From target analysis to suspect and non-target screening of endocrine disrupting compounds in human urine

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2. MATERIAL AND METHODS

2.1 Reagents and solutions

Dimethyl sulfoxide (DMSO), potassium chloride (KCl, 99.0 %) and orthophosphoric acid (H₃PO₄, 85 %) were purchased from Applichem Panreac (Barcelona, Spain); Milli-Q water (H₂O) and methanol (MeOH, UHPLC-MS quality) from Scharlab (Barcelona, Spain); sodium chloride (NaCl, 99.5 %), citric acid (99.5 – 100.5 %), sodium bicarbonate (NaHCO₃, ≥ 99.5 %) and hydrochloric acid (HCl, 36 %) from Merck (Darmstandt, Germany); urea (> 98.0 %), ascorbic acid (> 99 %), potassium phosphate (K₃PO₄, > 98 %), creatinine (anhydrous, ≥ 98 %), β-glucuronidase enzyme (β-glucuronidase from Helix Pomatia, 2·10⁶ units g⁻¹), ammonium acetate (NH₄OAc, ≥ 99.99 %) from Sigma-Aldrich (Darmstadt, Germany); sodium hydroxide (NaOH), ammonia (NH₄OH in solution, 25 %) and formic acid (HCOOH, ≥ 98.0 %) from Honeywell Fluka (Muskogon, MI, USA); Milli-Q quality H₂O (< 0.05 μS cm⁻¹) using Millipore 185 from Millipore (Burlington, MA, USA); anhydrous MeOH, acetonitrile (AcN), ethyl acetate (EtOAc), dichloromethane (DCM) and acetone from ChromAR HPLC (Macron Fine Chemicals, Avantor, Radnor Township, PA, USA) and were employed as reagents and/or solvents. Nitrogen gas (N₂, 99.999 %) was provided by Air Liquide (Madrid, Spain).

For the preparation of synthetic urine, 3.80 g KCl, 8.50 g NaCl, 24.50 g urea, 1.03 g citric acid, 0.34 g ascorbic acid, 1.18 g potassium phosphate, 1.40 g creatinine, 0.64 g NaOH, 0.45 g NaHCO₃ and 0.28 mL H₂SO₄ were dissolved in 500 mL Milli-Q H₂O and stirred for 60 minutes [1]. Regarding the rest of the solutions, β-glucuronidase (20000 units mL⁻¹) was obtained by dissolving the enzyme in 1 M NH₄OAc (pH 5.0) solution, which was prepared with NH₄OAc and HCl. Phosphate buffer (H₃PO₄/H₂PO₄⁻, 0.1 M, pH 2.0) was prepared using H₃PO₄ and NaOH, and formic acid/formate buffer (HCOOH/HCOO⁻, 1 M, pH 2.0) employing HCOOH and NaOH. Finally, 0.1 % HCOOH (pH 2.5) and 0.05 % NH₄OH (pH 10.5) in UHPLC H₂O and MeOH were prepared as well.

2.2 Development of the target method by UHPLC-ESI-QqQ

2.2.1 Sample treatment

For SPE recovery calculation, synthetic urine samples were spiked (A) before (n=3) and (B) after (n=3) the procedure to get 100 ng g⁻¹ in the final extract, and it was expressed following equation 1 (Eq. 1).

\[
\text{Recovery (\%)} = \frac{\text{Analytical signal in A}}{\text{Analytical signal in B}} 
\times 100 \quad \text{(Eq. 1)}
\]
For estimating the matrix effect, samples spiked (B) after SPE were compared to a (C) reference point of 100 ng g$^{-1}$ injected in triplicate, due to the estimated preconcentration factor of 5. It was then expressed as equation 2 (Eq. 2) [2]. A matrix effect value above 0 indicates signal enhancement, while a value below 0 shows signal suppression.

$$\text{Matrix effect (\%)} = \left( \frac{\text{Analytical signal in B}}{\text{Analytical signal in C}} - 1 \right) \cdot 100 \text{ (Eq. 2)}$$

2.2.2 UHPLC-ESI-QqQ analysis

As for the gradient elution, the starting composition was held at 20 % B for 1 minute and changed to 45 % in another minute. After maintaining that composition for 1 minute, the organic modifier was incremented to 50 % in 1.5 minutes, to 55 % in other 1.5 minutes and to 80 % in 2 minutes. Finally, it was changed to 90 % in 3 minutes, maintaining it for 5 minutes. In order to reset the starting conditions, the B line composition was reduced from 90 % to 20 % in 3 minutes and kept in that starting composition for 6 minutes ensuring proper equilibration, being the total run time 25 minutes.

The detection and quantification of the 24 target compounds and 4 surrogates were carried out using the Dynamic MRM (DMRM) acquisition mode, both at positive and negative ionization. The capillary voltage used was 3000 V, while a flow of 12 L min$^{-1}$ of N$2$ was required for the evaporation of the mobile phase. The temperature and nebulizing pressure were respectively 350 °C and 30 psi. Those parameters were selected following the experience of the research group and were not further optimized. The fragmentor’s electric voltage (20-200 V), $m/z$ transitions and the collision energy (5-60 eV) for each transition were optimized using the MassHunter Optimizer software by injection of individual compounds without column. Optimum conditions, as well as the precursor and product ions used, are summarized in Table S2 for each target compound. Finally, instrumental operation, data acquisition, and peak integration were performed with the MassHunter Workstation Software (Acquisition, Quantitative and Qualitative Analysis for QqQ, Version 10.0, Agilent Technologies).

2.2.3 Target method validation

An external calibration of the target compounds was prepared in the 0.5-200 ng g$^{-1}$ range in H$_2$O:DMSO (80:20, v/v). Low calibration points (0.5 - 50 ng g$^{-1}$) were injected in triplicate to calculate iLOQs, which was defined
for each analyte as the lowest concentration level that fitted the calibration curve with a relative standard deviation (RSD %) and systematic error lower than 30 %. Using the calibration curves, linearity ranges were defined considering the determination coefficients ($r^2$) of the curves built between iLOQ and upper limit. The latter was established as the highest concentration possible that provided a $r^2$ value closest to 1 avoiding quadratic fitting of the calibration curves.

Absolute recoveries (%) were determined as the average (n=5) ratio of the concentration obtained from the calibration curve and real the concentration used for spiking synthetic urine at the three spiking levels in the three consecutive days. In the case of apparent recoveries (%), they were estimated after correction of the absolute recoveries with the corresponding surrogate. $[^{2}H_5]$-BP3, $[^{2}H_{16}]$-BPA, $[^{2}H_4]$-BnBuP and $[^{13}C_4]$-DEHP were studied as possible surrogates. Moreover, pLOQs were estimated considering the corresponding iLOQ, sample pretreatment (preconcentration factor of 5) and absolute recovery at the closest spiked concentration-level.

Finally, the intra-day precision of the method was estimated by calculating the RSD for the replicates (n=5) of spiked samples, while inter-day precision was determined by the replicates of spiked samples (n=5) in three consecutive days for each spiking level. As for the criteria, RSD values below 35 % were considered as satisfactory considering the nature of the analytes, the complexity of the matrix and the exhaustive analytical procedure. Both intra- and inter-day precision were statistically evaluated using ANOVA at a 95 % confidence-level as well.

### 2.3 Suspect and non-target screening by HRMS

#### 2.3.1 UHPLC-HESI-qOrbitrap analysis

The qOrbitrap mass analyzer was externally calibrated every three days using Pierce LTQ ESI (Thermo Fisher Scientific) calibration solutions. Measurements were performed at negative and positive ionization modes in the Full scan - data dependent MS2 (Full MS-ddMS2) discovery acquisition mode in the m/z 70 – 1050 Da range. In that acquisition mode, after a complete scan at 70,000 full width at half maximum (FWHM) resolution at m/z 200, three scans were performed in the m/z 100 – 600 Da range at 17,500 FWHM at m/z 200 with an isolation window of 3.0 m/z with a stepped collision energy (SCE) of 10, 45 and 90 eV. The ddMS2 scans were performed with an automatic intensity threshold and dynamic exclusion. Automatic Gain Control (ACG) target was set at 5·10⁴ and its minimum was set at 8·10³. As for the HESI parameters, the spray voltages
were set at 3.2 kV for positive and 3.5 kV for negative ionization modes. For positive ionization, the capillary temperature was maintained at 320 °C, the sheath gas at 40 arbitrary units (au), the auxiliary gas at 15 au and 310 °C, and the sweep gas at 1 au. For negative ionization, the capillary temperature was set at 300 °C, the sheath gas at 40 au, the auxiliary gas at 15 au and 280 °C, and the sweep gas at 1 au. Xcalibur 4.4 (Thermo Fischer Scientific) was used for external instrumental control.

2.3.2 Data processing

After peak picking, the Compound Discoverer 3.2 provided the features that, according to their MS1 (an exact mass with an error lower than 5 ppm and isotopic profile with at least a 70 % fitting), matched with one or several candidates in the suspect lists. In order to reduce the number of features, only those features which had at least one candidate in mzCloud library (Thermo-Fischer Scientific) were considered. When not all the suspects for a feature had a fragmentation pattern (MS2) in mzCloud, in-silico fragmentation was performed for those candidates using the MassFrontiers program (Thermo-Fischer Scientific) implemented in Compound Discoverer 3.2 to avoid false positives.

For mzCloud library match, a fitting higher than 70 % was settled. For in-silico fragmentation instead, at least a 70 % of the major fragments should be explained when the fragmentation mass spectra contained more than two fragments, otherwise the major fragment should be explained. Finally, RT was used for confirmation. When the pure standard was available, a deviation of ± 0.1 min was considered and, if not, the experimental RT should be within the error window calculated using the RTI platform (http://rti.chem.uoa.gr/). Calibrants included in Table S1 were used to build the RT model [3]. The annotation confidence levels are also indicated in Figure 1 and were set as follows [4]: level 1 for suspects whose RT, MS1 and MS2 could be satisfactorily explained using a pure standard; level 2a was assigned when fragmentation spectra could be explained against a match with a fragmentation spectrum in mzCloud library and the experimental RT passed the RTI model criteria; level 2b when fragmentation spectra was satisfactorily explained using in-silico fragmentation and the experimental RT passed the RTI criteria; level 3 when different positional isomers passed the criteria established for either level 2a or level 2b; level 4 when only the chemical formula could be established and, finally, level 5 when not even the molecular formula could be assigned.

For avoiding annotation of endogenous metabolites, the list obtained from HMDB was used. Instead of using it as exclusion list, it was employed as inclusion list to avoid discarding features that contained more than one
candidate, from which one or more could be endogenous but also had exogenous candidates. If a feature had only one candidate, and it was in the HMDB list, it was discarded. For the rest of the cases (features having endogenous and exogenous candidates), the workflow was applied, and if an endogenous candidate passed the established criteria, the feature was then discarded.

2.4 Analysis of real urine samples

First urine void for each volunteer (30 mL approx.) was collected in a glass vial, stored at 4 °C and analysed within 24 hours after collection. Briefly, urine samples were tempered to room temperature and 1 mL aliquots (n=5) were spiked with isotopically labelled standards at 20 ng g⁻¹ prior optimized sample treatment. Final extracts were randomly injected at both LC-QqQ for target analysis and LC-qOrbitap to perform SNTS, alongside with procedural blanks spiked with the isotopically labelled standards, clean MeOH samples every 5 injections and a reference point of 50 ng g⁻¹ every 10 injections. Analyte quantification by target analysis and suspect identification by SNTS were carried out following the previously mentioned conditions and criteria.
Figure S1 – Boxplots of the (a) recoveries and (b) matrix effects at detection for the elution solvents tested in the RP-SPE approach using Oasis HLB.
**Figure S2** – SPE elution profile with Oasis HLB for the 24 EDCs using MeOH:Acetone 50:50 (v/v) as elution solvent.

**Figure S3** – (a) Experimental (top) and mzCloud (down) mass spectrum for BP3 in the positive ionization mode and (b) experimental mass spectrum for BP3 in the negative ionization mode. Green dots indicate match either with the (a) reference spectrum or with the (b) in-silico prediction.
Figure S4 – (a) Experimental mass spectrum obtained for a standard of 50 ng g\(^{-1}\) concentration of triclosan and (b) mass spectra for triclosan obtained in mzCloud library.
Figure S5 – (a) Scores plot and (b) loadings of the compounds (PC1 versus PC2) identified by suspect screening in the real samples at levels 1-3 in the positive mode.
Figure S6 – Chromatograms and mass spectra tentatively annotated after non-target screening of Cl, Br or S containing compounds in volunteers’ samples. Chromatogram for (a) tentatively identified chlorpheniramine, (b) comparison of experimental (top) and mzCloud (down) mass spectra for tentatively identified chlorpheniramine, (c) chromatogram for tentatively identified pidotimod, (d) experimental mass spectra for tentatively identified pidotimod, (e) chromatogram for tentatively identified epithienamycin, (f) experimental mass spectra for tentatively identified epithienamycin, (g) chromatogram for tentatively identified PS-6 or penicillin F and (h) experimental mass spectra for tentatively identified PS-6 or (i) mass spectra for tentatively identified penicillin F. Green dots in mass spectra indicate either (b) match with mzCloud spectra or (d, f, h, i) in-silico match with the tentative structure.
### TABLES

**Table S1** - Information and physicochemical properties (obtained from Chemicalize) of the analytes and the surrogates included in the target analysis method, additional analytes introduced in suspect and non-target screening and RTI model analytes.

| COMPOUND | Abbreviation | CAS number | Commercial vendor | Purity (%) | Solvent | Molecular formula | Exact mass (Da) | pKa | Log D (2.5; 10.5) |
|----------|--------------|------------|-------------------|------------|---------|------------------|----------------|-----|------------------|
| **Benzophenones** | | | | | | | | | |
| 4,4'-bis(dimethylamino)benzophenone | 4,4-DMA-BP | 90-94-8 | Sigma-Aldrich | 99 | MeOH | C₁₃H₂₉N₂O | 268.15756 | 3.2; 3.7 | 1.7; 3.6 |
| 4-Hydroxybenzophenone | 4-OH-BP | 1137-42-4 | Sigma-Aldrich | 100 | MeOH | C₁₃H₁₀O₂ | 198.06808 | 7.8 | 3.1; 1.2 |
| 4-Methylbenzophenone | 4-MeBP | 134-84-9 | Sigma-Aldrich | 99 | MeOH | C₁₆H₁₆O | 196.08882 | 0 | 3.9; 3.9 |
| 4-Phenylbenzophenone | 4-PhBP | 2128-93-0 | Sigma-Aldrich | 99 | MeOH | C₁₅H₁₄O | 258.10447 | 0 | 5.1; 5.1 |
| Benzophenone-1 | BP1 | 131-56-6 | Sigma-Aldrich | 99 | MeOH | C₁₃H₁₀O₃ | 214.06299 | 7.1; 8.7 | 3.5; 0.2 |
| Benzophenone-2 | BP2 | 131-55-5 | Sigma-Aldrich | 99 | MeOH | C₁₃H₁₀O₂ | 246.05282 | 6.8; 7.4; 8.4; 9.0 | 3.5; -3.1 |
| Benzophenone-3 | BP3 | 131-57-7 | Sigma-Aldrich | 100 | MeOH | C₁₄H₁₂O₃ | 228.07864 | 7.1 | 3.6; 1.6 |
| Benzophenone-8 | BP8 | 131-53-3 | Sigma-Aldrich | 98 | MeOH | C₁₅H₁₀O | 244.07356 | 6.8; 7.4 | 4.0; -0.1 |
| **Bisphenols** | | | | | | | | | |
| Bisphenol A | BPA | 80-05-7 | Sigma-Aldrich | 98 | MeOH | C₁₃H₁₆O₂ | 228.11503 | 9.8; 10.4 | 4.1; 3.5 |
| Bisphenol AF | BPAF | 1478-61-1 | Sigma-Aldrich | 98 | MeOH | C₁₃H₁₀FeO₂ | 336.05850 | 9.7; 9.1 | 4.8; 3.5 |
| Bisphenol AP | BPA | 1571-75-1 | Sigma-Aldrich | 99 | MeOH | C₁₀H₈O₂ | 290.13068 | 9.7; 10.3 | 5.2; 4.5 |
| Bisphenol P | BPP | 2167-51-3 | Sigma-Aldrich | 97 | MeOH | C₁₂H₁₂O₂ | 346.19328 | 9.8; 10.4 | 6.7; 6.2 |
| Bisphenol S | BPS | 80-09-1 | Sigma-Aldrich | 98 | MeOH | C₁₂H₁₀O₃S | 250.02998 | 7.4; 8.0 | 2.3; -1.5 |
| Bisphenol Z | BPZ | 843-55-0 | Sigma-Aldrich | 98 | MeOH | C₁₂H₁₀O₂ | 268.14633 | 9.8; 10.4 | 4.9; 4.4 |
| Bisphenol A glucuronide | BPA-G | 267244-08-6 | Sigma-Aldrich | 99 | MeOH | C₂₁H₂₄O₈S | 404.14712 | 3.3; 10.1; 12.2; 13.3; 14.8 | 1.9; -1.7 |
| **Parabens** | | | | | | | | | |
| Benzyl paraben | BnP | 94-18-8 | Sigma-Aldrich | 97 | MeOH | C₁₄H₁₃O₃ | 228.07864 | 8.5 | 3.4; 2.0 |
| Butyl paraben | BuP | 94-26-8 | Sigma-Aldrich | 99 | MeOH | C₁₁H₁₄O₂ | 194.09429 | 8.5 | 3.0; 1.6 |
| Ethyl 3,4-dihydroxybenzoate | EDHB | 3943-89-3 | Sigma-Aldrich | 98 | MeOH | C₈H₆O₄ | 182.05790 | 8.6; 12.2 | 1.7; 0.4 |
| Ethyl paraben | EtP | 120-47-8 | Sigma-Aldrich | 99 | MeOH | C₈H₆O₄ | 166.06299 | 8.5 | 2.0; 0.3 |
| Methyl 3,5-dihydroxybenzoate | MDHB | 2150-44-9 | Sigma-Aldrich | 97 | MeOH | C₈H₆O₄ | 168.04226 | 8.9; 10.3 | 1.4; 0.1 |
| Methyl paraben | MeP | 99-76-3 | Sigma-Aldrich | 98 | MeOH | C₆H₈O₃ | 152.04734 | 8.5 | 1.7; -0.2 |
| COMPOUND | Abbreviation | CAS number | Commercial vendor | Purity (%) | Solvent | Molecular formula | Exact mass (Da) | pKa | Log D (2.5; 10.5) |
|----------|--------------|------------|------------------|------------|---------|------------------|----------------|-----|------------------|
| **Phthalates** | | | | | | | | | |
| Mono-(2-ethyl-5-hydroxyhexyl) phthalate<sup>a</sup> | MEHHP | 40321-99-1 | Sigma-Aldrich | 100 | MeOH | C₁₇H₂₂O₅ | 294.14672 | -1.7; 3.1 | 2.9; -0.3 |
| Mono-[(2RS)-2-Ethyl-5-oxohexyl] phthalate<sup>a</sup> | MEOHP | 40321-98-0 | Sigma-Aldrich | 100 | MeOH | C₁₇H₂₅O₅ | 292.13107 | 3.1 | 3.0; -0.3 |
| Mono-2-Ethylhexyl phthalate<sup>a</sup> | MEHP | 4376-20-9 | Sigma-Aldrich | 98 | MeOH | C₁₈H₂₂O₄ | 278.15181 | 3.1 | 4.4; 1.1 |
| Mono-benzyl phthalate<sup>a</sup> | MBnP | 2528-16-7 | Sigma-Aldrich | 97 | MeOH | C₁₃H₁₂O₄ | 256.07356 | 3.1 | 3.1; -0.2 |
| Mono-butyl phthalate<sup>a</sup> | MBuP | 131-70-4 | Sigma-Aldrich | 95 | MeOH | C₁₂H₁₄O₄ | 222.08921 | 3.1 | 2.7; -0.6 |
| **Antibacterials and biocides** | | | | | | | | | |
| Triclocarban<sup>a</sup> | TCC | 101-20-2 | Sigma-Aldrich | 99 | MeOH | C₁₈H₂₁Cl₃N₂O | 342.03267 | -0.1; 14.3 | 4.9; 4.9 |
| Triclosan<sup>a</sup> | TCS | 3380-34-5 | Sigma-Aldrich | 99 | MeOH | C₁₂H₂₄Cl₂O₂ | 212.03559 | -1.8 | 1.1; 1.1 |
| Acetamiprid | | 160430-64-8 | Sigma-Aldrich | 100 | MeOH | C₁₀H₁₁ClN₂ | 222.06722 | -0.3; 4.2 | 1.1; 1.1 |
| Alachlor | | 15972-60-8 | Sigma-Aldrich | 99.8 | MeOH | C₁₄H₂₀Cl₂NO₂ | 269.11826 | <sup>a</sup> | 3.6; 3.6 |
| Ametryn | | 834-12-8 | Sigma-Aldrich | 98.6 | MeOH | C₁₀H₁₄NO₂S | 227.12047 | 0.5; 6.7; 14.6 | 0.6; 2.6 |
| Atrazine | | 1912-24-9 | Fluka | 99 | MeOH | C₉H₄ClN₅ | 215.09377 | 4.2; 14.5; 15.8 | 0.7; 2.2 |
| Boscalid | | 188425-85-6 | Sigma-Aldrich | 99.9 | MeOH | C₁₈H₁₂Cl₂N₂O | 342.03267 | -0.1; 14.3 | 4.9; 4.9 |
| Chloridazon | | 1698-60-8 | Sigma-Aldrich | 99.8 | MeOH | C₁₂H₂₀ClN₂O | 221.03559 | -1.8 | 1.1; 1.1 |
| Chloroxuron | | 1982-47-4 | Sigma-Aldrich | 98.8 | MeOH | C₁₅H₁₆Cl₂N₂O₂ | 290.08221 | 13.9 | 3.4; 3.4 |
| Chlortoluron | | 15545-48-9 | Sigma-Aldrich | 99.5 | MeOH | C₁₅H₁₅Cl₂N₂O₂ | 212.07164 | 13.5 | 2.4; 2.4 |
| Clomazone | | 81777-89-1 | Sigma-Aldrich | 98.3 | MeOH | C₁₅H₁₄Cl₂NO₂ | 239.07131 | <sup>a</sup> | 2.9; 2.8 |
| Dicloflam | | 62-73-7 | Sigma-Aldrich | 99 | MeOH | C₉H₇Cl₂O₂P | 219.94590 | <sup>a</sup> | 1.4; 1.4 |
| Diethyl Toluamide | | 134-62-3 | Sigma-Aldrich | 98.8 | MeOH | C₁₀H₁₄NO | 191.13101 | -0.9 | 2.5; 2.5 |
| Dimethachlor | | 50563-36-5 | Sigma-Aldrich | 99.8 | MeOH | C₁₅H₁₂Cl₂NO₂ | 255.10261 | <sup>a</sup> | 2.6; 2.6 |
| Dimethoate | | 60-51-5 | Sigma-Aldrich | 99.8 | MeOH | C₉H₁₅NO₃PS₂ | 228.99662 | 15.9 | 0.3; 0.3 |
| Diuron | | 330-54-1 | Fluka | 98 | MeOH | C₉H₁₇Cl₂N₂O | 232.01702 | 13.2 | 2.5; 2.5 |
| Ethion | | 563-12-2 | Sigma-Aldrich | 97.6 | MeOH | C₉H₂₀O₅PS₂ | 383.98762 | <sup>a</sup> | 3.9; 3.9 |
| Fenthion | | 55-38-9 | Sigma-Aldrich | 98.6 | MeOH | C₉H₁₇O₃PS₂ | 278.02002 | <sup>a</sup> | 3.8; 3.8 |
| Flusilazole | | 85509-19-9 | Sigma-Aldrich | 100 | Acetone | C₁₀H₁₅F₂N₃S | 315.10033 | 2.3 | 4.5; 4.7 |
| Imidacloprid | | 138261-41-3 | Sigma-Aldrich | 99 | MeOH | C₉H₁₀ClNO₂ | 255.05230 | 1.1; -0.1; 15.7 | 0.5; 0.5 |

<sup>a</sup> Abbreviation

| Molecular formula | Exact mass (Da) | pKa | Log D (2.5; 10.5) |
|------------------|----------------|-----|------------------|
| C₁₅H₂₄Cl₂O₂ | 222.06722 | -0.3 | 4.2 |
| C₁₅H₁₄ClN₅ | 215.09377 | 4.2 | 14.5; 15.8 |
| C₁₈H₂₁Cl₃N₂O | 342.03267 | -0.1 | 14.3 |
| C₁₀H₂₄Cl₂O₂ | 221.03559 | -1.8 | 1.1; 1.1 |
| C₁₅H₁₆Cl₂N₂O₂ | 290.08221 | 13.9 | 3.4; 3.4 |
| C₁₅H₁₅Cl₂N₂O₂ | 212.07164 | 13.5 | 2.4; 2.4 |
| C₁₅H₁₄Cl₂NO₂ | 239.07131 | <sup>a</sup> | 2.9; 2.8 |
| C₉H₇Cl₂O₂P | 219.94590 | <sup>a</sup> | 1.4; 1.4 |
| C₁₀H₁₄NO | 191.13101 | -0.9 | 2.5; 2.5 |
| C₁₅H₁₂Cl₂NO₂ | 255.10261 | <sup>a</sup> | 2.6; 2.6 |
| C₉H₁₅NO₃PS₂ | 228.99662 | 15.9 | 0.3; 0.3 |
| C₉H₂₀O₅PS₂ | 383.98762 | <sup>a</sup> | 3.9; 3.9 |
| C₉H₁₇O₃PS₂ | 278.02002 | <sup>a</sup> | 3.8; 3.8 |
| C₁₀H₁₅F₂N₃S | 315.10033 | 2.3 | 4.5; 4.7 |
| C₉H₁₀ClNO₂ | 255.05230 | 1.1; -0.1; 15.7 | 0.5; 0.5 |
Table S1 – Continuation.

| COMPOUND                  | Abbreviation       | CAS number | Commercial vendor | Purity (%) | Solvent | Molecular formula | Exact mass (Da) | pKa | Log D (2.5; 10.5) |
|---------------------------|--------------------|------------|-------------------|------------|----------|-------------------|----------------|-----|------------------|
| Linuron                   |                    | 330-55-2   | Sigma-Aldrich      | 99.7       | AcN      | C_{6}H_{12}Cl_{2}N_{6}O_{2} | 248.01193 | 11.9 | 2.7; 2.7         |
| Mecoprop                  |                    | 93-65-2    | Sigma-Aldrich      | 99.6       | MeOH     | C_{10}H_{11}ClO_{3}      | 214.03967 | 3.5  | 2.9; -0.5        |
| Metazachlor               |                    | 67129-08-2 | Sigma-Aldrich      | 99.4       | MeOH     | C_{16}H_{14}CN_{4}O_{6}   | 277.09819 | 2.3  | 2.7; 3.0         |
| Metconazole               |                    | 125116-23-6| Sigma-Aldrich      | 98.9       | AcN      | C_{12}H_{12}Cl_{2}N_{6}O_{2} | 319.14514 | 2.0; 13.7 | 3.5; 3.6 |
| Methiocarb                |                    | 2032-65-7  | Sigma-Aldrich      | 99.8       | MeOH     | C_{12}H_{15}NO_{3}S      | 225.08235 | 14.8 | 3.1; 3.1         |
| Metolachlor               |                    | 51218-45-2 | Sigma-Aldrich      | 97.6       | MeOH     | C_{12}H_{12}ClNO_{2}      | 283.13391 | 0    | 3.5; 3.5         |
| Metribuzin                |                    | 21087-64-9 | Sigma-Aldrich      | 99         | Acetone  | C_{6}H_{6}N_{4}OS        | 214.08883 | 2.5  | 1.7; 2.0         |
| Methylbutanil             |                    | 88671-89-0 | Sigma-Aldrich      | 99.6       | MeOH     | C_{16}H_{18}Cl_{2}N_{6}O_{2} | 288.11417 | 2.3  | 3.5; 3.7         |
| Oryzalin                  |                    | 19044-88-3 | Sigma-Aldrich      | 99.1       | MeOH     | C_{12}H_{16}Na_{4}O_{2}S | 346.09471 | 9.6  | 2.3; 1.6         |
| Pirimiphos-methyl         |                    | 29232-93-7 | Sigma-Aldrich      | 98.5       | MeOH     | C_{12}H_{10}N_{2}O_{3}S | 305.09630 | -1.5; 5.1 | 1.1; 3.0 |
| Prochloraz                |                    | 67747-09-5 | Sigma-Aldrich      | 98.6       | MeOH     | C_{16}H_{16}Cl_{2}N_{6}O_{2} | 375.03081 | 2.6  | 3.4; 3.6         |
| Propachlor                |                    | 1918-16-7  | Sigma-Aldrich      | 99.8       | MeOH     | C_{14}H_{14}ClNO          | 211.07639 | 0    | 2.4; 2.4         |
| Propanil                  |                    | 709-98-8   | Sigma-Aldrich      | 99.7       | MeOH     | C_{9}H_{3}Cl_{2}NO        | 217.00612 | 13.9 | 3.1; 3.1         |
| Propiconazole             |                    | 60207-90-1 | Sigma-Aldrich      | 99.1       | MeOH     | C_{16}H_{18}Cl_{2}N_{6}O_{2} | 341.06978 | 1.9  | 4.2; 4.3         |
| Propyramide               |                    | 23950-58-5 | Sigma-Aldrich      | 99.8       | MeOH     | C_{12}H_{12}Cl_{2}NO      | 255.02177 | -1.5; 14.2 | 3.2; 3.2 |
| Pyrazophos                |                    | 13457-18-6 | Sigma-Aldrich      | 99.8       | MeOH     | C_{16}H_{18}N_{2}O_{3}S   | 373.08613 | -0.6 | 3.1; 3.1         |
| Quinmerac                 |                    | 90717-03-6 | Sigma-Aldrich      | 99.9       | MeOH     | C_{14}H_{18}ClNO_{2}      | 221.02436 | 2.4; 3.6 | 2.6; -0.6 |
| Simazine                  |                    | 122-34-9   | Fluka              | 99         | MeOH     | C_{12}H_{12}ClN_{2}S     | 201.07812 | 4.2; 14.8 | 0.2; 1.8 |
| Tebuconazole              |                    | 107534-96-3| Sigma-Aldrich      | 99.3       | MeOH     | C_{16}H_{18}ClNO         | 307.14514 | 2.0; 13.9 | 3.6; 3.7 |
| Terbutylazine             |                    | 5915-41-3  | Sigma-Aldrich      | 99.4       | EtOH     | C_{16}H_{16}ClN_{2}S     | 229.10942 | 4.2; 14.2; 15.8| 1.0; 2.5 |
| Terbutryn                 |                    | 866-50-0   | Sigma-Aldrich      | 99.1       | MeOH     | C_{16}H_{18}N_{2}S       | 241.13612 | 0.4; 6.7; 14.3; 15.9 | 0.9; 2.9 |
| Thiacloprid               |                    | 111988-49-9| Sigma-Aldrich      | 99.9       | AcN      | C_{16}H_{18}ClN_{4}S     | 252.03265 | -0.2; 1.6 | 2.0; 2.1 |
| Triadimenol               |                    | 55219-65-3 | Sigma-Aldrich      | 98.2       | AcN      | C_{16}H_{18}ClNO_{2}      | 295.10875 | 2.0; 13.2 | 3.2; 3.3 |

*Industrial chemicals*

| 2,4-Diethyl-9H-thioxanthan-9-one | DETX | 82799-44-8 | Sigma-Aldrich | 99 | MeOH | C_{12}H_{10}OS | 268.09219 | 0 | 5.6; 5.6 |
| 2,4-Dinitrophenol | 51-28-5 | Sigma-Aldrich | 99 | MeOH | C_{6}H_{2}N_{2}O_{5} | 184.01202 | 4.5 | 1.5; -0.4 |
| 2-Hydroxybenzothiazole | 2-OH-BTA | 934-34-9 | Sigma-Aldrich | 99.9 | MeOH | C_{6}H_{5}NOS | 151.00918 | -1.3; 11.3 | 2.0; 1.9 |
| 2-isopropylthioxanthonene | ITX | 5495-84-1 | Sigma-Aldrich | 99 | MeOH | C_{14}H_{14}OS | 254.07654 | 0 | 4.9; 4.9 |
| COMPOUND | Abbreviation | CAS number | Commercial vendor | Purity (%) | Solvent | Molecular formula | Exact mass (Da) | pKa | Log D (2.5; 10.5) |
|----------|--------------|------------|-------------------|------------|---------|------------------|----------------|-----|------------------|
| Benzothiazole | | 95-16-9 | Sigma-Aldrich | 97 | MeOH | C₇H₅N₅ | 135.01427 | 2.3 | 2.0; 2.1 |
| Caffeine | | 58-08-2 | Sigma-Aldrich | 98 | MeOH | C₉H₁₂N₄O₂ | 194.08038 | -1.2 | -0.5; -0.5 |
| Cotinine | | 486-56-6 | Sigma-Aldrich | 98.5 | MeOH | C₉H₁₂N₂O | 176.09496 | -1.8; 4.8 | -0.8; 0.2 |
| Perfluorobutanesulfonic acid | PFBS | 375-73-5 | Sigma-Aldrich | 98 | MeOH | C₄HF₉O₂S | 299.95027 | -3.3 | 0.3; 0.3 |
| Perfluorooctanesulfonamide | PFOSA | 754-91-6 | Dr. Ehrenstorfer | 99.5 | MeOH | C₆H₁₄F₂N₂O₅S | 498.95348 | 3.4 | 4.8; 3.9 |
| Perfluorooctanesulfonic acid | PFOS | 1763-23-1 | Sigma-Aldrich | 97 | MeOH | C₆HF₇O₂S | 499.93749 | -3.3 | 3.1; 3.1 |
| Acetaminophen | | 103-90-2 | Fluka | 99.9 | MeOH | C₃H₆NO₂ | 151.06333 | 9.5 | 0.9; -0.1 |
| Diazepam | | 439-14-5 | Sigma-Aldrich | >95 | MeOH | C₁₅H₂₂ClN₂O₂ | 284.07164 | 2.9 | 2.5; 3.1 |
| Diclofenac | | 15307-86-5 | Sigma-Aldrich | 99 | MeOH | C₂₄H₂₅Cl₂NO₂ | 295.01668 | 4 | 4.0; 0.7 |
| Diphenhydramine | | 58-73-1 | Sigma-Aldrich | 100 | MeOH | C₁₇H₂₂ClN₂O₂ | 255.16231 | 8.9 | 0.2; 3.6 |
| Genistein | | 446-72-0 | Extrasynthese | 98 | MeOH | C₁₇H₁₅O₅ | 270.05282 | 6.6; 8.1; 9.0 | 3.5; -2.4 |

**PFAS**

| | | | | | |
|---|---|---|---|---|---|
| Perfluorobutanesulfonic acid | PFBS | 375-73-5 | Sigma-Aldrich | 98 | MeOH | C₄HF₉O₂S | 299.95027 | -3.3 | 0.3; 0.3 |
| Perfluorooctanesulfonamide | PFOSA | 754-91-6 | Dr. Ehrenstorfer | 99.5 | MeOH | C₆H₁₄F₂N₂O₅S | 498.95348 | 3.4 | 4.8; 3.9 |
| Perfluorooctanesulfonic acid | PFOS | 1763-23-1 | Sigma-Aldrich | 97 | MeOH | C₆HF₇O₂S | 499.93749 | -3.3 | 3.1; 3.1 |

**Pharmaceuticals**

| | | | | | |
|---|---|---|---|---|---|
| Acetaminophen | | 103-90-2 | Fluka | 99.9 | MeOH | C₃H₆NO₂ | 151.06333 | 9.5 | 0.9; -0.1 |
| Diazepam | | 439-14-5 | Sigma-Aldrich | >95 | MeOH | C₁₅H₂₂ClN₂O₂ | 284.07164 | 2.9 | 2.5; 3.1 |
| Diclofenac | | 15307-86-5 | Sigma-Aldrich | 99 | MeOH | C₂₄H₂₅Cl₂NO₂ | 295.01668 | 4 | 4.0; 0.7 |
| Diphenhydramine | | 58-73-1 | Sigma-Aldrich | 100 | MeOH | C₁₇H₂₂ClN₂O₂ | 255.16231 | 8.9 | 0.2; 3.6 |
| Genistein | | 446-72-0 | Extrasynthese | 98 | MeOH | C₁₇H₁₅O₅ | 270.05282 | 6.6; 8.1; 9.0 | 3.5; -2.4 |

**Surrogates**

| | | | | | |
|---|---|---|---|---|---|
| Benzophene-3-(phenyl-D5) | [²H₅]BP3 | 1219798-54-5 | Sigma-Aldrich | 100 | MeOH | C₁₆D₇H₃O₃ | 233.11000 | 7.1 | 3.6; 1.6 |
| Benzyl Butyl Phthalate-D₄ | [²H₄]-BnP | 93951-88-3 | Cambridge Isotope | 98 | MeOH | C₁₅D₇H₄O₃ | 316.16130 | 0 | 5.0; 5.0 |
| Bisphenol-A-D₁₆ | [²H₁₆]-BPA | 96210-87-6 | Sigma-Aldrich | 98 | MeOH | C₁₅D₉O₂ | 244.21540 | 9.8; 10.4 | 4.0; 3.5 |
| Mono-(2-Ethyl-5-Oxohexyl) phthalate-[¹³C₄]-DEHP | [¹³C₄]-DEHP | 1268238-35-2 | Cambridge Isotope | 99 | MeOH | C₁₃C₇H₁₆O₅ | 292.13100 | 3.1 | 3.0; 0.3 |

**RTI compounds**

| | | | | | |
|---|---|---|---|---|---|
| 2-(4-chloro-2-methylphenoxy) acetic acid | MCPA | 94-74-6 | Sigma-Aldrich | 98 | MeOH | C₉H₇ClO₃ | 200.02402 | 3.4 | 2.4; -1.1 |
| Abamectin | | 71751-41-2 | Sigma-Aldrich | 95 | Acetone | C₆H₁₀O₁₄ | 872.49221 | 12.5 | 5.8; 5.8 |
| Acephate | | 30560-19-1 | Sigma-Aldrich | 98 | EtOH | C₈H₁₉NO₃PS | 183.01190 | 10.5 | -0.3; -0.6 |
| Amitrole | | 61-82-5 | Sigma-Aldrich | 98 | MeOH | C₅H₇N₄ | 84.04360 | 3.6; 11.1 | -2.0; -1.6 |
| Benodanil | | 15310-01-7 | Sigma-Aldrich | 98 | MeOH | C₁₀H₁₀NO | 322.98071 | 15.4 | 4.0; 4.0 |
| Bromoxynil | | 1689-84-5 | Sigma-Aldrich | 98 | MeOH | C₁₀H₁₂Br₂NO | 274.85814 | 5.1 | 3.1; 1.0 |
| Butocarboxim | | 34681-10-2 | Sigma-Aldrich | 98 | MeOH | C₁₀H₁₄N₂O₅S | 190.07760 | 1.3; 14.3 | 1.3; 1.3 |
| Cefoperazone | | 113826-44-1 | Sigma-Aldrich | 98 | Acetone | C₁₅H₁₄N₂O₃S₂ H₂O | 645.14240 | -2.0; 3.2 | -0.2; -2.0 |

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Table S1 – Continuation.
| COMPOUND       | Abbreviation | CAS number | Commercial vendor | Purity (%) | Solvent | Molecular formula | Exact mass (Da) | pKa      | Log D (2.5; 10.5) |
|----------------|--------------|------------|-------------------|------------|---------|-------------------|----------------|---------|------------------|
| Chlormequat    |              | 999-81-5   | Sigma-Aldrich     | 98         | MeOH    | C₂₅H₁₁.ClN       | 122.07310      | 0       | -3.3; -3.3       |
| Coumaphos      |              | 56-72-4    | Sigma-Aldrich     | 98         | Acetone | C₃₄H₁₈.ClO₆P₅   | 362.01446      | 0       | 4.3; 4.3         |
| Dichlorvos     |              | 62-73-7    | Sigma-Aldrich     | 99         | MeOH    | C₂₄H₂₇.ClO₆P     | 219.94590      | 0       | 1.4; 1.4         |
| Dinoterb       |              | 1420-07-1  | Sigma-Aldrich     | 98         | DMSO    | C₁₀H₁₂.N₂.O₅     | 240.07462      | 5.2     | 3.1; 1.1         |
| Inabenfide     |              | 82211-24-3 | Sigma-Aldrich     | 98         | Acetone | C₁₃H₁₉.ClN₂.O₂   | 338.08221      | 2.3; 13.5; 14.9 | 3.3; 3.5 |
| Metamidophos   |              | 10265-92-6 | Sigma-Aldrich     | 98         | Isopropanol | C₂₂H₂₅.NO₃.P | 141.00134      | 15.6    | -0.3; -0.3       |
| Rifaximin      |              | 80621-81-4 | Sigma-Aldrich     | 98         | MeOH    | C₄₃H₅₁.N₂.O₁₁    | 785.35236      | 5.9; 6.7 | 3.8; 1.1         |
| Salinomycin    |              | 55721-31-8 | Sigma-Aldrich     | 85         | EtOH    | C₁₉H₁₉.NaO₁₁·xH₂O | 750.49181      | 4.5     | 7.5; 4.0         |
| Simazine       |              | 122-34-9   | Fluka             | 98         | MeOH    | C₁₂H₁₇.CIN₅       | 201.07812      | 4.2; 14.8 | 0.2; 1.8          |
| Tepraloxydim   |              | 149979-41-9| Sigma-Aldrich     | 95         | MeOH    | C₁₂H₂₃.ClNO₄     | 341.13939      | 2.2     | 2.8; -0.8        |
| Trichlorphon   |              | 52-68-6    | Sigma-Aldrich     | 98.4       | Isopropanol | C₂₄H₂₇.ClO₆P | 255.92258      | 10.12   | 1.1; 0.6         |
| Triclosan      |              | 3380-34-5  | Sigma-Aldrich     | 99         | MeOH    | C₁₂H₂₇.ClO₂       | 287.95116      | 7.7     | 5.0; 2.9         |
| Tylosin        |              | 1401-69-0  | British Pharmacopoeia | 100     | MeOH    | C₄₆H₇.NO₁₇       | 915.51915      | 8.4; 12.5 | -1.2; 2.3        |

*Included in the target method,  **Not ionizable atoms,  *Only used in the enzymatic hydrolysis optimization.*
Table S2 - Mass spectrometry conditions for the target analysis of the 24 EDCs and 4 surrogates by LC-QqQ at pH 2.5 and 10.5, including the ionization mode, retention time (RT), m/z fragments, fragmentor voltage and collision energy (CE) for each compound.

| Compound | pH 2.5 | | | | | | pH 10.5 | | | |
|----------|--------|--------|--------|--------|--------|--------|----------|--------|--------|--------|--------|
| Ionization mode | RT (min) | Precursor ion (m/z) | Product ion(s) (m/z) | Fragmentor voltage (V) | Collision-energy (eV) | Ionization mode | RT (min) | Precursor ion (m/z) | Product ion(s) (m/z) | Fragmentor voltage (V) | Collision-energy (eV) |
| **Benzophenones** | | | | | | | | | | | |
| 4OH-BP | [M+H]^+ | 7.0 | 199.1 | 121.1/105.1 | 105 | 17 | [M-H]^- | 2.6 | 197.1 | 92.0/120.0 | 75 | 33 |
| BP1 | [M+H]^+ | 8.7 | 215.1 | 137.0/81.1 | 135/120 | 17/41 | [M-H]^- | 2.8 | 213.1 | 135.0/91.0 | 135 | 17/29 |
| BP2 | [M+H]^+ | 5.2 | 247.1 | 137.0/81.1 | 120 | 21/41 | [M-H]^- | 0.7 | 245.0 | 135.0/109.0 | 105 | 13/21 |
| BP3 | [M+H]^+ | 11.2 | 229.0 | 151.0/105.0 | 75 | 21 | [M+H]^+ | 11.0 | 229.0 | 151.0/105.0 | 75 | 21 |
| BP8 | [M+H]^+ | 9.9 | 245.1 | 121.1/151.1 | 105 | 13/17 | [M-H]^- | 6.4 | 243.1 | 123.0/93.0 | 120 | 13/21 |
| **Bisphenols** | | | | | | | | | | | |
| BPA | [M+H]^+ | 11.3 | 229.1 | 151.0/105.1 | 120 | 17 | [M-H]^- | 7.3 | 227.1 | 121.2/133.1 | 75 | 17/25 |
| BPAF | [M-H]^- | 10.2 | 335.0 | 265.1/245.1 | 150 | 21/37 | [M-H]^- | 7.1 | 335.0 | 265.1/197.0 | 120 | 21/41 |
| BPAP | [M-H]^- | 10.3 | 289.1 | 274.1/211.1 | 135 | 17/29 | [M-H]^- | 9.9 | 289.1 | 274.1/211.1 | 75 | 17/25 |
| BP | [M-H]^- | 11.8 | 345.2 | 330.1/315.2 | 150 | 25/41 | [M-H]^- | 11.7 | 345.2 | 330.1/315.1 | 75 | 25/41 |
| BP5 | [M+H]^+ | 3.7 | 251.0 | 157.0/109.1 | 130 | 13/21 | [M-H]^- | 0.7 | 249.0 | 108.0/92.0 | 135 | 29/37 |
| BPZ | | | | | | | | | | | |
| BPA-G | | | | | | | | | | | |
| **Parabens** | | | | | | | | | | | |
| BnP | [M-H]^- | 9.8 | 227.1 | 136.0/92.0 | 105 | 9/25 | [M-H]^- | 4.1 | 227.1 | 136.0/92.0 | 105 | 9/25 |
| BuP | [M+H]^+ | 9.7 | 195.1 | 139.1/95.1 | 75 | 9/21 | [M-H]^- | 4.0 | 193.1 | 136.0/92.0 | 105 | 13/25 |
| EDHB | [M+H]^+ | 4.3 | 183.1 | 155.1/111.1 | 75 | 9/13 | | | | | | |
| EtP | [M+H]^+ | 5.7 | 167.1 | 139.1/95.1 | 75 | 9/17 | [M-H]^- | 1.9 | 165.1 | 137.0/92.0 | 90 | 13/25 |
| MDHB | [M+H]^+ | 3.2 | 169.0 | 137.0/109.1 | 90 | 9/21 | [M-H]^- | 0.7 | 167.0 | 125.1/108.0 | 105 | 17 |
| MeP | [M+H]^+ | 4.2 | 153.1 | 121.1/93.1 | 90 | 13/25 | [M-H]^- | 0.8 | 151.0 | 136.0/92.0 | 90 | 13/21 |
| Compound | Ionization mode | pH 2.5 | pH 10.5 |
|----------|----------------|--------|---------|
|          | RT (min) | Precursor ion(s) (m/z) | Fragmentor voltage (V) | Collision-energy (eV) | Ionization mode | RT (min) | Precursor ion(s) (m/z) | Fragmentor voltage (V) | Collision-energy (eV) |
| Phthalates | | | | | | | | |
| MBnP     | [M+H]^+ | 8.3 | 257.1 | 91.1/149.1 | 75 | 13/9 | [M+H]^+ | 3.0 | 257.1 | 149.1/91.1 | 75 | 9/13 |
| MBuP     | [M+H]^+ | 8.0 | 223.1 | 149.0/121.0 | 75 | 9/13 | a | a | a | a | a | a |
| MEHHP    | [M-H]  | 8.6 | 293.1 | 121.0/145.1 | 105 | 17/9 | a | a | a | a | a | a |
| MEHP     | [M+H]^+ | 11.6 | 279.2 | 149.1/167.1 | 90 | 13/5 | [M+H]^+ | 6.5 | 279.2 | 167.1/149.1 | 90 | 5/13 |
| MEOHP    | [M-H]  | 7.7 | 291.1 | 143.1/121.0 | 105 | 9/17 | [M-H]  | 3.1 | 291.1 | 143.1/121.0 | 105 | 9/17 |
| Antibacterials | | | | | | | | |
| TCC      | [M-H]  | 11.8 | 313.0 | 160.0/126.0 | 90 | 9/25 | [M-H]  | 11.8 | 313.0 | 160.0/126.0 | 90 | 9/25 |
| TCS      | [M-H]  | 11.9 | 288.9/286.9b | 35 | 90 | 13 | [M-H]  | 9.5 | 288.9/286.9b | 35 | 90 | 13 |
| Surrogates | | | | | | | | |
| [1H_5]-BP3 | [M+H]^+ | 11.2 | 234.1 | 151.0/82.0 | 120 | 13 | [M+H]^+ | 11.0 | 234.1 | 151.0/110.0 | 105 | 17/21 |
| [1H_4]-BPA | [M+H]^+ | 11.4 | 243.1 | 215 | 120 | 17 | [M-H]  | 7.3 | 241.0 | 223.0/151.0 | 135/105 | 17/33 |
| [1H_5]-BnBuP | [M+H]^+ | 12.0 | 317.4 | 209 | 75 | 10 | [M+H]^+ | 12.0 | 317.4 | 209 | 75 | 10 |
| [1H_6]-DEHP | [M-H]  | 7.6 | 295.00/297.20 | 124.0/281.1 | 90 | 9 | a | a | a | a | a |

aNot ionized.
Table S3 - Mass spectrometry conditions for the analysis by LC-qOrbitrap at pH 2.5 and 10.5 including the ionization mode, retention time (RT), precursor and product ions (m/z), as well as the instrumental limit of identification (iLOQ, ng g^−1) and the MS2 match for each compound.

| COMPOUND | Abbreviation | MODE | RT (min) | MS1 (m/z) | MS2 fragments (m/z) | iLOQ | MS2 match (%) |
|----------|--------------|------|----------|-----------|---------------------|------|---------------|
|          |              |      |          |           |                     |      | Standard solution | Spiked urine |
| Benzophenones |                |      |          |           |                     |      |               |             |
| 4,4'-bis(dimethylamino)benzophenone | 4,4-DMA-BP | [M+H]^+ | 13.79    | 269.1684  | 148.07544           | 0.1  | 98 | 98 |
| 4-Hydroxybenzophenone | 4-OH-BP | [M+H]^+ | 10.36    | 199.0736  | 146.96149           | 1.4  | 98 | 98 |
| 4-Methylbenzophenone | 4-MeBP | [M+H]^+ | 13.69    | 197.09609 | 196.16920           | 8.9  | 77 | 77 |
| 4-Phenylbenzophenone | 4-PhBP | [M+H]^+ | 15.44    | 259.11174 | 181.06433           | 1.0  | 92 | b |
| Benzophenone-1α | BP1 | [M+H]^+ | 4.65     | 213.05572 | 169.06517           | 5.3  | 76 | 76 |
| Benzophenone-2α | BP2 | [M+H]^+ | 8.04     | 247.06010 | 137.02347           | 9.5  | 98 | 98 |
| Benzophenone-3α | BP3 | [M+H]^+ | 10.38    | 229.08592 | 151.03893           | 2.6  | 98 | 98 |
| Benzophenone-8α | BP8 | [M+H]^+ | 12.54    | 245.08075 | 151.03914           | 10.8 | 98 | b |
| Bisphenols |                 |      |          |           |                     |      |               |             |
| Bisphenol Aα | BPA | [M-H]   | 9.79     | 227.10775 | 242.20034           | 10.6 | 93 | 93 |
| Bisphenol AFα | BPAP | [M-H]   | 10.19    | 335.05122 | 265.04822           | 8.0  | 94 | 94 |
| Bisphenol APα | BPAP | [M-H]   | 12.31    | 289.12415 | 274.09872           | 11.2 | 95 | 95 |
| Bisphenol Pα | BPP | [M-H]   | 14.65    | 345.18600 | 331.26770           | 95.06471 | 0 | b |
| Bisphenol Sα | BPS | [M-H]   | 0.65     | 249.02270 | 155.98339           | 5.1  | 90 | 0 |
| Bisphenol Zα | BPZ | [M-H]   | 12.04    | 267.14087 | 223.07588           | 14.5 | 94 | 94 |
| Parabens |                |      |          |           |                     |      |               |             |
| Benzy l parabenα | BnP | [M-H]   | 13.33    | 227.07137 | 220.94827           | 10.0 | 67 | 67 |
| Butyl parabenα | BuP | [M-H]   | 7.4      | 193.08702 | 175.90752           | 22.2 | 90 | 90 |

Note: a, b, c, and d indicate different sources or measurements.
| COMPOUND | Abbreviation | MODE* | RT (min) | MS1 (m/z) | MS2 fragments (m/z) | ILOI | MS2 match (%) |
|----------|--------------|-------|----------|-----------|--------------------|------|---------------|
|          |              |       |          |           |                    |      | Standard solution | Spiked urine |
| Ethyl 3,4-dihydroxybenzoate | EDHB | [M+H]+ | 8.3 | 183.06519 | 155.03375 | 111.04416 | 0.6 | 98 | b |
| Ethyl paraben | EtP | [M+H]+ | 8.77 | 167.07027 | 139.03878 | 121.02843 | 84.96015 | 0.5 | 79 | 100d |
| Methyl 3,5-dihydroxybenzoate | MDHB | [M-H] | 1.74 | 165.05572 | 137.02332 | 95.01241 | 93.03318 | 21.9 | 91 | 91 |
| Methyl paraben | MeP | [M+H]+ | 6.16 | 153.05462 | 121.02801 | 109.06575 | 94.04124 | c | b | b |
| [M-H] | 1.09 | 151.04007 | 136.01511 | 95.01254 | 92.02537 | 8.4 | 82 | 82 |
| Phthalates | | | | | | | |
| Mono-(2-ethyl-5-hydroxyhexyl) phthalate | MEHP | [M+H]+ | 11.66 | 295.15400 | 277.21619 | 221.1699 | 149.01237 | 22.0 | 75d | 75d |
| [M-H] | 6.89 | 293.13945 | 293.13996 | 276.97839 | 214.91333 | 153.0 | 67d | b |
| Mono-[(2RS)-2-Ethyl-5-oxohexyl] phthalate | MEOHP | [M-H] | 5.97 | 291.12380 | 143.10657 | 121.02824 | 79.95606 | 146.0 | 100d | 100d |
| Mono-2-Ethylhexyl phthalate | MEHP | [M-H] | 10.49 | 277.14453 | 226.30743 | 134.03613 | 121.02790 | 8.1 | 92 | 92 |
| Mono-benzyl phthalate | MBnP | [M+H]+ | 11.52 | 257.08084 | 127.42988 | 91.05447 | 79.24430 | 10.7 | 50d | 50d |
| [M-H] | 5.61 | 255.06628 | 183.08121 | 121.02831 | 107.04894 | 108.0 | 80d | 80d |
| Mono-butyl phthalate | MBuP | [M-H] | 4.55 | 221.08193 | 134.03688 | 121.08283 | 71.04906 | 160.0 | 73 | 73 |
| Antibacterials and biocides | | | | | | | |
| Triclocarban | TCC | [M-H] | 14.91 | 312.97077 | 159.97168 | 126.01044 | 5.8 | 84 | b |
| [M-H] | 12.03 | 286.94389 | 160.95664 | 141.98271 | 89.79664 | c | 0 | 0 |
| Acetamiprid | TCS | [M+H]+ | 4.83 | 223.07450 | 187.09807 | 126.01057 | 56.05043 | 2.6 | 76 | 76 |
| [M+H]+ | 13.48 | 270.12553 | 238.09899 | 224.08363 | 148.11101 | 16.3 | 94 | b |
| Alachlor | [M+H]+ | 8.99 | 228.12774 | 198.10777 | 182.12785 | 164.11879 | 2.4 | 97 | 97 |
| [M+H]+ | 10.61 | 216.10105 | 174.05431 | 132.03244 | 104.01111 | 0.5 | 97 | 97 |
| Atrazine | [M+H]+ | 12.57 | 343.03994 | 307.06128 | 139.98996 | 112.03962 | 2.7 | 93 | 93 |
| [M+H]+ | 4.83 | 222.04287 | 204.02152 | 104.04936 | 92.04980 | 1.0 | 92 | 92 |
| Chloridazon | [M+H]+ | 13.08 | 291.08948 | 164.09488 | 72.04483 | 70.04045 | 0.5 | 67d | 67d |
| [M+H]+ | 10.3 | 213.07892 | 168.02075 | 91.54185 | 72.04487 | c | 42 | 42 |
| Chloroxuron | [M+H]+ | 11.82 | 240.07858 | 184.05276 | 125.01547 | 100.07620 | 1.0 | 92 | 92 |
| Dichlorvos | [M+H]+ | 8.32 | 220.95318 | 144.98145 | 127.01490 | 78.99486 | 6.0 | 89 | 89 |
| COMPOUND       | Abbreviation | MODE*     | RT (min) | MS1 (m/z)   | MS2 fragments (m/z) | iLOI | MS2 match (%) |
|---------------|--------------|-----------|----------|-------------|---------------------|------|----------------|
| Diethyl Toluamide | [M+H]+ | 10.87     | 192.13829 | 160.05139 | 119.04923 109.06506 | 0.5  | 97  97         |
| Dimethachlor   | [M+H]+ | 11.48     | 256.10988 | 224.08359 | 148.11279  | 2.7  | 97  97         |
| Dimethoate     | [M+H]+ | 4.63      | 230.00690 | 198.96478 | 170.96984  142.99290 | 16.4 | 95  95         |
| Diuron         | [M+H]+ | 11.1      | 233.02429 | 187.96602 | 159.97048  72.04438 | 2.5  | 100 100        |
| Ethion         | [M+H]+ | 15.71     | 384.99489 | 170.96992 | 142.93782  114.96184 | 1.0  | 70  b          |
| Fenthion       | [M+H]+ | 14.33     | 279.02730 | 247.00217 | 169.01459  105.07076 | 5.4  | 50  b          |
| Flusilazole    | [M+H]+ | 13.67     | 316.10761 | 316.10761 | 187.05935  165.07076 | 1.0  | 92  92         |
| Imidacloprid   | [M+H]+ | 3.91      | 256.05958 | 209.05912 | 175.09810  84.05647 | 5.4  | 74  50         |
| Linuron        | [M+H]+ | 12.19     | 249.01921 | 182.02292 | 159.97076  62.06075 | 5.5  | 97  97         |
| Metazachlor    | [M+H]+ | 10.96     | 278.10547 | 210.06669 | 176.14265  | 1.0  | 97  97         |
| Mecoprop       | [M-H]  | 6.46      | 213.03240 | 141.00908 | 71.01210   | c    | 36  36         |
| Mefluthrin     | [M+H]+ | 10.96     | 278.10547 | 210.06669 | 176.14265  | 1.0  | 97  97         |
| Metribuzin     | [M+H]+ | 13.53     | 284.14118 | 252.11448 | 176.14265  | 1.0  | 97  97         |
| Metconazole    | [M+H]+ | 12.33     | 226.08963 | 190.12306 | 169.06891  121.0466 | 5.2  | 94  94         |
| Methiocarb     | [M+H]+ | 12.88     | 289.12145 | 125.01538 | 81.07032   | 1.0  | 98  98         |
| Methiocarb     | [M+H]+ | 13.53     | 284.14118 | 252.11448 | 176.14265  | 1.0  | 97  97         |
| Metribuzin     | [M+H]+ | 13.53     | 284.14118 | 252.11448 | 176.14265  | 1.0  | 97  97         |
| Myclobutanil   | [M+H]+ | 12.88     | 289.12145 | 125.01538 | 81.07032   | 1.0  | 98  98         |
| Oryzalin       | [M+H]+ | 13.46     | 347.10198 | 305.05472 | 288.03045  243.01846 | 7.6  | 95  b          |
| Pirimiphos-methyl | [M+H]+ | 13.81     | 376.03809 | 309.9634 | 265.95443  224.94491 | 2.4  | 94  94         |
| Prochloraz     | [M+H]+ | 10.94     | 212.08367 | 212.08367 | 170.03638  152.02598 | 2.4  | 88  88         |
| Propachlor     | [M+H]+ | 12.16     | 218.01340 | 161.98762 | 127.01822  57.03399 | 4.9  | 87  87         |
| Propanil       | [M+H]+ | 12.12     | 215.99884 | 161.96835 | 159.97131  | 2.5  | 97  97         |
| Propiconazole  | [M+H]+ | 14.2      | 342.07706 | 204.98201 | 186.97206  158.97547 | 1.0  | 97  97         |
| Propyzamide    | [M+H]+ | 12.68     | 256.02905 | 256.02905 | 189.98132  172.95514 | 5.1  | 87  87         |
| Pyrazophos     | [M+H]+ | 14.7      | 374.09340 | 346.06033 | 238.06414  222.08598 | 1.0  | 93  93         |
| Quinmerac      | [M+H]+ | 5.06      | 222.03163 | 204.02204 | 176.02506  141.05754 | 5.6  | 97  b          |
| Simazine       | [M+H]+ | 8.41      | 202.08540 | 132.03252 | 124.08717  96.05586 | 2.5  | 92  92         |

Table S3 – Continuation.
| COMPOUND                      | Abbreviation | MODE* | RT (min) | MS1 (m/z) | MS2 fragments (m/z) | ILOI | MS2 match (%) | Standard solution | Spiked urine |
|------------------------------|--------------|-------|----------|-----------|--------------------|------|----------------|-------------------|--------------|
| Tebuconazole                 | [M+H]^*      | 14.01 | 308.15242| 125.01546 | 70.04091           | 0.5  | 98             | 98                |              |
| Terbuthylazine                | [M+H]^*      | 12.37 | 230.11670| 230.11670 | 174.05439 | 146.02335       | 0.5  | 98             | 98                |              |
| Terbutryn                    | [M+H]^*      | 11.04 | 242.14339| 186.08027 | 158.04968 | 91.03248        | 1.0  | 97             | 97                |              |
| Thiacloprid                  | [M+H]^*      | 5.96  | 253.03092| 186.01292 | 128.06648 | 126.01051       | 2.7  | 98             | 98                |              |
| Triadimenol                  | [M+H]^*      | 13.06 | 296.11603| 227.08246 | 99.08079 | 70.04094        | 5.4  | 99             | 99                |              |
| **Industrial chemicals**     |              |       |          |           |                    |      |                |                   |              |
| 2,4-Diethyl-9H-thioxanthene-9-one | DETX          | 16.82 | 269.09946 | 241.06763 | 213.03641 | 1.0  | 67^d          | 49              |              |
| 2,4-Dinitrophenol            | [M-H]        | 0.75  | 183.00377 | 123.00754 | 109.01551 | 95.01233        | 2.6  | 96             | 96                |              |
| 2-Hydroxybenzothiazole       | [M+H]^*      | 7.05  | 152.01646 | 124.02156 | 92.04994 | 80.05029        | 59.4 | 81             | 81                |              |
| 2-isopropylthioxanthone      | ITX          | 16.08 | 255.08381 | 213.03667 | 184.03386 | 1.0  | 94             | 94                |              |
| Benzothiazole                | [M+H]^*      | 7.55  | 136.02155 | 109.01066 | 95.04934 | 65.03927        | c    | 41             | 41                |              |
| Caffeine                     | [M+H]^*      | 2.40  | 195.08765 | 138.06629 | 110.07108 | 83.06101        | 130.2 | 98            | 98                |              |
| Cotinine                     | [M+H]^*      | 0.83  | 177.10224 | 98.06037  | 80.05003  | c    | 42             | 42                |              |
| **PFAS**                     |              |       |          |           |                    |      |                |                   |              |
| Perfluorobutanesulfonic acid | PFBS         | 6.13  | 298.94299 | 154.84415 | 98.95438 | 79.95589        | 0.9  | 99             | 99                |              |
| Perfluorooctanesulfonamide   | PFOSA        | 11.65 | 497.94620 | 168.98850 | 77.96407 | 5.8  | 70             | b               |              |
| Perfluorooctanesulfonic acid | PFOS         | 11.71 | 498.93022 | 118.99095 | 98.95405 | 79.95600        | 1.0  | 96             | 96                |              |
| **Pharmaceuticals**          |              |       |          |           |                    |      |                |                   |              |
| Acetaminophen                | [M+H]^*      | 1.54  | 152.07061 | 135.11649 | 110.06015 | 93.03378        | 123.5 | 88            | 88                |              |
| Diazepam                     | [M+H]^*      | 12.33 | 285.07892 | 222.11419 | 193.08941 | 154.04099       | 0.5  | 98             | 98                |              |
| Diclofenac                   | [M+H]^*      | 13.96 | 296.02396 | 278.01364 | 250.01859 | 214.04192       | 2.4  | 98             | 98                |              |
| Diphenhydramine              | [M+H]^*      | 7.01  | 256.16959 | 167.08448 | 165.06853 | 152.06164       | 4.9  | 90             | 90                |              |
| Genistein                    | [M+H]^*      | 9.30  | 271.06010 | 271.06010 | 215.06982 | 153.01763       | 5.5  | 99             | 99                |              |

* pH 2.5 for positive ionization mode and 10.5 for negative ionization mode. ^ Included in the target method, | No MS2 obtained, c Not calculated due to the absence of MS2 or MS2 match lower than 70 %, d In-silico fragmentation performed.
Table S4 - Instrumental (iLOQ, ng g⁻¹) and procedural (pLOQ, ng g⁻¹) limits of quantification, upper limits (ng g⁻¹) and determination coefficients ($r^2$) of the calibration curves for LC-QqQ and LC-qOrbitrap at pH 2.5 and pH 10.5.

| Compounds | pH 2.5 | pH 10.5 | pH 2.5 | pH 10.5 | pH 2.5 | pH 10.5 | pH 2.5 | pH 10.5 |
|-----------|--------|---------|--------|---------|--------|---------|--------|---------|
|           | iLOQ   | pLOQ    | Upper limit | $r^2$   | iLOQ   | pLOQ    | Upper limit | $r^2$   |
| Benzophenones |        |         |            |        |        |         |            |        |
| 4OH-BP    | 0.3    | 0.07    | 180      | 0.9999 | 0.3    | 0.07    | 180      | 0.9998 |
| BP1       | 0.5    | 0.1     | 155      | 0.9997 | 0.5    | 0.1     | 155      | 0.9999 |
| BP2       | 0.2    | 0.2     | 144      | 0.9998 | 0.05   | 0.05    | 98       | 0.9996 |
| BP3       | 0.5    | 0.5     | 157      | 0.9998 | 0.3    | 0.2     | 157      | 0.9999 |
| BP8       | 0.3    | 0.1     | 165      | 0.9994 | 0.6    | 0.2     | 165      | 0.9999 |
| Bisphenols |        |         |            |        |        |         |            |        |
| BPA       | 0.3    | 0.08    | 161      | 0.9997 | 1.3    | 0.4     | 161      | 0.9996 |
| BPAF      | 0.3    | 0.1     | 111      | 0.9971 | 0.06   | 0.02    | 111      | 0.9968 |
| BPAP      | 11.3   | 5.7     | 117      | 0.9846 | 0.06   | 0.03    | 171      | 0.9999 |
| BPP       | 5.3    | 1.8     | 157      | 0.9937 | 0.3    | 0.09    | 107      | 0.9870 |
| BPS       | 0.3    | 0.2     | 103      | 0.9996 | 0.1    | 0.09    | 103      | 0.9997 |
| BPZ       |        |         | 1.3      | 0.6    | 163    |         | 0.9999   |        |
| Parabens  |        |         |        |        |        |         |            |        |
| BnP       | 0.1    | 0.06    | 152      | 0.9999 | 0.3    | 0.1     | 152      | 0.9998 |
| BuP       | 0.3    | 0.09    | 165      | 0.9999 | 0.6    | 0.2     | 165      | 0.9999 |
| EDHB      | 1.3    | 0.3     | 112      | 0.9946 |        |        | 164      | 16.4   |
| EtP       | 0.6    | 0.2     | 111      | 0.9995 | 0.6    | 0.2     | 111      | 0.9989 |
| MDHB      | 1.3    | 0.2     | 111      | 0.9948 | 0.6    | 0.08    | 111      | 0.9946 |
| MeP       | 0.6    | 0.1     | 171      | 0.9997 | 1.3    | 0.3     | 171      | 0.9994 |
| Phthalates |         |         |            |        |        |         |            |        |
| MBnP      | 0.06   | 0.02    | 160      | 0.9993 | 2.7    | 0.9     | 109      | 0.9802 |
| MBuP      | 0.5    | 0.1     | 160      | 0.9992 |        |        | 160      | 0.9980 |
| MEHHP     | 0.06   | 0.01    | 164      | 0.9999 |        |        | 164      | 0.9949 |
| MEHP      | 1.2    | 0.6     | 154      | 0.9945 | 2.6    | 1.2     | 105      | 0.9960 |
Table S4 – Continuation.

| Compounds | iLOQ (pH 2.5) | pLOQ (pH 2.5) | Upper limit | iLOQ (pH 10.5) | pLOQ (pH 10.5) | Upper limit | r² (pH 2.5) | iLOQ (pH 2.5) | pLOQ (pH 2.5) | Upper limit | r² (pH 10.5) | iLOQ (pH 10.5) | pLOQ (pH 10.5) | Upper limit | r² |
|------------|---------------|---------------|-------------|----------------|----------------|-------------|------------|---------------|----------------|-------------|------------|---------------|----------------|---------------|-------------|---|
| MEOHP      | 0.05          | 0.01          | 146         | 0.9999         | 2.5            | 0.5          | 146        | 0.9993        | 19.7           | 4.2         | 146        | 0.9905        | 1.2            | 0.2          | 146         | 0.9998        |
| Antibacterials |               |               |             |                |                |             |            |               |                |             |            |               |                |               |             |   |
| TCC        | 0.1           | 0.06          | 171         | 0.9996         | 0.1            | 0.06         | 116        | 0.9990        | 2.9            | 1.5         | 171        | 0.9968        | 1.4            | 0.7          | 171         | 0.9985        |
| TCS        | 1.3           | 0.7           | 111         | 0.9983         | 0.3            | 0.2          | 163        | 0.9998        | a              | a            | a          | 2.7           | 1.5            | 163          | 0.9983       |

*Not ionized.*
Table S5 - Average (n=5) absolute (%) and apparent (%) recoveries and relative standard deviations (RSDs, %) obtained at the (a) low (3 ng g⁻¹), (b) medium (6 ng g⁻¹) and (c) high (30 ng g⁻¹) spiking levels for SPE-LC-QqQ at pH 2.5 and 10.5. Surrogate used for apparent recovery calculation is included when applicable.

(a)

| Compound | Day 1 |          |          | Day 2 |          |          | Day 3 |          |          |
|----------|-------|----------|----------|-------|----------|----------|-------|----------|----------|
|          |       | Absolute | RSD      | Apparent | RSD      | Absolute | RSD      | Apparent | RSD      |
|          |       | Recovery |          | Recovery |          | Recovery |          | Recovery |          |
|          |       |          |          |          |          |          |          |          |          |
| Benzophenones |       |          |          |          |          |          |          |          |          |
| 4OH-BP   | 89    | 9        |          | 91      | 10       | 89       | 10     |          |          |
| BP1      | 77    | 15       |          | 74      | 18       | 84       | 14     |          |          |
| BP2      | 21    | 27       |          | 89      | 16       | 105      | 13     | 29       | 16       |
| BP3      | 22    | 29       |          | 92      | 25       | 103      | 18     | 26       | 25       |
| BP8      | 56    | 10       |          | 84      | 5        | 10       | 3      | 58       | 12       |
|          |       |          |          |          |          |          |          |          |          |
| Bisphenols |       |          |          |          |          |          |          |          |          |
| BPA      | 71    | 27       |          | 106     | 25       | 70       | 25     | 75       | 27       |
| BPAF     | 51    | 22       |          | 77      | 18       | 45       | 12     | 72       | 14       |
| BPAP     | 40    | 22       |          | 60      | 18       | 38       | 22     | 61       | 19       |
| BPP      | b     | b        |          | b       | b        | b        | b      | b        | b        |
| BP5      | 24    | 20       |          | 101     | 12       | 22       | 19     | 103      | 18       |
| BPZ      | 46    | 25       |          | 71      | 23       | 49       | 16     | 78       | 12       |
|          |       |          |          |          |          |          |          |          |          |
| Parabens |       |          |          |          |          |          |          |          |          |
| BnP      | 39    | 24       |          | 61      | 20       | 38       | 10     | 51       | 8        |
| BuP      | 64    | 15       |          | 96      | 13       | 68       | 5      | 108      | 5        |
| EDHB     | 100   | 30       |          | 94      | 34       | 94       | 34     | 87       | 26       |
| EtP      | 70    | 12       |          | 105     | 15       | 66       | 6      | 106      | 6        |
| MDHB     | 133   | 54       |          | 87      | 18       | 139      | 43     | 95       | 14       |
| MeP      | 97    | 16       |          | 104     | 6        | 104      | 6      | 109      | 8        |

Surrogate: [²H₅]-BP3, [²H₆]-BPA, [²H₆]-BP3, [²H₄]-BPA, [²H₄]-BPA, [²H₄]-BPA, [²H₄]-BPA, [²H₆]-BPA, [²H₄]-DEHP.
Table S5 – (a) Continuation.

| Compound   | Day 1 Absolute Recovery | Day 2 Absolute Recovery | Day 3 Absolute Recovery | Phthalates | Surrogate |
|------------|--------------------------|--------------------------|--------------------------|------------|-----------|
|            | RSD                      | RSD                      | RSD                      |            |           |
| MBnP       | 57                       | 16                       | 86                       | 14         | 70        | 6         | 91         | 9          | 47         | 18         | 62         | 16         | [1H]DEHP   |
| MBuP       | 112                      | 16                       | 75                       | 19         | 161       | 20        | 111        | 21         | 120        | 29         | 79         | 25         | [13C4]-DEHP |
| MEHHP      | 90                       | 10                       | 3                        | 3          | 112       | 3         | 112        | 6          | 112        | 6         | 112        | 6          | [1H]BP     |
| MEHP       | 44                       | 35                       | 101                      | 28         | 47        | 27        | 103        | 24         | 60         | 24         | 114        | 22         | [1H]BP     |
| MEOHP      | 93                       | 11                       | 111                      | 7          | 118       | 7         | 118        | 7          | 118        | 7         | 118        | 7          | [1H]BP     |

|            | Day 1 Apparent Recovery | Day 2 Apparent Recovery | Day 3 Apparent Recovery | Antibacterials |           |
|------------|--------------------------|--------------------------|--------------------------| ---------------|-----------|
|            | RSD                      | RSD                      | RSD                      |                |           |
| TCC        | a                        | a                        | a                        | 101 (b)        |           |
| TCS        | a                        | a                        | a                        | 101 (b)        |           |

(a) Not calculated due to the absence of an appropriate surrogate; (b) Below instrumental limit of quantification.

| Compound   | Day 1 Absolute Recovery | Day 2 Absolute Recovery | Day 3 Absolute Recovery | Benzophenones | Surrogate |
|------------|--------------------------|--------------------------|--------------------------|---------------|-----------|
|            | RSD                      | RSD                      | RSD                      |               |           |
| 4OH-BP     | 80                       | 15                       | 3                        | 85 (b)        |           |
| BP1        | 75                       | 12                       | 3                        | 78 (b)        |           |
| BP2        | 41                       | 20                       | 3                        | 45 (b)        |           |
| BP3        | 41                       | 16                       | 3                        | 41 (b)        |           |
| BP8        | 71                       | 2                        | 3                        | 75 (b)        |           |

|            | Day 1 Apparent Recovery | Day 2 Apparent Recovery | Day 3 Apparent Recovery | Bisphenols | Surrogate |
|------------|--------------------------|--------------------------|--------------------------|------------|-----------|
|            | RSD                      | RSD                      | RSD                      |            |           |
| BPA        | 56                       | 15                       | 3                        | 60 (b)      |           |
| BPAF       | 65                       | 14                       | 3                        | 69 (b)      |           |
| BPAP       | 64                       | 13                       | 3                        | 77 (b)      |           |
| BPP        | 60                       | 6                        | 3                        | 60 (b)      |           |
| BPS        | 37                       | 14                       | 3                        | 85 (b)      |           |

(b)
| Compound | Day 1 Absolute Recovery | Day 1 RSD | Day 1 Apparent Recovery | Day 1 RSD | Day 2 Absolute Recovery | Day 2 RSD | Day 2 Apparent Recovery | Day 2 RSD | Day 3 Absolute Recovery | Day 3 RSD | Day 3 Apparent Recovery | Day 3 RSD | Surrogate |
|----------|-------------------------|----------|-------------------------|----------|-------------------------|----------|-------------------------|----------|-------------------------|----------|-------------------------|----------|-----------|
| BPZ      | 61                      | 13       | 92                      | 10       | 73                      | 15       | 96                      | 16       | 74                      | 14       | 96                      | 12       | [\(^{1}H_{16}\)]-BPA |
| Parabens |                         |          |                         |          |                         |          |                         |          |                         |          |                         |          |           |
| BnP      | 57                      | 18       | 85                      | 16       | 59                      | 15       | 77                      | 10       | 55                      | 14       | 71                      | 12       | [\(^{1}H_{16}\)]-BPA |
| BuP      | 73                      | 10       | 109                     | 11       | 74                      | 4        | 96                      | 6        | 64                      | 5        | 83                      | 7        | [\(^{1}H_{16}\)]-BPA |
| EDHB     | 91                      | 9        | a                       | a        | 99                      | 8        | a                       | a        | 99                      | 6        | a                      | a        |           |
| EtP      | 65                      | 6        | 98                      | 9        | 70                      | 10       | 91                      | 7        | 62                      | 6        | 81                      | 8        | [\(^{1}H_{16}\)]-BPA |
| MDHB     | 104                     | 3        | a                       | a        | 104                     | 24       | a                       | a        | 103                     | 11       | a                      | a        |           |
| MeP      | 93                      | 2        | a                       | a        | 89                      | 10       | a                       | a        | 98                      | 6        | a                      | a        |           |
| Phthalates |                        |          |                         |          |                         |          |                         |          |                         |          |                         |          |           |
| MBnP     | 74                      | 4        | 104                     | 8        | 80                      | 8        | 104                     | 12       | 80                      | 4        | 118                     | 10       | [\(^{1}H_{16}\)]-BPA |
| MBuP     | 128                     | 14       | 83                      | 16       | 133                     | 12       | 135                     | 11       | 125                     | 1        | 82                      | 1        | [\(^{1}C_{4}\)]-DEHP |
| MEHHP    | 94                      | 2        | a                       | a        | 96                      | 7        | a                       | a        | 104                     | 16       | a                      | a        |           |
| MEHP     | 85                      | 7        | a                       | a        | 95                      | 13       | a                       | a        | 104                     | 16       | a                      | a        |           |
| MEOHP    | 133                     | 15       | 86                      | 12       | 142                     | 3        | 98                      | 8        | 159                     | 5        | 105                     | 9        | [\(^{1}C_{4}\)]-DEHP |
| Antibacterians |                   |          |                         |          |                         |          |                         |          |                         |          |                         |          |           |
| TCC      | 38                      | 10       | 87                      | 16       | 44                      | 15       | 98                      | 21       | 30                      | 13       | 87                      | 21       | [\(^{1}H_{1}\)]-BP3 |
| TCS      | 36                      | 12       | 81                      | 9        | 33                      | 14       | 73                      | 14       | 29                      | 16       | 84                      | 20       | [\(^{1}H_{1}\)]-BP3 |

\(^{a}\)Not calculated due to the absence of an appropriate surrogate

(c)
Table S5 – (c) Continuation.

| Compound | Day 1 | Day 2 | Day 3 | Surrogate |
|----------|-------|-------|-------|-----------|
|          | Absolute Recovery | RSD | Apparent Recovery | RSD | Absolute Recovery | RSD | Apparent Recovery | RSD | Absolute Recovery | RSD | Surrogate |
| BP2      | 34    | 20    | 105   | 17    | 46    | 4    | 84    | 15    | 33    | 7    | 114    | 21    | [H₃]–BP3 |
| BP3      | 35    | 24    | 109   | 13    | 31    | 17   | 102   | 11    | 28    | 11   | 97     | 3     | [H₃]–BP3 |
| BP8      | 67    | 15    | 94    | 16    | 77    | 11   | 100   | 8     | 71    | 7    | 107    | 7     | [H₃]–BP3 |

**Bisphenols**

| Compound | Day 1 | Day 2 | Day 3 | Surrogate |
|----------|-------|-------|-------|-----------|
| BPA      | 56    | 21    | 78    | 24    | 60    | 3    | 77    | 6     | 64    | 6     | 96    | 6     | [H₃]–BPA |
| BPAP     | 50    | 24    | 70    | 22    | 53    | 16   | 69    | 13    | 57    | 10    | 85    | 9     | [H₃]–BPA |
| BP3      | 59    | 27    | 82    | 23    | 67    | 19   | 87    | 16    | 64    | 18    | 96    | 16    | [H₃]–BPA |
| BP8      | 42    | 12    | 59    | 13    | 43    | 21   | 56    | 18    | 49    | 19    | 74    | 17    | [H₃]–BPA |
| BPS      | 32    | 18    | 110   | 17    | 34    | 13   | 112   | 14    | 35    | 10    | 122   | 8     | [H₃]–BP3 |
| BPZ      | 62    | 24    | 87    | 20    | 80    | 17   | 104   | 13    | 79    | 14    | 118   | 12    | [H₃]–BPA |

**Parabens**

| Compound | Day 1 | Day 2 | Day 3 | Surrogate |
|----------|-------|-------|-------|-----------|
| BnP      | 41    | 19    | 59    | 13    | 46    | 12   | 60    | 7     | 43    | 14    | 64    | 13    | [H₃]–BPA |
| BuP      | 63    | 14    | 88    | 10    | 68    | 5    | 88    | 1     | 56    | 3     | 84    | 6     | [H₃]–BPA |
| EDNB     | 95    | 8     | a     | a     | 81    | 10   | a     | a     | 82    | 13    | a     | a     |         |
| EtP      | 71    | 13    | 103   | 11    | 75    | 4    | 93    | 3     | 73    | 11    | 93    | 13    | [H₃]–BPA |
| MDHB     | 103   | 16    | a     | a     | 107   | 6    | a     | a     | 104   | 8     | a     | a     |         |
| MeP      | 109   | 13    | a     | a     | 115   | 5    | a     | a     | 115   | 4     | a     | a     |         |

**Phthalates**

| Compound | Day 1 | Day 2 | Day 3 | Surrogate |
|----------|-------|-------|-------|-----------|
| MBnP     | 64    | 18    | 96    | 15    | 72    | 6    | 115   | 8     | 86    | 15    | 112   | 13    | [H₃]–BPA |
| MBuP     | 81    | 17    | a     | a     | 76    | 7    | a     | a     | 91    | 7     | a     | a     |         |
| MEHHP    | 99    | 8     | a     | a     | 114   | 5    | a     | a     | 137   | 9     | a     | a     |         |
| MEHP     | 81    | 22    | a     | a     | 88    | 8    | a     | a     | 104   | 15    | a     | a     |         |
| MEOHP    | 100   | 18    | a     | a     | 114   | 7    | a     | a     | 136   | 18    | a     | a     |         |

**Antibacterials**

| Compound | Day 1 | Day 2 | Day 3 | Surrogate |
|----------|-------|-------|-------|-----------|
| TCC      | 29    | 19    | 89    | 24    | 22    | 25   | 72    | 25    | 22    | 19    | 77    | 22    | [H₃]–BP3 |
| TCS      | 26    | 22    | 82    | 26    | 27    | 34   | 89    | 24    | 24    | 32    | 84    | 25    | [H₃]–BP3 |

*Not calculated due to the absence of an appropriate surrogate.*
Table S6 – Compounds annotated at the volunteers’ samples at levels 1-5 using suspect and non-target screening by SPE-LC-qOrbitrap.

| Feature | Exact mass | Exact mass error (ppm) | Formula | Name | RT (min) | Standard RT/Predicted RT | Confidence level | Use/Application | Volunteers |
|---------|------------|------------------------|---------|------|----------|--------------------------|-----------------|----------------|------------|
|         |            |                        |         |      |          |                          |                 |                | A  B  C  D |
| 1       | 151.06319  | -0.90                  | C8 H9 N O2 | Acetaminophen | 1.44 | 1.54 | 1 | Pharmaceutical | ✓  ✓  ✓  ✓ |
| 2       | 176.09482  | -0.81                  | C10 H12 N2 O | Cotinine | 0.92 | 0.83 | 1 | Metabolite of nicotine | ✓  ✓  ✓  X |
| 3       | 194.08020  | -0.93                  | C8 H10 N4 O2 | Caffeine | 2.37 | 2.40 | 1 | Psychostimulant drug | ✓  ✓  ✓  ✓ |
| 4       | 222.08870  | -2.15                  | C12 H14 O4 | MBuP | 4.61 | 4.55 | 1 | Plasticizer | ✓  ✓  ✓  ✓ |
| 5       | 228.07860  | -0.25                  | C14 H13 O3 | BP3 | 13.21 | 13.30 | 1 | UV filter | ✓  ✓  ✓  ✓ |
| 6       | 228.11466  | -1.63                  | C15 H16 O2 | BPA | 9.76 | 9.79 | 1 | Plasticizer | ✓  ✓  X  X |
| 7       | 254.05752  | -1.52                  | C15 H10 O4 | Daidzein | 7.08 | 7.05 | 1 | Food natural ingredient | ✓  ✓  ✓  ✓ |
| 8       | 270.05238  | -1.64                  | C15 H10 O5 | Genistein | 8.44 | 9.30 | 1 | Food natural ingredient | ✓  ✓  ✓  ✓ |
| 9       | 278.15130  | -1.78                  | C16 H22 O4 | MEHP | 10.59 | 13.74 | 1 | Personal Care Product | ✓  ✓  ✓  ✓ |
| 10      | 99.06859   | 1.77                   | C5 H9 N O | N-Methyl-2-pyrrolidone | 1.37 | 3.10 | 2a | Household & Commercial Products | ✓  X  ✓  ✓ |
| 11      | 110.07326  | 0.88                   | C7 H10 O | (2E,4E)-Hepta-2,4-dienal | 11.41 | 8.10 | 2a | Food additive (Flavouring agent) | X  X  X  ✓ |
| 12      | 133.05268  | -0.64                  | C8 H7 N O | 4-Hydroxyindole | 1.62 | 4.06 | 2a | Cosmetics (Hair dyeing) | X  ✓  ✓  ✓ |
| 13      | 143.07341  | -0.62                  | C10 H9 N | 6-Methylquinoline | 4.85 | 7.01 | 2a | Food additive (Flavouring agent) | ✓  ✓  ✓  ✓ |
| 14      | 145.05265  | -0.80                  | C9 H7 N O | 1H-Indole-3-carboxaldehyde | 4.11 | 5.93 | 2a | Food natural ingredient | ✓  ✓  ✓  ✓ |
| 15      | 147.06834  | -0.51                  | C9 H9 N O | 1-Furfurylpyrrole | 5.74 | 4.77 | 2a | Food additive (Flavouring agent) | X  ✓  ✓  ✓ |
| 16      | 168.04211  | -0.86                  | C8 H8 O4 | 3,4-Dihydroxyphenylacetic acid | 2.50 | 4.84 | 2a | Drug product | ✓  ✓  ✓  ✓ |
| 17      | 320.23521  | 0.21                   | C20 H32 O3 | Tridecylic salicylate | 12.57 | 14.86 | 2a | Cosmetics (Antistatic; Skin conditioning) | ✓  ✓  X  X |
| 18      | 120.05756  | 0.36                   | C8 H8 O | Benzaldehyde, 3-methyl- | 12.45 | 11.49 | 2b | Food natural ingredient | ✓  ✓  ✓  X |
| 19      | 135.06831  | -0.75                  | C8 H9 N O | Acetanilide | 2.33 | 5.67 | 2b | Cosmetics (Stabilizing) | X  ✓  X  X |
| 20      | 154.02654  | -0.43                  | C7 H6 O4 | 2,6-Dihydroxybenzoic acid | 5.86 | 6.47 | 2b | Synthetic Polymer | ✓  ✓  ✓  X |
| Feature | Exact mass | Exact mass error (ppm) | Formula | Name | Standard RT (min) | RT/Predicted RT | Confidence level | Use/Application | Volunteers |
|---------|------------|------------------------|---------|------|------------------|-----------------|------------------|----------------|-------------|
|         |            |                        |         |      |                  |                 |                  |                | A | B | C | D |
| 21      | 236.14090  | -1.47                  | C14 H20 O3 | Benzene, 1-(1-ethoxyethoxy)-2-methoxy-4-(1-propen-1-yl)- | 13.59           | 11.62            | 2b              | Chemical substance | ✓ | ✓ | ✓ | ✓ |
| 22      | 166.11048  | -0.80                  | C9 H14 N2 O | 2-Isobutyl-3-methoxypyrazine | 5.45            | 5.17             | 3               | Food natural ingredient | ✓ | ✓ | ✓ | ✓ |
|         |            |                        |         |      |                  |                 |                  |                | Food additive (Flavouring agent) | ✓ | ✓ | ✓ | ✓ |
| 23      | 180.06453  | -1.08                  | C7 H8 N4 O2 | Theobromine | 1.40            | 2.55             | 3               | Food (stimulant) | ✓ | ✓ | ✓ | ✓ |
|         |            |                        |         |      |                  |                 |                  |                | Food (stimulant) Pharmaceutical | ✓ | ✓ | ✓ | ✓ |
| 24      | 180.06456  | -0.91                  | C7 H8 N4 O2 | Theobromine | 1.67            | 2.55             | 3               | Food (stimulant) | ✓ | ✓ | ✓ | ✓ |
|         |            |                        |         |      |                  |                 |                  |                | Food (stimulant) Pharmaceutical | ✓ | ✓ | ✓ | ✓ |
| 25      | 180.07844  | -1.12                  | C10 H12 O3 | Propylparaben | 10.29          | 7.39             | 3               | Food additive (Preservative) | ✓ | ✓ | ✓ | ✓ |
|         |            |                        |         |      |                  |                 |                  |                | Food additive (Preservative) | ✓ | ✓ | ✓ | ✓ |
| 26      | 180.07845  | -1.06                  | C10 H12 O3 | 1,2-Ethanediol, 1-phenyl-, 2-acetate | 5.20            | 5.91             | 3               | Chemical substance | ✓ | ✓ | ✓ | ✓ |
|         |            |                        |         |      |                  |                 |                  |                | Food additive (Flavouring agent) | ✓ | ✓ | ✓ | ✓ |
|         |            |                        |         |      |                  |                 |                  |                | Food additive (Preservative) | ✓ | ✓ | ✓ | ✓ |
| 27      | 180.07847  | -0.98                  | C10 H12 O3 | Ethyl o-anisate | 7.83            | 5.97             | 3               | Food additive (Preservative) | ✓ | ✓ | ✓ | ✓ |
|         |            |                        |         |      |                  |                 |                  |                | Food additive (Flavouring agent) | ✓ | ✓ | ✓ | ✓ |
Table S6 – Continuation.

| Feature | Exact mass | Exact mass error (ppm) | Formula | Name | RT (min) | Standard RT/Predicted RT | Confiden ce level | Use/Application | Volunteers |
|---------|------------|------------------------|---------|------|----------|--------------------------|------------------|----------------|------------|
| 28      | 182.04381  | -1.01                  | C6 H6 N4 O3  | 1-Methyluric acid | 0.95 | 1.34 | 3 | Metabolite of theophylline | ✓ ✓ ✓ X |
|         |            |                        |         | 4,9-Dihydro-3-methyl-1H-purine-2,6,8(3H)-trione | 1.12 | 0.99 | | A methyl derivative of uric acid | |
|         |            |                        |         | 7,9-Dihydro-7-methyl-1H-purine-2,6,8(3H)-trione | | | | Metabolite of caffeine | |
| 29      | 226.15660  | -1.30                  | C13 H22 O3  | Methyl 2-hexyl-3-oxocyclopentanecarboxylate | 12.28 | 11.84 | 3 | Cosmetics (Fragrance) | ✓ ✓ ✓ ✓ |
|         |            |                        |         | Methyl dihydrojasmonate | 9.13 | 11.73 | | Food additive (Flavouring agent) | |
|         |            |                        |         | 1-Oxaspiro[2.5]octane-2-carboxylic acid, 5,5,7-trimethyl-, ethyl ester | | | | Cosmetics (Fragrance) | |
| 30      | 228.07859  | -0.25                  | C14 H12 O3  | Benzyl salicylate | 11.04 | 10.15 | 3 | Cosmetics (Fragrance, UV filter) | ✓ ✓ ✓ ✓ |
|         |            |                        |         | Benzyl 4-hydroxybenzoate | | | | Cosmetics (Antimicrobial) | |
| 31      | 270.05238  | -1.64                  | C15 H10 O5  | Apigenin | 8.15 | 8.44 | 3 | Food natural ingredient | ✓ ✓ ✓ ✓ |
|         |            |                        |         | 4',6,7-Trihydroxyisoflavone | | | | Food natural ingredient Pharmaceutical | |
| 32      | 272.06807  | -1.50                  | C15 H12 O5  | Naringenin | 8.90 | 8.72 | 3 | Food natural ingredient Pharmaceutical | ✓ ✓ ✓ ✓ |
|         |            |                        |         | Dihydrogenistein | 8.38 | | | Metabolite of genistein | |
|         |            |                        |         | Dibutyl phthalate | 13.28 | 13.28 | | Personal Care Product, Plasticizer | ✓ ✓ ✓ ✓ |
|         |            |                        |         | Diisobutyl phthalate | 12.50 | | | Plasticizer | |
| 33      | 278.15122  | -2.13                  | C16 H22 O4  | Dibutyl phthalate | 13.28 | 13.28 | 3 | Personal Care Product, Plasticizer | ✓ ✓ ✓ ✓ |
|         |            |                        |         | Diisobutyl phthalate | 12.50 | | | Plasticizer | |
| 34      | 109.05285  | 0.77                   | C6 H7 N O   | | 1.44 | 4 | | | X X ✓ ✓ X |
| 35      | 109.05290  | 1.29                   | C6 H7 N O   | | 0.78 | 4 | | ✓ ✓ ✓ X | |
| 36      | 126.03169  | 0.00                   | C6 H6 O3    | | 1.87 | 4 | | ✓ ✓ ✓ ✓ | |
| 37      | 129.05780  | -0.35                  | C9 H7 N     | | 6.49 | 4 | | ✓ ✓ ✓ ✓ | |
| 38      | 129.05781  | -0.34                  | C9 H7 N     | | 7.57 | 4 | | ✓ ✓ ✓ ✓ | |
| Feature | Exact mass | Exact mass error (ppm) | Formula | Name | RT (min) | Standard RT/Predicted RT | Confidence level | Use/Application | Volunteers |
|---------|------------|------------------------|---------|------|----------|--------------------------|----------------|----------------|------------|
| 39      | 134.07310  | -0.48                  | C9 H10 O |      | 5.20     | 4                         |                |                | ✓          |
| 40      | 134.07313  | -0.28                  | C9 H10 O |      | 9.38     | 4                         |                |                | ✓ X        |
| 41      | 136.05231  | -0.87                  | C8 H8 O2 |      | 4.68     | 4                         |                |                | ✓ ✓ ✓      |
| 42      | 137.04761  | -0.52                  | C7 H7 N O2 |     | 3.02     | 4                         |                |                | ✓ ✓ ✓ ✓     |
| 43      | 150.06797  | -0.70                  | C9 H10 O2 |      | 9.90     | 4                         |                |                | ✓ ✓ ✓      |
| 44      | 152.11994  | -1.16                  | C10 H16 O |      | 7.36     | 4                         |                |                | ✓ ✓ ✓ ✓     |
| 45      | 152.11994  | -1.13                  | C10 H16 O |      | 8.36     | 4                         |                |                | ✓ ✓ ✓ ✓     |
| 46      | 152.11999  | -0.85                  | C10 H16 O |      | 6.27     | 4                         |                |                | ✓ ✓ ✓ ✓     |
| 47      | 152.12000  | -0.77                  | C10 H16 O |      | 9.03     | 4                         |                |                | ✓ ✓ ✓ ✓     |
| 48      | 194.05775  | -0.84                  | C10 H10 O4 |    | 3.93     | 4                         |                |                | ✓ ✓ ✓ ✓     |
| 49      | 218.16678  | -1.32                  | C15 H22 O |      | 8.91     | 4                         |                |                | ✓ ✓ ✓ ✓     |
| 50      | 218.16678  | -1.30                  | C15 H22 O |      | 12.97    | 4                         |                |                | X X ✓ ✓ X   |
| 51      | 218.16679  | -1.27                  | C15 H22 O |      | 11.10    | 4                         |                |                | X ✓ ✓ ✓     |
| 52      | 228.07836  | -1.25                  | C14 H12 O3 |    | 13.21    | 4                         |                |                | ✓ ✓ X X     |
| 53      | 242.09395  | -1.43                  | C15 H14 O3 |    | 7.92     | 4                         |                |                | ✓ ✓ ✓ ✓     |
| 54      | 117.05791  | 0.48                   |          |      | 1.77     | 5                         |                |                | X ✓ ✓ ✓ ✓   |
| 55      | 122.03680  | 0.19                   |          |      | 1.72     | 5                         |                |                | ✓ ✓ ✓ ✓     |
| 56      | 122.03681  | 0.25                   |          |      | 2.50     | 5                         |                |                | ✓ ✓ ✓ ✓     |
| 57      | 131.07342  | -0.57                  |          |      | 1.57     | 5                         |                |                | X ✓ ✓ ✓ ✓   |
| 58      | 134.07314  | -0.21                  |          |      | 13.53    | 5                         |                |                | ✓ X X X     |
| 59      | 136.05233  | -0.76                  |          |      | 1.75     | 5                         |                |                | ✓ ✓ ✓ ✓     |
| 60      | 137.04761  | -0.50                  |          |      | 11.96    | 5                         |                |                | ✓ ✓ ✓ ✓     |
| 61      | 138.03160  | -0.70                  |          |      | 2.13     | 5                         |                |                | ✓ ✓ ✓ ✓     |
| 62      | 143.07341  | -0.59                  |          |      | 1.81     | 5                         |                |                | ✓ ✓ ✓ X     |
| 63      | 150.06799  | -0.60                  |          |      | 12.05    | 5                         |                |                | ✓ ✓ ✓ ✓     |
| 64      | 180.07844  | -1.12                  |          |      | 10.29    | 5                         |                |                | ✓ ✓ ✓ ✓     |
| 65      | 252.06314  | -0.97                  |          |      | 2.03     | 5                         |                |                | ✓ ✓ ✓ ✓     |
| 66      | 254.05789  | -0.07                  |          |      | 0.94     | 5                         |                |                | ✓ X ✓ ✓     |
| Feature | Exact mass | Exact mass error (ppm) | Formula | Name | RT (min) | Standard RT/Predicted RT | Confidence level | Use/Application | Volunteers |
|---------|------------|------------------------|---------|------|----------|--------------------------|-----------------|----------------|------------|
| Non-target screening | 1 | 274.12368 | -1.70 | C16 H19 Cl N2 | Chlorpheniramine | 4.21 | 6.14 | 2a | Pharmaceutical (Antipiritic drug) | ✓ ✓ ✓ ✓ |
| 2 | 244.05178 | -1.40 | C9 H12 N2 O4 S | Pidotimod | 2.05 | 3.01 | 2b | Pharmaceutical (Inmunomudulator) | X X ✓ X |
| 3 | 312.07799 | -1.70 | C13 H16 N2 O5 S | Epithienamycin B | 1.91 | 3.91 | 2b | Pharmaceutical (Antibiotic) | X X ✓ X |
| 4 | 312.11438 | -1.98 | C14 H20 N2 O4 S | PS-6 / Penicillin F isomers | 5.11 | 6.83 | 3 | Pharmaceutical (Anbitiotic) | X X ✓ X |
| 5 | 217.07726 | -0.75 | | | 6.71 | 5 | | | ✓ X X X |
| 6 | 232.11332 | -0.85 | | | 8.42 | 5 | | | ✓ ✓ ✓ ✓ |
| 7 | 244.05178 | -1.05 | | | 1.65 | 5 | | | ✓ ✓ ✓ ✓ |
| 8 | 261.05566 | -1.45 | | | 7.70 | 5 | | | X X ✓ X |
| 9 | 329.09331 | -1.75 | | | 3.16 | 5 | | | X X ✓ X |

Table S6 – Continuation.
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