Supplementary Table 1.

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| **Compound**  **(total N = 40 compounds)** | **Average of % inter-assay CV1,2** |
| *EDA* |  |
| 4-OHE2-1-N3Ade | 11 |
| 2-OHE2-6-N3Ade | 8 |
| 2-OHE1-6-N3Ade | 9 |
| 4-OHE1-1-N3Ade | 13 |
| 4-OHE2-1-N7Gua | 30 |
| 4-OHE1-1-N7Gua | 22 |
| *EMC* |  |
| 2-OHE2-1(4)-SG | 28 |
| 4-OHE2-2-SG | 29 |
| 2-OHE1-1(4)-SG | 34 |
| 4-OHE1-2-SG | 35 |
| 2-OHE2-1-Cys | 50 |
| 2-OHE2-4-Cys | 63 |
| 4-OHE2-2-Cys | 67 |
| 2-OHE1-4-Cys | 64 |
| 2-OHE1-1-Cys | 60 |
| 4-OHE1-2-Cys | 53 |
| 2-OHE2-1-NAcCys | 10 |
| 2-OHE2-4-NAcCys | 35 |
| 4-OHE2-2-NAcCys | 18 |
| 2-OHE1-1(4)-NAcCys | 9 |
| 4-OHE1-2-NAcCys | 17 |
| 16a-OHE2 | 21 |
| 16a-OHE2 - H2O | 48 |
| 16a-OHE1 | 7 |
| 16a-OHE1 - H2O | 21 |
| 4-OHE2 | 10 |
| 2-OHE2 | 22 |
| 2-OHE1 | 20 |
| 4-OHE1 | 12 |
| 4-OCH3E1 | 7 |
| 2-OCH3E1 | 7 |
| 4-OCH3E2 - H2O | 7 |
| 2-OCH3E2 - H2O | 7 |
| 2-OH-3-OCH3E2 - H2O | 11 |
| 2-OH-3-OCH3E2 | 7 |
| Estrone | 6 |
| 17-beta-estradiol - H20 | 12 |
| 2-OH-3-OCH3E1 | 7 |

1%CV is calculated by taking the standard deviation/average return value.

2 To determine the % CV, the WHI Laboratory Committee inserted blinded quality control (QC) samples throughout the batches of the laboratory assays. After laboratory results were deposited in the WHI database, the QC samples were revealed; then % CVs were calculated for each the compound. Of note, several compounds show high %CVs, namely the cysteine compounds. These are strong nucleophiles, and may readily react with many compounds*.a,b*

**Supplementary References**

a. Poole, LB. “The basics of thiols and cysteines in redox biology and chemistry.” Free Radical Biology and Medicine, 2015. Vol 80:148-157

b. Backus, KM. “A Review :Applications of Reactive Cysteine Profiling.” Curr Top Microbiol Immunol, 2019. Vol 420: 375-417.