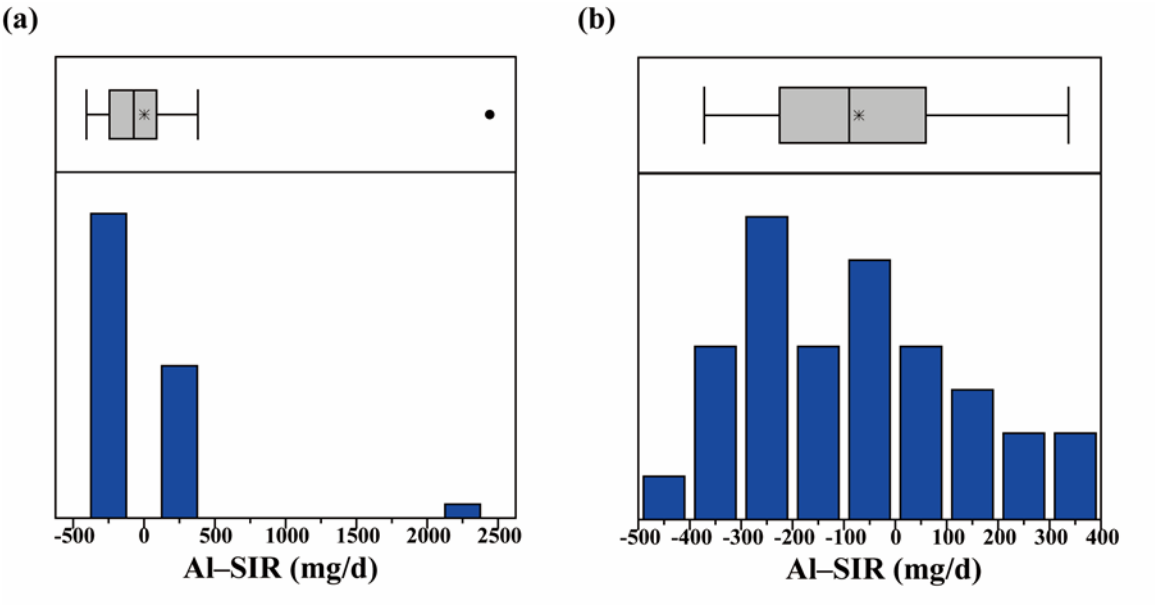


**Figure S3.** Frequency distribution histogram and outlier box (**a**) and Frequency distribution histogram and outlier box (**b**) of soil ingestion rate (SIR) based on Al. The * represents mean values, and dot sign represents outliers.

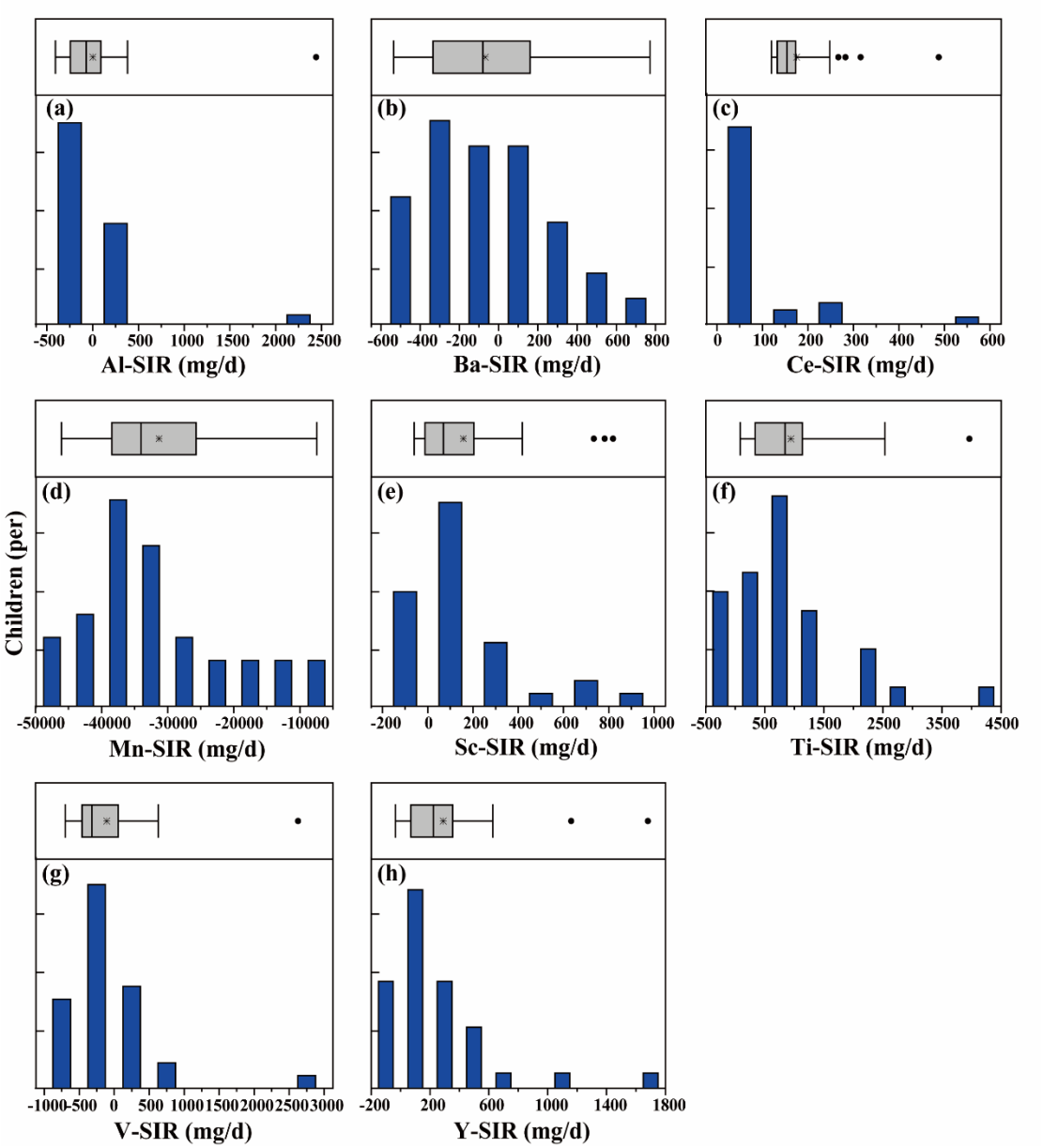


**Figure S4.** Frequency distribution histogram and outlier box of soil ingestion rate (SIR) based on tracer Al (**a**), Ba (**b**), Ce (**c**), Mn (**d**), Sc (**e**), Ti (**f**), V (**g**), and Y (**h**) separately. The * represents mean values, and dot sign represents outliers.

**Table S1**. Basic statistical parameters of tracer element concentrations in faeces.

| | Al | Ba | Ce | Mn | Sc | Ti | V | Y |
|---|---|---|---|---|---|---|---|---|
| | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg |
| Max | 1487.32 | 11.03 | 1.08 | 73.67 | 0.46 | 548.73 | 2.04 | 0.76 |
| 99.5% | 1479.59 | 10.97 | 1.07 | 70.30 | 0.43 | 463.33 | 2.01 | 0.68 |
| 97.5% | 1426.15 | 10.73 | 1.04 | 57.35 | 0.34 | 141.74 | 1.90 | 0.37 |
| 95.0% | 957.72 | 10.47 | 1.03 | 51.98 | 0.19 | 134.37 | 1.58 | 0.35 |
| 90.0% | 742.83 | 9.55 | 0.82 | 50.49 | 0.12 | 113.56 | 1.14 | 0.29 |
| 75.0% | 494.92 | 7.71 | 0.44 | 41.43 | 0.08 | 80.63 | 0.85 | 0.18 |
| Median | 265.74 | 5.28 | 0.25 | 31.04 | 0.05 | 55.54 | 0.64 | 0.12 |
| 25.0% | 208.93 | 3.12 | 0.17 | 21.41 | 0.03 | 27.99 | 0.48 | 0.08 |
| 10.0% | 139.29 | 1.74 | 0.09 | 7.68 | 0.01 | 21.53 | 0.36 | 0.06 |
| 2.5% | 90.29 | 1.46 | 0.06 | 6.42 | 0.01 | 11.14 | 0.20 | 0.04 |
| 0.5% | 114.97 | 1.47 | 0.07 | 6.57 | 0.01 | 15.70 | 0.31 | 0.04 |
| Min | 61.56 | 1.12 | 0.04 | 6.20 | 0.00 | 10.55 | 0.17 | 0.03 |
| n | 62 | 62 | 62 | 62 | 62 | 62 | 62 | 62 |

**Table S2**. Basic statistical parameters of tracer element concentrations in urine.

| | Al | Ba | Ce | Mn | Sc | Ti | V | Y |
|---|---|---|---|---|---|---|---|---|
| | mg/L | mg/L | µg/L | mg/L | µg/L | µg/L | µg/L | µg/L |
| Max | 900.00 | 0.00 | 1.30 | 0.00 | 1.10 | 181.00 | 6.90 | 0.00 |
| 99.5% | 786.00 | 0.00 | 1.21 | 0.00 | 1.07 | 164.47 | 6.04 | 0.00 |
| 97.5% | 457.50 | 0.00 | 0.64 | 0.00 | 0.91 | 122.58 | 3.86 | 0.00 |
| 95.0% | 400.00 | 0.00 | 0.15 | 0.00 | 0.72 | 122.00 | 3.72 | 0.00 |
| 90.0% | 100.00 | 0.00 | 0.15 | 0.00 | 0.15 | 2.50 | 0.25 | 0.00 |
| 75.0% | 100.00 | 0.00 | 0.15 | 0.00 | 0.15 | 74.50 | 2.45 | 0.00 |
| Median | 100.00 | 0.00 | 0.15 | 0.00 | 0.15 | 45.00 | 1.15 | 0.00 |
| 25.0% | 100.00 | 0.00 | 0.15 | 0.00 | 0.15 | 74.50 | 2.45 | 0.00 |
| 10.0% | 100.00 | 0.00 | 0.15 | 0.00 | 0.15 | 17.70 | 0.25 | 0.00 |
| 2.5% | 100.00 | 0.00 | 0.15 | 0.00 | 0.15 | 30.25 | 0.80 | 0.00 |
| 0.5% | 100.00 | 0.00 | 0.15 | 0.00 | 0.15 | 5.21 | 0.25 | 0.00 |
| Min | 100.00 | 0.00 | 0.15 | 0.00 | 0.15 | 2.50 | 0.25 | 0.00 |
| n | 64 | 64 | 64 | 64 | 64 | 64 | 64 | 64 |

**Table S3.** Basic statistical parameters of tracer element concentrations in food.

| | Al | Ba | Ce | Mn | Sc | Ti | V | Y |
|---|---|---|---|---|---|---|---|---|
| | µg/kg | µg/kg | µg/kg | µg/kg | µg/kg | µg/kg | µg/kg | µg/kg |
| Max | 15500.00 | 490.00 | 0.50 | 12000.00 | 0.50 | 360.00 | 25.00 | 1.00 |
| 99.5% | 15462.00 | 486.80 | 0.50 | 11998.00 | 0.50 | 359.30 | 25.00 | 1.00 |
| 97.5% | 15310.00 | 474.00 | 0.50 | 11990.00 | 0.50 | 356.50 | 25.00 | 1.00 |
| 95.0% | 15120.00 | 458.00 | 0.50 | 11980.00 | 0.50 | 353.00 | 25.00 | 1.00 |
| 90.0% | 14740.00 | 426.00 | 0.50 | 11960.00 | 0.50 | 346.00 | 25.00 | 1.00 |
| 75.0% | 13600.00 | 330.00 | 0.50 | 11900.00 | 0.50 | 325.00 | 25.00 | 1.00 |
| Median | 11700.00 | 170.00 | 0.50 | 11800.00 | 0.50 | 290.00 | 25.00 | 1.00 |
| 25.0% | 10750.00 | 90.00 | 0.50 | 10850.00 | 0.50 | 285.00 | 16.00 | 1.00 |
| 10.0% | 10180.00 | 42.00 | 0.50 | 10280.00 | 0.50 | 282.00 | 10.60 | 1.00 |
| 2.5% | 9895.00 | 18.00 | 0.50 | 9995.00 | 0.50 | 280.50 | 7.90 | 1.00 |
| 0.5% | 9819.00 | 11.60 | 0.50 | 9919.00 | 0.50 | 280.10 | 7.18 | 1.00 |
| Min | 9800.00 | 10.00 | 0.50 | 9900.00 | 0.50 | 280.00 | 7.00 | 1.00 |
| n | 66 | 66 | 66 | 66 | 66 | 66 | 66 | 66 |

**Table S4.** Heavy metal concentration in soil of residential area.

| Sample | Cr | Ni | Cu | Zn | As | Cd | Pb |
|---|---|---|---|---|---|---|---|
| | mg/kg | | | | | | |
| 1 | 69.65 | 28.02 | 97.97 | 199.09 | 5.34 | 0.56 | 32.58 |
| 2 | 28.31 | 8.48 | 20.07 | 42.54 | 4.19 | 0.11 | 58.36 |
| 3 | 36.47 | 11.56 | 9.62 | 48.90 | 4.80 | 0.07 | 56.91 |
| 4 | 29.28 | 10.86 | 31.21 | 107.58 | 6.76 | 0.31 | 99.02 |
| 6 | 28.63 | 9.78 | 23.96 | 75.52 | 4.17 | 0.20 | 48.22 |
| 7 | 37.98 | 17.97 | 59.98 | 96.36 | 6.18 | 0.55 | 108.96 |
| 8 | 65.19 | 47.17 | 229.12 | 227.18 | 8.48 | 0.21 | 139.78 |
| 9 | 27.22 | 11.62 | 26.17 | 69.03 | 4.25 | 0.33 | 85.39 |
| 10 | 13.85 | 4.94 | 13.18 | 40.62 | 3.19 | 0.09 | 52.77 |
| 11 | 31.50 | 24.02 | 77.37 | 167.51 | 4.88 | 0.90 | 36.89 |
| 12 | 22.73 | 5.50 | 8.97 | 68.52 | 2.49 | 0.14 | 30.39 |
| 13 | 19.49 | 14.62 | 47.92 | 103.81 | 2.73 | 0.45 | 62.85 |
| 14 | 21.43 | 18.25 | 16.26 | 50.92 | 4.58 | 0.18 | 60.43 |
| 15 | 51.05 | 7.66 | 57.10 | 141.51 | 4.59 | 0.35 | 48.82 |
| 16 | 132.61 | 292.00 | 192.65 | 2714.06 | 17.67 | 0.66 | 191.19 |
| 17 | 90.91 | 239.93 | 171.89 | 1840.02 | 13.95 | 0.55 | 274.59 |
| 18 | 25.50 | 142.72 | 170.44 | 202.00 | 13.55 | 0.50 | 136.77 |
| 19 | 49.97 | 18.23 | 32.83 | 104.16 | 3.38 | 0.23 | 67.81 |
| 20 | 15.43 | 6.85 | 27.06 | 36.59 | 4.30 | 0.12 | 68.66 |
| 21 | 50.26 | 7.57 | 15.43 | 91.01 | 3.62 | 0.29 | 39.87 |
| 22 | 36.87 | 6.39 | 11.75 | 61.42 | 2.89 | 0.16 | 73.23 |
| 23 | 50.26 | 7.57 | 15.43 | 91.01 | 3.62 | 0.29 | 39.87 |
| 24 | 29.98 | 49.50 | 87.75 | 131.61 | 5.83 | 0.40 | 65.05 |

**Table S5.** Heavy metal concentration in soil of parks and green areas.

| Sample | Cr | Ni | Cu | Zn | As | Cd | Pb |
|---|---|---|---|---|---|---|---|
| | mg/kg | | | | | | |
| 1 | 61.42 | 27.70 | 141.39 | 230.87 | 5.12 | 0.78 | 56.51 |
| 2 | 46.69 | 20.69 | 60.29 | 133.53 | 6.51 | 0.55 | 15.00 |
| 3 | 58.12 | 20.49 | 77.44 | 86.31 | 5.66 | 0.66 | 46.19 |
| 4 | 38.35 | 17.34 | 76.56 | 117.74 | 4.91 | 0.63 | 34.35 |
| 5 | 92.91 | 57.83 | 206.56 | 225.88 | 6.31 | 0.12 | 100.48 |
| 6 | 35.14 | 19.72 | 265.61 | 310.21 | 4.62 | 0.62 | 79.02 |
| 7 | 28.74 | 11.53 | 26.74 | 41.09 | 4.62 | 0.42 | 72.82 |
| 8 | 28.96 | 13.71 | 50.22 | 74.85 | 8.88 | 0.30 | 82.34 |
| 9 | 43.88 | 25.27 | 79.11 | 122.50 | 5.79 | 0.36 | 78.06 |
| 10 | 71.30 | 237.89 | 115.33 | 369.92 | 10.38 | 0.63 | 29.45 |
| 11 | 87.98 | 441.29 | 448.52 | 2908.13 | 13.09 | 1.40 | 388.54 |
| 12 | 69.49 | 176.36 | 117.02 | 1872.23 | 4.28 | 1.32 | 373.36 |
| 13 | 121.51 | 263.08 | 563.12 | 2401.51 | 12.10 | 1.36 | 536.61 |
| 14 | 15.81 | 7.51 | 28.90 | 63.38 | 2.55 | 0.20 | 62.24 |
| 15 | 28.43 | 9.62 | 58.56 | 88.21 | 3.59 | 0.29 | 43.88 |
| 16 | 55.84 | 8.11 | 14.10 | 64.50 | 2.51 | 0.13 | 42.92 |
| 17 | 69.24 | 22.03 | 162.77 | 320.70 | 4.35 | 0.87 | 45.66 |
| 18 | 36.87 | 6.39 | 11.75 | 61.42 | 2.89 | 0.16 | 73.23 |
| 19 | 23.98 | 48.30 | 189.83 | 176.45 | 2.76 | 0.39 | 35.52 |
| 20 | 50.26 | 7.57 | 15.43 | 91.01 | 3.62 | 0.29 | 39.87 |

**Table S6.** Value significance of carcinogenic risk and non-carcinogenic risk.

| | **Not damage** | **Likely damage** | **Serious damage** |
|---|---|---|---|
| carcinogenic risk | $< 10^{6}$ | $10^{6} < x < 10^{4}$ | $10^{4} <$ |
| non-carcinogenic risk (HQ) | $< 1$ | $1 < x < 10$ | $10 <$ |