**Dataset for:**

**In vitro activity of a panel of per- and polyfluoroalkyl substances (PFAS), fatty acids, and pharmaceuticals in peroxisome proliferator-activated receptor (PPAR) alpha, PPAR gamma, and estrogen receptor assays**

Nicola Evansa, Justin M. Conleya\*, Mary Cardona, Phillip Hartiga, Elizabeth Medlock-Kakaleya, L. Earl Gray, Jr.a

aU.S. Environmental Protection Agency/Office of Research & Development/Center for Public Health and Environmental Assessment/Public Health and Integrated Toxicology Division, Research Triangle Park, NC 27711

conley.justin@epa.gov, evans.nicola@epa.gov, cardon.mary@epa.gov, gray.earl@epa.gov, hartig.phillip@epa.gov, medlockkakaley.elizabeth@epa.gov

\**Corresponding Author*: 109 TW Alexander Drive, Research Triangle Park, NC 27711

919-541-3326; conley.justin@epa.gov

|  |
| --- |
| **Table 1.** PFAS, fatty acid, and pharmaceutical test chemicals |
| **Chemical Name** | **Abbreviation** | **CASRN** | **DTXSID** |
| N-ethylperfluorooctanesulfonamide  | EtPFOSA | 4151-50-2 | 1032646 |
| Hexafluoropropylene oxide dimer acid | HFPO-DA | 13252-13-6 | 70880215 |
| Hexafluoropropylene oxide dimer acid ammonium salt | HFPO-DA-AS | 62037-80-3 | 40108559 |
| Nafion Byproduct 2  | NBP2 | 749836-20-2 | 10892352 |
| Potassium perfluorobutanesulfonate | PFBS | 29420-49-3 | 3037707 |
| Perfluorodecanoic acid | PFDA | 335-76-2 | 3031860 |
| Sodium perfluorohexanoate  | PFHxA | 2923-26-4 | 3052856 |
| Perfluorohexanesulfonic acid | PFHxS | 355-46-4 | 7040150 |
| Sodium 2,2-difluoro-2-(trifluoromethoxy) acetate | PFMOAA | 21837-98-9 | 50904660 |
| Perfluorononanoic acid  | PFNA | 375-95-1 | 8031863 |
| Ammonium perfluorooctanoate  | PFOA | 3825-26-1 | 8037708 |
| Potassium perfluorooctansulfonate  | PFOS | 2795-39-3 | 8037706 |
| Perfluorooctanesulfonamide  | PFOSA | 754-91-6 | 3038939 |
| 4:2 Fluorotelomer alcohol  | 4:2 FTOH | 2043-47-2 | 1062122 |
| 6:2 Fluorotelomer alcohol | 6:2 FTOH | 647-42-7 | 5044572 |
| 8:2 Fluorotelomer alcohol  | 8:2 FTOH | 678-39-7 | 7029904 |
| Oleic acid | - | 112-80-1 | 1025809 |
| Octanoic acid | - | 124-07-2 | 3021645 |
| Linoleic acid | - | 60-33-3 | 2025505 |
| Clofibrate | - | 637-07-0 | 3020336 |
| 2-(*p*-Chlorophenoxy)-2-methylpropionic acid | Clofibric acid | 882-09-7 | 1040661 |
| WY14643 (Pirinixic Acid) | - | 50892-23-4 | 4020290 |

|  |
| --- |
| **Table 2.** In vitro hPPARα and rPPARα assay data ranked by effective concentration 20% (EC20) for hPPARα |
|  | **hPPARα** |  | **rPPARα** |
|  | **Pmaxtop (%)** | **EC20 (M)** | **AUC** | **LOEC (µM)**  |  | **Pmaxtop (%)** | **EC20 (M)** | **AUC** | **LOEC (µM)**  |
| GW590735 | 100 | -8.16(0.06) | 100 | - |  | 100 | -6.28(0.03) | 100 | -  |
| **PFAS** |
| HFPO-DA-AS | 112.2(14.8) | -4.44(0.1) | 80.6(10) | 30 |  | 75.5(2.8) | -4.12(0.09) | 32.1(6.4) | 10\* |
| HFPO-DA | 91.6(29.7) | -4.42(0.33) | 65.2(19) | 30\* |  | 78.1(21.5) | -4.08(0.21) | 31(10) | 30\* |
| PFOA | 69(14.6) | -4.09(0.07) | 36.7(8.2) | 100 |  | 16.5(2.7) | BT | 6.8(1.6) | 100 |
| PFNA | 42.5(7.9) | -3.85(0.07) | 21.2(5.4) | 100 |  | 10.9(0.6) | BT | 4.3(0.3) | 100 |
| NBP2 | 43.5(12) | -3.73(0.06) | 17.8(6) | 100 |  | 1.7(0.5) | BT | 0.7(0.3) | 300 |
| PFHxS | 48.4(23.9) | -3.58(0.21) | 11(2.7) | 300 |  | 2.2(0.8) | BT | 0.4(0.1) | 300 |
| PFOS | 21(6.4) | -3.56(0.09) | 11.6(4.7) | 300 |  | 0.7(0.3) | BT | 0.4(0.2) | - |
| PFHxA | 47.6(23) | -3.47(0.2) | 7.8(6.2) | 300 |  | 8.4(0.01) | BT | 0.8(0.1) | 300 |
| PFBS | 32.4(1.4) | -3.34(0.07) | 7.8(3.7) | 300 |  | 0.8(0.2) | BT | 0.1(0) | 300 |
| PFMOAA | 51.1(9.4) | -3.32(0.05) | 4.5(1) | 300 |  | 5.3(1.1) | BT | 0.7(0.2) | 300 |
| PFDA | 9.4(3.5) | BT | 5.2(2.5) | 300 |  | 5.2(0.2) | BT | 2.4(0.1) | 100 |
| EtPFOSA | 12.8(4) | BT | 2(0.7) | 300 |  | - | BT | - | - |
| PFOSA | - | BT | - | - |  | - | BT | - | - |
| 4:2FTOH | - | BT | - | - |  | - | BT | - | - |
| 6:2FTOH | - | BT | - | - |  | - | BT | - | - |
| 8:2FTOH | - | BT | - | - |  | - | BT | - | - |
| **Fatty acids and pharmaceuticals** |
| Linoleic acid | 70.1(22.1) | -5.25(0.39) | 53.1(23.1) | 10 |  | 7.7(7.8) | BT | 4.0(4.7) | 30 |
| Oleic acid | 112.3(8.1) | -5.06(0.12) | 103(7.1) | 3\* |  | 20.4(10.7) | -3.1(0.2) | 9.7(2.2) | 100 |
| WY14643 | 113.5(12.4) | -4.62(0.04) | 61.2(2.4) | 3 |  | 113(3.9) | -5.4(0.21) | 69.4(3.6) | 3 |
| Clofibric acid | 106.4(4.2) | -4.33(0.07) | 60.4(4.9) | 10\* |  | 30.6(2.6) | -3.25(0.04) | 5.9(1.3) | 100 |
| Octanoic acid | 104.9(2.1) | -3.54(13.42) | 14.8(1.2) | 30\* |  | 12.3(2.9) | BT | 1.3(0.5) | 300 |
| Clofibrate | 9.9(2.6) | BT | 7.5(2) | 10 |  | - | BT | - | - |
| Values represent parameter estimate(standard error). BT = below EC20 threshold of pmaxtop ≥20%; LOEC = lowest observed effect concentration producing a ≥2 fold increase over vehicle control; AUC based on 10-300µM concentration range; Asterisk (\*) indicates LOEC was lowest concentration run in assay |

|  |
| --- |
| **Table 3.** In vitro hPPARγ and rPPARγ assay data ranked by effective concentration 20% (EC20) for hPPARγ |
|  | **hPPARγ** |  | **rPPARγ** |
|  | **Pmaxtop (%)** | **EC20 (M)** | **AUC** | **LOEC (µM)**  |  | **Pmaxtop (%)** | **EC20 (M)** | **AUC** | **LOEC (µM)**  |
| Rosiglitazone | 100 | -7.4(0.05) | 100 | - |  | 100 | -7.17(0.04) | 100 | - |
| **PFAS** |
| NBP2 | 43.6(0.9) | -3.73(0.02) | 17.4(1.4) | 100 |  | 23.1(1.6) | -3.56(0.01) | 9(1.1) | 300 |
| PFOA | 32(8.5) | -3.65(0.04) | 13.1(4.3) | 100 |  | 17.2(4.2) | BT | 6.1(2.1) | 300 |
| PFNA | 28.9(10.7) | -3.6(0.05) | 10.8(5.2) | 300 |  | 14.9(6.4) | BT | 5.3(3.1) | 300 |
| HFPO-DA-AS | 64(2.3) | -3.59(0.03) | 10.9(2.9) | 100 |  | 29.3(8.2) | -3.23(0.08) | 5.7(2) | 300 |
| PFOS | 21(3.9) | -3.54(0.02) | 8.4(2.5) | 100 |  | 17.5(5.8) | BT | 7(2.9) | 300 |
| PFHxS | 48.7(3.6) | -3.42(0.04) | 6.1(0.4) | 300 |  | 17.6(3.8) | BT | 6.8(2.7) | 300 |
| HFPO-DA | 46.4(14.1) | -3.35(0.11) | 5.3(3.1) | 100 |  | 38.3(12.1) | -3.24(0.09) | 3.2(2) | 300 |
| PFBS | 24.7(9.2) | -3.07(0.04) | 1.6(0.7) | 300 |  | 15.2(3.2) | BT | 1.7(0.3) | 300 |
| EtPFOSA | 13(2) | BT | 1.4(0.9) | 300 |  | 12.9(1) | BT | 0.7(0.1) | 1000 |
| PFDA | 2.6(0.4) | BT | 1.1(0.4) | 300 |  | 1(0.6) | BT | 0.6(0.3) | - |
| PFHxA | 13.4(2.3) | BT | 1.1(0.4) | 300 |  | 12.3(1.8) | BT | 1.1(0.2) | 300 |
| PFMOAA | 2.6(0.8) | BT | 0.6(0.1) | 1000 |  | - | BT | 0(0) | - |
| PFOSA | - | BT | - | - |  | - | BT | 0(0) | - |
| 4:2FTOH | - | BT | - | - |  | - | BT | 0(0) | - |
| 6:2FTOH | - | BT | - | - |  | - | BT | 0(0) | - |
| 8:2 FTOH | - | BT | - | - |  | - | BT | 0(0) | - |
| **Fatty acids and pharmaceuticals** |
| WY14643 | 99.9(2.4) | -4.24(0.08) | 58.5(6.7) | 30 |  | 17(2.8) | BT | 11.8(5.6) | 100 |
| Linoleic acid | 40.1(13.5) | -3.71(0.09) | 16.3(6.6) | 30 |  | 5.9(3) | BT | 3.8(3.7) | 30 |
| Clofibric acid | 56.8(4.8) | -3.5(0.05) | 8.2(3) | 100 |  | 39.3(1.6) | -3.3(0.02) | 4.9(0.6) | 100 |
| Octanoic acid | 80.5(11.7) | -3.47(0.07) | 7.3(3.8) | 100 |  | 60.5(7.4) | -3.34(0.05) | 4.2(0.6) | 100 |
| Oleic acid | 17.8(9.8) | BT | 6.1(2.3) | 100 |  | 23.7(0.9) | -3.14(0.1) | 7.3(4.4) | 100 |
| Clofibrate | 5.3(0.6) | BT | 3.5(0.7) | 100 |  | 3.4(1.4) | BT | 2.7(0.8) | 30\* |
| Values represent parameter estimate(standard error). BT = below EC20 threshold of pmaxtop ≥20%; LOEC = lowest observed effect concentration producing a ≥2 fold increase over vehicle control; AUC based on 10-300µM concentration range; Asterisk (\*) indicates LOEC was lowest concentration run in assay |

|  |
| --- |
| **Table 4**. In vitro hER assay data ranked by effective concentration 20% (EC20)  |
|  | **hER** |
|  | **Pmaxtop (%)** | **EC20 (M)** | **AUC** | **LOEC (µM)**  |
| E2 | 100 | -11.7(0.04) | 100 | - |
| **PFAS** |  |  |  |  |
| 8:2 FTOH | 57.2(17.9) | -4.87(0.28) | 49(14.9) | 10 |
| 6:2 FTOH | 46.1(17.4) | -3.38(0.11) | 6.8(6.2) | 30 |
| PFHxS | 31(4.9) | -3.37(0.02) | 3.7(1.5) | 200 |
| PFOSA | 11.4(2) | BT | 4.1(1) | 30 |
| PFOA | 4.9(0.2) | BT | 0.8(0.1) | 300 |
| PFNA | 3.6(0.7) | BT | 2.7(1.4) | 200 |
| PFOS | 3.5(0.7) | BT | 1.7(0.5) | 300 |
| HFPO-DA-AS | - | BT | - | - |
| HFPO-DA | - | BT | - | - |
| NBP2 | - | BT | - | - |
| PFBS | - | BT | - | - |
| PFHxA | - | BT | - | - |
| PFDA | - | BT | - | - |
| Et-PFOSA | - | BT | - | - |
| PFMOAA | - | BT | - | - |
| 4:2 FTOH | - | BT | - | - |
| **Fatty acids and pharmaceuticals** |
| Clofibrate | 14.5(2.6) | BT | 13.4(2.8) | 10 |
| Linoleic acid | - | BT | - | - |
| WY | - | BT | - | - |
| Octanoic acid | - | BT | - | - |
| Clofibric acid | - | BT | - | - |
| Oleic acid | - | BT | - | - |
| Values represent parameter estimate(standard error). BT = below EC20 threshold of pmaxtop ≥20%; LOEC = lowest observed effect concentration producing a ≥2 fold increase over vehicle control; AUC based on 10-300µM concentration range |

|  |
| --- |
| **Table S2.** Oral effective dose 20% (ED20), serum effective concentration 20% (EC20) and relative potency factors (RPF) for male rat liver weight increase |
|   | ED20 Liver Weight (oral mg/kg/d) | ED20 Liver Weight (oral RPF) | EC20 Liver Weight (serum µg/mL) | EC20 Liver Weight (serum mass RPF) | EC20 Liver Weight (serum µM) | EC20 Liver Weight (serum molar RPF) |
| PFBS | 87 | 0.008 | 2.8 | 18.42 | 9.4 | 13.34 |
| PFDA | 0.3981 | 1.774 | 26.4 | 1.96 | 51.4 | 2.44 |
| PFHxA | 391 | 0.002 | 2.6 | 20.14 | 8.2 | 15.31 |
| PFHxS | 2.919 | 0.242 | 132.6 | 0.39 | 331.4 | 0.38 |
| PFNA | 0.6759 | 1.045 | 63.7 | 0.82 | 137.2 | 0.91 |
| PFOA | 0.7063 | 1.000 | 51.9 | 1.00 | 125.4 | 1.00 |
| PFOS | 0.6428 | 1.099 | 50.8 | 1.02 | 101.6 | 1.23 |
| Index chemical = PFOA for RPF calculation |
| Modeled using "find EC anything" in GraphPad Prism from data reported in NTP (2019a, 2019b) |

|  |
| --- |
| **Table S3.** In vitro assay positive control performance parameters |
|   |   | Log10 EC50 (M) |   | Top fold-induction values |   | Plates |
| Assay | Positive control | Mean(SE) |   | Max | Median | Min | Mean | SD |   | N |
| hPPARα | GW 590735 | -7.74(0.04) |   | 41.2 | 23.4 | 12.5 | 24.0 | 7.4 |   | 13 |
| rPPARα | GW 590735 | -5.86(0.02) |  | 146.6 | 109.1 | 76.7 | 110.0 | 25.9 |  | 10 |
| hPPARγ | rosiglitazone | -7.00(0.03) |  | 86.2 | 48.5 | 20.8 | 45.5 | 20.4 |  | 12 |
| rPPARγ | rosiglitazone | -6.71(0.02) |  | 79.7 | 39.0 | 24.5 | 43.9 | 16.6 |  | 10 |
| hER | 17β-estradiol | -11.29(0.03) |  | 233.6 | 88.3 | 19.4 | 86.3 | 52.1 |  | 27 |
| EC50 = Effective concentration for 50% of maximum fold induction |
| Plates = number of true replicate assay plates where each assay plate contained 3-4 replicate wells per test concentration |
| PPAR = peroxisome proliferator-activated receptor, ER = estrogen receptor, h = human, r = rat |

|  |
| --- |
| **Table S4.** hPPARα assay data |
| **Chemical and Concentration** | **Mean (pmax)** | **SEM (+/-)** | **# of plates** | **# of wells (total)** |
| 100nM PFOA | -0.24 | . | 1 | 3 |
| 1uM PFOA | 0.03 | . | 1 | 3 |
| 10uM PFOA | -0.01 | 0.96 | 2 | 6 |
| 30uM PFOA | 3.10 | 0.34 | 2 | 6 |
| 100uM PFOA | 26.77 | 6.43 | 3 | 9 |
| 300uM PFOA | 68.99 | 14.53 | 2 | 6 |
| 1mM PFOA | 21.56 | 25.19 | 2 | 6 |
|  |  |  |  |  |
| 100nM PFMOAA | -0.22 | . | 1 | 3 |
| 1uM PFMOAA | -0.02 | . | 1 | 3 |
| 10uM PFMOAA | -0.21 | . | 1 | 3 |
| 30uM PFMOAA | 1.72 | 0.03 | 2 | 6 |
| 100uM PFMOAA | 2.82 | 1.12 | 3 | 9 |
| 300uM PFMOAA | 8.41 | 1.47 | 2 | 6 |
| 1mM PFMOAA | 51.14 | 9.41 | 2 | 6 |
|  |  |  |  |  |
| 100nM PFBS | 0.85 | . | 1 | 3 |
| 1uM PFBS | 0.00 | . | 1 | 3 |
| 10uM PFBS | 0.45 | . | 1 | 3 |
| 30uM PFBS | 1.82 | 0.43 | 2 | 6 |
| 100uM PFBS | 1.31 | 1.99 | 3 | 9 |
| 300uM PFBS | 19.91 | 7.21 | 2 | 6 |
| 1mM PFBS | 32.44 | 1.38 | 2 | 6 |
|  |  |  |  |  |
| 100nM NBP2 | 0.17 | . | 1 | 3 |
| 1uM NBP2 | -0.16 | . | 1 | 3 |
| 10uM NBP2 | -0.17 | 0.12 | 2 | 6 |
| 30uM NBP2 | 2.16 | 2.28 | 2 | 6 |
| 100uM NBP2 | 5.25 | 1.60 | 3 | 9 |
| 300uM NBP2 | 43.49 | 12.02 | 2 | 6 |
| 1mM NBP2 | -1.85 | 0.09 | 2 | 6 |
|  |  |  |  |  |
| 100nM HFPO-DA-AS | -0.47 | . | 1 | 3 |
| 1uM HFPO-DA-AS | 0.02 | . | 1 | 3 |
| 10uM HFPO-DA-AS | 2.78 | 1.17 | 2 | 6 |
| 30uM HFPO-DA-AS | 12.58 | 2.72 | 2 | 6 |
| 100uM HFPO-DA-AS | 85.69 | 10.90 | 3 | 9 |
| 300uM HFPO-DA-AS | 112.21 | 14.83 | 2 | 6 |
| 1mM HFPO-DA-AS | 95.52 | 13.83 | 2 | 6 |
|  |  |  |  |  |
| 30uM HFPO-DA | 10.80 | 4.27 | 2 | 6 |
| 100uM HFPO-DA | 68.65 | 23.95 | 2 | 6 |
| 300uM HFPO-DA | 91.58 | 29.66 | 2 | 6 |
| 1mM HFPO-DA | 90.94 | 42.18 | 2 | 6 |
|  |  |  |  |  |
| 100nM 6:2FTOH | -0.15 | . | 1 | 3 |
| 1uM 6:2FTOH | -0.59 | . | 1 | 3 |
| 10uM 6:2FTOH | -1.16 | . | 1 | 3 |
| 30uM 6:2FTOH | 0.42 | 0.04 | 2 | 6 |
| 100uM 6:2FTOH | -1.00 | 0.90 | 3 | 9 |
| 300uM 6:2FTOH | -1.08 | 2.34 | 2 | 6 |
| 1mM 6:2FTOH | -2.28 | 0.19 | 2 | 6 |
|  |  |  |  |  |
| 100nM Clofibrate | 0.38 | . | 1 | 3 |
| 1uM Clofibrate | 0.15 | . | 1 | 3 |
| 10uM Clofibrate | 3.80 | . | 1 | 3 |
| 100uM Clofibrate | 7.03 | 2.95 | 2 | 6 |
| 300uM Clofibrate | 9.90 | 2.55 | 2 | 6 |
| 1mM Clofibrate | 8.12 | . | 1 | 3 |
|  |  |  |  |  |
| 100nM WY14643 | -0.33 | . | 1 | 3 |
| 1uM WY14643 | -0.17 | . | 1 | 3 |
| 1.5uM WY14643 | 1.46 | . | 1 | 3 |
| 3uM WY14643 | 0.08 | . | 1 | 3 |
| 3.1uM WY14643 | 2.56 | . | 1 | 3 |
| 6.25uM WY14643 | 2.34 | . | 1 | 3 |
| 9.4uM WY14643 | 5.07 | . | 1 | 3 |
| 10uM WY14643 | 2.61 | 0.38 | 3 | 9 |
| 12.5uM WY14643 | 5.08 | 0.69 | 2 | 6 |
| 18.7uM WY14643 | 16.82 | 2.57 | 2 | 6 |
| 25uM WY14643 | 17.23 | 4.91 | 2 | 6 |
| 30uM WY14643 | 41.47 | 32.43 | 2 | 6 |
| 37.5uM WY14643 | 55.67 | 10.92 | 2 | 6 |
| 50uM WY14643 | 68.98 | 8.66 | 2 | 6 |
| 75uM WY14643 | 111.32 | 8.31 | 2 | 6 |
| 100uM WY14643 | 113.47 | 12.38 | 3 | 9 |
| 150uM WY14643 | 68.66 | . | 1 | 3 |
| 300uM WY14643 | 20.25 | . | 1 | 3 |
|  |  |  |  |  |
| 100nM PFOS | -0.25 | . | 1 | 3 |
| 1uM PFOS | 1.53 | . | 1 | 3 |
| 10uM PFOS | -0.97 | 2.12 | 2 | 6 |
| 30uM PFOS | 0.05 | 1.00 | 2 | 6 |
| 100uM PFOS | 9.36 | 5.60 | 3 | 9 |
| 300uM PFOS | 20.99 | 6.40 | 2 | 6 |
| 1mM PFOS | 7.54 | . | 1 | 3 |
|  |  |  |  |  |
| 100nM PFNA | -0.68 | . | 1 | 3 |
| 1uM PFNA | -0.79 | . | 1 | 3 |
| 10uM PFNA | -1.78 | 1.67 | 2 | 6 |
| 30uM PFNA | 0.24 | 3.09 | 2 | 6 |
| 100uM PFNA | 13.92 | 5.97 | 3 | 9 |
| 300uM PFNA | 42.53 | 7.86 | 2 | 6 |
| 1mM PFNA | -5.22 | . | 1 | 3 |
|  |  |  |  |  |
| 3uM Oleic acid | 4.29 | . | 1 | 3 |
| 10uM Oleic acid | 27.17 | . | 1 | 3 |
| 30uM Oleic acid | 84.45 | 6.83 | 2 | 6 |
| 100uM Oleic acid | 112.31 | 8.10 | 2 | 6 |
| 300uM Oleic acid | 106.46 | 11.39 | 2 | 6 |
| 1mM Oleic acid | 13.31 | . | 1 | 3 |
|  |  |  |  |  |
| 1uM Linoleic acid | 0.90 | . | 1 |  |
| 3uM Linoleic acid | 2.41 | 2.90 | 2 | 6 |
| 10uM Linoleic acid | 27.66 | 13.24 | 2 | 6 |
| 30uM Linoleic acid | 68.98 | 24.60 | 3 | 9 |
| 100uM Linoleic acid | 70.09 | 22.13 | 3 | 9 |
| 300uM Linoleic acid | 25.69 | 29.49 | 3 | 9 |
| 1mM Linoleic acid | -4.12 | . | 1 | 3 |
|  |  |  |  |  |
| 30uM Octanoic acid | 1.96 | 1.01 | 2 | 6 |
| 100uM Octanoic acid | 10.89 | 1.79 | 2 | 6 |
| 300uM Octanoic acid | 27.24 | 1.61 | 2 | 6 |
| 1mM Octanoic acid | 104.88 | 2.09 | 2 | 6 |
|  |  |  |  |  |
| 10uM Clofibric acid | 4.90 | . | 1 | 3 |
| 30uM Clofibric acid | 10.39 | 1.02 | 2 | 6 |
| 100uM Clofibric acid | 55.14 | 7.16 | 2 | 6 |
| 300uM Clofibric acid | 95.44 | 6.45 | 2 | 6 |
| 1mM Clofibric acid | 106.42 | 4.21 | 2 | 6 |
|  |  |  |  |  |
| 30uM PFHxS | -0.12 | 0.66 | 2 | 6 |
| 100uM PFHxS | 2.48 | 0.19 | 2 | 6 |
| 300uM PFHxS | 28.55 | 5.48 | 2 | 6 |
| 1mM PFHxS | 48.44 | 23.94 | 2 | 6 |
|  |  |  |  |  |
| 10uM PFDA | -0.33 | . | 1 | 3 |
| 30uM PFDA | 2.73 | 2.51 | 2 | 6 |
| 100uM PFDA | 3.33 | 3.39 | 2 | 6 |
| 300uM PFDA | 9.43 | 3.49 | 2 | 6 |
| 1mM PFDA | -2.83 | . | 1 | 3 |
|  |  |  |  |  |
| 3uM 4:2FTOH | -0.72 | . | 1 | 3 |
| 10uM 4:2FTOH | -0.74 | . | 1 | 3 |
| 30uM 4:2 FTOH | 0.32 | 0.85 | 2 | 6 |
| 100uM 4:2 FTOH | -0.34 | 0.30 | 2 | 6 |
| 300uM 4:2 FTOH | 0.26 | 0.26 | 2 | 6 |
| 1mM 4:2 FTOH | 0.25 | 1.11 | 2 | 6 |
|  |  |  |  |  |
| 30uM PFHxA | -0.09 | 0.65 | 2 | 6 |
| 100uM PFHxA | 2.09 | 1.86 | 2 | 6 |
| 300uM PFHxA | 19.96 | 12.62 | 2 | 6 |
| 1mM PFHxA | 47.65 | 23.03 | 2 | 6 |
|  |  |  |  |  |
| 1uM PFOSA | -1.23 | . | 1 | 3 |
| 3uM PFOSA | -0.59 | . | 1 | 3 |
| 10uM PFOSA | -1.12 | . | 1 | 3 |
| 30uM PFOSA | 0.12 | 0.81 | 2 | 6 |
| 100uM PFOSA | -0.78 | . | 1 | 3 |
| 300uM PFOSA | 1.21 | . | 1 | 3 |
| 1mM PFOSA | -0.70 | . | 1 | 3 |
|  |  |  |  |  |
| 30uM EtPFOSA | 0.27 | 0.29 | 2 | 6 |
| 100uM EtPFOSA | -0.43 | 0.19 | 2 | 6 |
| 300uM EtPFOSA | 5.91 | 1.33 | 2 | 6 |
| 1mM EtPFOSA | 12.94 | 4.42 | 2 | 6 |
|  |  |  |  |  |
| 30uM 8:2FTOH | -1.44 | 0.08 | 2 | 6 |
| 100uM 8:2FTOH | -0.86 | 0.62 | 2 | 6 |
| 300uM 8:2FTOH | -0.32 | 0.59 | 2 | 6 |
| 1mM 8:2FTOH | -1.08 | 0.04 | 2 | 6 |
|  |  |  |  |  |
| .412nM GW590735 | 2.23 | 0.44 | 8 | 24 |
| 1.23nM GW590735 | 3.64 | 0.75 | 13 | 39 |
| 3.7nM GW590735 | 11.33 | 2.37 | 13 | 39 |
| 11.1nM GW590735 | 31.44 | 4.50 | 13 | 39 |
| 33.3nM GW590735 | 70.64 | 5.32 | 13 | 39 |
| 100nM GW590735 | 93.87 | 6.29 | 13 | 39 |
| 300nM GW590735 | 97.46 | 4.24 | 13 | 39 |
| 30uM GW590735 | 85.02 | 2.52 | 5 | 15 |

|  |
| --- |
| **Table S5.** rPPARα assay data |
| **Chemical and Concentration** | **Mean (pmax)** | **SEM (+/-)** | **# of plates** | **# of wells (total)** |
| 10uM PFOA | 0.00 | . | 1 | 3 |
| 30uM PFOA | 0.21 | 0.00 | 2 | 6 |
| 100uM PFOA | 2.24 | 1.74 | 2 | 6 |
| 300uM PFOA | 16.54 | 2.70 | 2 | 6 |
| 1mM PFOA | -1.07 | . | 1 | 3 |
|  |  |  |  |  |
| 30uM PFMOAA | 0.17 | 0.04 | 2 | 6 |
| 100uM PFMOAA | 0.48 | 0.14 | 2 | 6 |
| 300uM PFMOAA | 1.21 | 0.40 | 2 | 6 |
| 1mM PFMOAA | 5.33 | 1.13 | 2 | 6 |
|  |  |  |  |  |
| 30uM PFBS | 0.10 | 0.12 | 2 | 6 |
| 100uM PFBS | -0.15 | 0.03 | 2 | 6 |
| 300uM PFBS | 0.32 | 0.07 | 2 | 6 |
| 1mM PFBS | 0.82 | 0.21 | 2 | 6 |
|  |  |  |  |  |
| 10uM NBP2 | 0.02 | . | 1 | 3 |
| 30uM NBP2 | 0.05 | 0.09 | 2 | 6 |
| 100uM NBP2 | 0.27 | 0.14 | 2 | 6 |
| 300uM NBP2 | 1.74 | 0.54 | 2 | 6 |
| 1mM NBP2 | -1.10 | . | 1 | 3 |
|  |  |  |  |  |
| 10uM HFPO-DA-AS | 1.24 | 0.40 | 2 | 6 |
| 30uM HFPO-DA-AS | 4.78 | 1.06 | 3 | 9 |
| 100uM HFPO-DA-AS | 24.94 | 2.81 | 3 | 9 |
| 300uM HFPO-DA-AS | 57.21 | 10.29 | 3 | 9 |
| 1mM HFPO-DA-AS | 75.53 | 2.82 | 2 | 6 |
|  |  |  |  |  |
| 30uM HFPO-DA | 3.98 | 1.70 | 2 | 6 |
| 100uM HFPO-DA | 20.95 | 5.04 | 2 | 6 |
| 300uM HFPO-DA | 59.92 | 19.70 | 2 | 6 |
| 1mM HFPO-DA | 78.14 | 21.48 | 2 | 6 |
|  |  |  |  |  |
| 30uM 6:2FTOH | 0.12 | 0.02 | 2 | 6 |
| 100uM 6:2FTOH | 0.17 | 0.02 | 2 | 6 |
| 300uM 6:2FTOH | -0.14 | 0.08 | 2 | 6 |
| 1mM 6:2FTOH | -0.31 | 0.03 | 2 | 6 |
|  |  |  |  |  |
| 30uM Clofibrate | 0.29 | 0.14 | 2 | 6 |
| 100uM Clofibrate | 0.64 | 0.27 | 2 | 6 |
| 300uM Clofibrate | 0.54 | 0.42 | 2 | 6 |
| 1mM Clofibrate | 0.62 | 0.48 | 2 | 6 |
|  |  |  |  |  |
| 3uM WY | 16.42 | 10.78 | 2 | 6 |
| 10uM WY | 53.23 | 29.82 | 2 | 6 |
| 30uM WY | 86.72 | 10.13 | 3 | 9 |
| 100uM WY | 112.99 | 3.89 | 3 | 9 |
| 300uM WY | 4.31 | . | 1 | 3 |
| 1mM WY | 18.61 | . | 1 | 3 |
|  |  |  |  |  |
| 30uM PFOS | -0.04 | 0.00 | 2 | 6 |
| 100uM PFOS | 0.27 | 0.31 | 2 | 6 |
| 300uM PFOS | 0.69 | 0.28 | 2 | 6 |
| 1mM PFOS | -0.77 | 0.10 | 2 | 6 |
|  |  |  |  |  |
| 10uM PFNA | 0.03 | . | 1 | 3 |
| 30uM PFNA | 0.25 | 0.12 | 2 | 6 |
| 100uM PFNA | 0.99 | 0.14 | 2 | 6 |
| 300uM PFNA | 10.90 | 0.65 | 2 | 6 |
| 1mM PFNA | -0.93 | . | 1 | 3 |
|  |  |  |  |  |
| 10uM Oleic | 0.31 | 0.07 | 2 | 6 |
| 30uM Oleic acid | 2.71 | 0.77 | 3 | 9 |
| 100uM Oleic acid | 7.67 | 1.92 | 3 | 9 |
| 300uM Oleic acid | 16.61 | 3.05 | 3 | 9 |
| 1mM Oleic acid | 20.43 | 10.69 | 3 | 9 |
|  |  |  |  |  |
| 10uM Linoleic acid | 0.20 | 0.07 | 3 | 9 |
| 30uM Linoleic acid | 1.05 | 0.46 | 3 | 9 |
| 100uM Linoleic acid | 2.63 | 0.60 | 3 | 9 |
| 300uM Linoleic acid | 7.67 | 7.78 | 3 | 9 |
| 1mM Linoleic acid | -1.19 | . | 1 | 3 |
|  |  |  |  |  |
| 30uM Octanoic acid | 0.04 | 0.29 | 2 | 6 |
| 100uM Octanoic acid | 0.76 | 0.42 | 2 | 6 |
| 300uM Octanoic acid | 2.73 | 0.97 | 2 | 6 |
| 1mM Octanoic acid | 12.27 | 2.89 | 2 | 6 |
|  |  |  |  |  |
| 30uM Clofibric acid | 0.50 | 0.45 | 2 | 6 |
| 100uM Clofibric acid | 2.74 | 0.81 | 2 | 6 |
| 300uM Clofibric acid | 13.26 | 2.55 | 2 | 6 |
| 1mM Clofibric acid | 30.57 | 2.55 | 2 | 6 |
|  |  |  |  |  |
| 30uM PFHxS | 0.11 | 0.01 | 2 | 6 |
| 100uM PFHxS | 0.12 | 0.00 | 2 | 6 |
| 300uM PFHxS | 0.95 | 0.23 | 2 | 6 |
| 1mM PFHxS | 2.15 | 0.77 | 2 | 6 |
|  |  |  |  |  |
| 10uM PFDA | 0.14 | . | 1 | 3 |
| 30uM PFDA | 0.07 | 0.07 | 2 | 6 |
| 100uM PFDA | 1.29 | 0.10 | 2 | 6 |
| 300uM PFDA | 5.22 | 0.21 | 2 | 6 |
| 1mM PFDA | -0.93 | . | 1 | 3 |
|  |  |  |  |  |
| 30uM 4:2 FTOH | -0.01 | 0.15 | 2 | 6 |
| 100uM 4:2 FTOH | 0.03 | 0.11 | 2 | 6 |
| 300uM 4:2 FTOH | -0.03 | 0.17 | 2 | 6 |
| 1mM 4:2 FTOH | 0.01 | 0.34 | 2 | 6 |
|  |  |  |  |  |
| 30uM PFHxA | -0.03 | 0.18 | 2 | 6 |
| 100uM PFHxA | 0.29 | 0.13 | 2 | 6 |
| 300uM PFHxA | 1.84 | 0.27 | 2 | 6 |
| 1mM PFHxA | 8.45 | 0.04 | 2 | 6 |
|  |  |  |  |  |
| 30uM PFOSA | -0.10 | 0.24 | 2 | 6 |
| 100uM PFOSA | -0.52 | 0.18 | 2 | 6 |
| 300uM PFOSA | -0.22 | 0.15 | 2 | 6 |
| 1mM PFOSA | -0.56 | 0.14 | 2 | 6 |
|  |  |  |  |  |
| 30uM EtPFOSA | 0.01 | 0.08 | 2 | 6 |
| 100uM EtPFOSA | -0.35 | 0.00 | 2 | 6 |
| 300uM EtPFOSA | -0.36 | 0.08 | 2 | 6 |
| 1mM EtPFOSA | -0.20 | 0.06 | 2 | 6 |
|  |  |  |  |  |
| 30uM 8:2FTOH | -0.19 | 0.02 | 2 | 6 |
| 100uM 8:2FTOH | -0.30 | 0.12 | 2 | 6 |
| 300uM 8:2FTOH | 0.04 | 0.04 | 2 | 6 |
| 1mM 8:2FTOH | 0.01 | 0.08 | 2 | 6 |
|  |  |  |  |  |
| 16.5nM GW590735 | 0.53 | 0.07 | 10 | 30 |
| 49.4nM GW590735 | 1.47 | 0.18 | 10 | 30 |
| 148nM GW590735 | 5.12 | 0.94 | 10 | 30 |
| 444nM GW590735 | 16.29 | 2.18 | 10 | 30 |
| 1.33uM GW590735 | 47.79 | 3.48 | 10 | 30 |
| 4uM GW590735 | 84.39 | 3.79 | 10 | 30 |
| 12uM GW590735 | 93.67 | 0.95 | 10 | 30 |





|  |
| --- |
| **Table S8.** hPPARγ assay data |
| **Chemical and Concentration** | **Mean (pmax)** | **SEM (+/-)** | **# of plates** | **# of wells (total)** |
| 100nM PFOA | -0.22 | . | 1 | 3 |
| 1uM PFOA | 0.17 | . | 1 | 3 |
| 10uM PFOA | 0.12 | 0.36 | 2 | 6 |
| 30uM PFOA | 0.07 | 0.02 | 2 | 6 |
| 100uM PFOA | 4.47 | 1.75 | 3 | 9 |
| 300uM PFOA | 31.97 | 8.50 | 2 | 6 |
| 1mM PFOA | 29.55 | 6.25 | 2 | 6 |
|  |  |  |  |  |
| 100nM PFMOAA | -0.24 | . | 1 | 3 |
| 1uM PFMOAA | -0.13 | . | 1 | 3 |
| 10uM PFMOAA | 0.27 | . | 1 | 3 |
| 30uM PFMOAA | -0.42 | 0.42 | 2 | 6 |
| 100uM PFMOAA | -0.04 | 0.13 | 3 | 9 |
| 300uM PFMOAA | 1.49 | 0.19 | 2 | 6 |
| 1mM PFMOAA | 2.61 | 0.80 | 2 | 6 |
|  |  |  |  |  |
| 100nM PFBS | -0.09 | . | 1 | 3 |
| 1uM PFBS | -0.58 | . | 1 | 3 |
| 10uM PFBS | 0.01 | . | 1 | 3 |
| 30uM PFBS | -0.51 | 0.53 | 2 | 6 |
| 100uM PFBS | 0.96 | 0.64 | 3 | 9 |
| 300uM PFBS | 3.44 | 1.30 | 2 | 6 |
| 1mM PFBS | 24.67 | 9.22 | 2 | 6 |
|  |  |  |  |  |
| 100nM NBP2 | -0.77 | . | 1 | 3 |
| 1uM NBP2 | -0.37 | . | 1 | 3 |
| 10uM NBP2 | -0.11 | 0.02 | 2 | 6 |
| 30uM NBP2 | -0.09 | 0.81 | 2 | 6 |
| 100uM NBP2 | 5.12 | 2.09 | 3 | 9 |
| 300uM NBP2 | 43.59 | 0.89 | 2 | 6 |
| 1mM NBP2 | -2.72 | 2.65 | 2 | 6 |
|  |  |  |  |  |
| 100nM HFPO-DA-AS | -0.50 | . | 1 | 3 |
| 1uM HFPO-DA-AS | 0.10 | . | 1 | 3 |
| 10uM HFPO-DA-AS | 0.48 | . | 1 | 3 |
| 30uM HFPO-DA-AS | 0.45 | 0.65 | 2 | 6 |
| 100uM HFPO-DA-AS | 5.60 | 2.18 | 3 | 9 |
| 300uM HFPO-DA-AS | 23.81 | 5.15 | 2 | 6 |
| 1mM HFPO-DA-AS | 64.04 | 2.26 | 2 | 6 |
|  |  |  |  |  |
| 30uM HFPO-DA | 0.14 | 0.30 | 2 | 6 |
| 100uM HFPO-DA | 2.27 | 1.70 | 2 | 6 |
| 300uM HFPO-DA | 12.11 | 6.02 | 2 | 6 |
| 1mM HFPO-DA | 46.38 | 14.13 | 2 | 6 |
|  |  |  |  |  |
| 100nM 6:2FTOH | -1.09 | . | 1 | 3 |
| 1uM 6:2FTOH | 0.02 | . | 1 | 3 |
| 10uM 6:2FTOH | -0.34 | . | 1 | 3 |
| 30uM 6:2FTOH | -0.35 | 0.24 | 2 | 6 |
| 100uM 6:2FTOH | -0.54 | 0.38 | 3 | 9 |
| 300uM 6:2FTOH | -0.58 | 0.50 | 2 | 6 |
| 1mM 6:2FTOH | -1.99 | 0.62 | 2 | 6 |
|  |  |  |  |  |
| 100nM Clofibrate | -0.21 | . | 1 | 3 |
| 1uM Clofibrate | -0.36 | . | 1 | 3 |
| 10uM Clofibrate | -0.65 | . | 1 | 3 |
| 30uM Clofibrate | 2.09 | 0.28 | 2 | 6 |
| 100uM Clofibrate | 2.83 | 0.90 | 3 | 9 |
| 300uM Clofibrate | 5.28 | 0.65 | 2 | 6 |
| 1mM Clofibrate | 4.43 | 1.62 | 2 | 6 |
|  |  |  |  |  |
| 100nM WY14643 | -0.66 | . | 1 | 3 |
| 1uM WY14643 | -0.44 | . | 1 | 3 |
| 10uM WY14643 | 0.54 | 0.44 | 2 | 6 |
| 30uM WY14643 | 3.05 | 1.01 | 3 | 9 |
| 50uM WY14643 | 20.74 | 0.13 | 2 |  |
| 100uM WY14643 | 52.44 | 19.46 | 3 | 9 |
| 200uM WY14643 | 99.92 | 2.37 | 2 |  |
| 300uM WY14643 | 44.78 | 3.88 | 3 | 9 |
| 1mM WY14643 | 12.60 | . | 1 | 3 |
|  |  |  |  |  |
| 100nM PFOS | -0.40 | . | 1 | 3 |
| 1uM PFOS | -0.27 | . | 1 | 3 |
| 10uM PFOS | -0.01 | 0.14 | 3 | 9 |
| 30uM PFOS | 0.29 | 0.02 | 3 | 9 |
| 100uM PFOS | 2.43 | 1.15 | 4 | 12 |
| 300uM PFOS | 20.98 | 3.89 | 3 | 9 |
| 1mM PFOS | -4.18 | . | 1 | 3 |
|  |  |  |  |  |
| 100nM PFNA | -0.73 | . | 1 | 3 |
| 1uM PFNA | -0.30 | . | 1 | 3 |
| 10uM PFNA | -0.38 | 0.22 | 2 | 6 |
| 30uM PFNA | -0.29 | 0.25 | 2 | 6 |
| 100uM PFNA | 1.69 | 0.69 | 3 | 9 |
| 300uM PFNA | 28.94 | 10.73 | 2 | 6 |
| 1mM PFNA | -4.25 | . | 1 | 3 |
|  |  |  |  |  |
| 10uM Oleic acid | 1.09 | 0.14 | 2 | 6 |
| 30uM Oleic acid | 1.57 | 0.08 | 3 | 9 |
| 100uM Oleic acid | 5.00 | 0.58 | 3 | 9 |
| 300uM Oleic acid | 10.24 | 3.80 | 3 | 9 |
| 1mM Oleic acid | 17.80 | 9.75 | 3 | 9 |
|  |  |  |  |  |
| 10uM Linoleic acid | 0.45 | 0.27 | 2 | 6 |
| 30uM Linoleic acid | 1.28 | 0.35 | 2 | 6 |
| 100uM Linoleic acid | 4.83 | 1.08 | 2 | 6 |
| 300uM Linoleic acid | 40.05 | 13.48 | 2 | 6 |
| 1mM Linoleic acid | -3.95 | . | 1 | 3 |
|  |  |  |  |  |
| 30uM Octanoic acid | 0.82 | 0.57 | 2 | 6 |
| 100uM Octanoic acid | 4.19 | 1.12 | 2 | 6 |
| 300uM Octanoic acid | 15.18 | 7.68 | 2 | 6 |
| 1mM Octanoic acid | 80.45 | 11.66 | 2 | 6 |
|  |  |  |  |  |
| 30uM Clofibric acid | 1.14 | 0.29 | 2 | 6 |
| 100uM Clofibric acid | 3.21 | 1.25 | 2 | 6 |
| 300uM Clofibric acid | 19.07 | 5.94 | 2 | 6 |
| 1mM Clofibric acid | 56.76 | 4.85 | 2 | 6 |
|  |  |  |  |  |
| 30uM PFHxS | 0.12 | 0.12 | 2 | 6 |
| 100uM PFHxS | 0.71 | 0.25 | 2 | 6 |
| 300uM PFHxS | 16.82 | 0.73 | 2 | 6 |
| 1mM PFHxS | 48.71 | 3.55 | 2 | 6 |
|  |  |  |  |  |
| 10uM PFDA | -0.57 | . | 1 | 3 |
| 30uM PFDA | -0.32 | 0.12 | 2 | 6 |
| 100uM PFDA | 0.48 | 0.67 | 2 | 6 |
| 300uM PFDA | 2.59 | 0.41 | 2 | 6 |
| 1mM PFDA | -1.59 | . | 1 | 3 |
|  |  |  |  |  |
| 3uM 4:2FTOH | 0.06 | . | 1 | 3 |
| 10uM 4:2FTOH | -0.36 | . | 1 | 3 |
| 30uM 4:2 FTOH | -0.21 | 0.04 | 2 | 6 |
| 100uM 4:2 FTOH | -0.36 | 0.04 | 2 | 6 |
| 300uM 4:2 FTOH | 0.84 | 0.81 | 2 | 6 |
| 1mM 4:2 FTOH | 0.68 | 0.36 | 2 | 6 |
|  |  |  |  |  |
| 30uM PFHxA | 0.26 | 0.33 | 3 | 9 |
| 100uM PFHxA | 0.76 | 0.59 | 3 | 9 |
| 300uM PFHxA | 2.10 | 0.22 | 3 | 9 |
| 1mM PFHxA | 13.36 | 2.26 | 3 | 9 |
|  |  |  |  |  |
| 1uM PFOSA | -0.32 | . | 1 | 3 |
| 3uM PFOSA | -0.33 | . | 1 | 3 |
| 10uM PFOSA | -0.33 | . | 1 | 3 |
| 30uM PFOSA | 0.06 | 0.31 | 2 | 6 |
| 100uM PFOSA | -0.51 | . | 1 | 3 |
| 300uM PFOSA | -1.04 | . | 1 | 3 |
| 1mM PFOSA | -1.70 | . | 1 | 3 |
|  |  |  |  |  |
| 30uM EtPFOSA | -0.21 | 0.21 | 2 | 6 |
| 100uM EtPFOSA | -0.43 | 0.03 | 2 | 6 |
| 300uM EtPFOSA | 4.30 | 1.98 | 2 | 6 |
| 1mM EtPFOSA | 12.96 | 2.04 | 2 | 6 |
|  |  |  |  |  |
| 30uM 8:2FTOH | 0.01 | 0.15 | 2 | 6 |
| 100uM 8:2FTOH | 0.10 | 0.36 | 2 | 6 |
| 300uM 8:2FTOH | 0.09 | 0.37 | 2 | 6 |
| 1mM 8:2FTOH | -0.41 | 0.10 | 2 | 6 |
|  |  |  |  |  |
| 2.44nM Rosiglitazone | 1.60 | 0.26 | 12 | 36 |
| 9.7nM Rosiglitazone | 6.41 | 1.65 | 12 | 36 |
| 39.1nM Rosiglitazone | 20.81 | 3.74 | 12 | 36 |
| 156nM Rosiglitazone | 63.20 | 5.12 | 12 | 36 |
| 625nM Rosiglitazone | 101.24 | 3.78 | 12 | 36 |
| 2.5uM Rosiglitazone | 100.05 | 1.65 | 12 | 36 |
| 10uM Rosiglitazone | 90.87 | 2.29 | 12 | 36 |

|  |
| --- |
| **Table S9.** rPPARγ assay data |
| **Chemical and Concentration** | **Mean (%max)** | **SEM (+/-)** | **# of plates** | **# of wells (total)** |
| 30uM PFOA | 1.04 | 1.00 | 2 | 6 |
| 100uM PFOA | 2.77 | 2.40 | 2 | 6 |
| 300uM PFOA | 13.35 | 3.38 | 2 | 6 |
| 1mM PFOA | 17.24 | 4.23 | 2 | 6 |
|  |  |  |  |  |
| 30uM PFMOAA | 1.41 | 1.22 | 2 | 6 |
| 100uM PFMOAA | 0.01 | 0.17 | 2 | 6 |
| 100uM PFMOAA | 1.09 | 1.03 | 2 | 6 |
| 300uM PFMOAA | 1.12 | 0.17 | 2 | 6 |
|  |  |  |  |  |
| 30uM PFBS | 0.12 | 0.61 | 2 | 6 |
| 100uM PFBS | 1.00 | 0.02 | 2 | 6 |
| 300uM PFBS | 3.54 | 0.57 | 2 | 6 |
| 1mM PFBS | 15.19 | 3.16 | 2 | 6 |
|  |  |  |  |  |
| 10uM NBP2 | 0.90 | . | 1 | 3 |
| 30uM NBP2 | 0.31 | 0.67 | 2 | 6 |
| 100uM NBP2 | 2.04 | 1.36 | 2 | 6 |
| 300uM NBP2 | 23.08 | 1.61 | 2 | 6 |
| 1mM NBP2 | -0.91 | . | 1 | 3 |
|  |  |  |  |  |
| 30uM HFPO-DA-AS | 0.29 | 0.31 | 2 | 6 |
| 100uM HFPO-DA-AS | 2.36 | 1.13 | 2 | 6 |
| 300uM HFPO-DA-AS | 13.34 | 3.83 | 2 | 6 |
| 1mM HFPO-DA-AS | 29.34 | 8.23 | 2 | 6 |
|  |  |  |  |  |
| 30uM HFPO-DA | 0.23 | 0.80 | 3 | 9 |
| 100uM HFPO-DA | 1.22 | 0.91 | 3 | 9 |
| 300uM HFPO-DA | 7.58 | 3.18 | 3 | 9 |
| 1mM HFPO-DA | 38.33 | 12.13 | 3 | 9 |
|  |  |  |  |  |
| 30uM 6:2FTOH | -0.24 | 0.31 | 2 | 6 |
| 100uM 6:2FTOH | -0.01 | 0.85 | 2 | 6 |
| 300uM 6:2FTOH | -0.57 | 0.22 | 2 | 6 |
| 1mM 6:2FTOH | -1.41 | 0.14 | 2 | 6 |
|  |  |  |  |  |
| 30uM Clofibrate | 3.27 | 2.08 | 2 | 6 |
| 100uM Clofibrate | 2.11 | 0.67 | 2 | 6 |
| 300uM Clofibrate | 3.38 | 1.38 | 2 | 6 |
| 1mM Clofibrate | 2.21 | 0.55 | 2 | 6 |
|  |  |  |  |  |
| 10uM WY | 0.60 | . | 1 | 3 |
| 30uM WY | 0.98 | 0.56 | 3 | 9 |
| 100uM WY | 16.97 | 2.81 | 3 | 9 |
| 300uM WY | 10.70 | 8.92 | 3 | 9 |
| 1mM WY | 0.43 | 2.94 | 3 | 9 |
|  |  |  |  |  |
| 10uM PFOS | 1.22 | . | 1 | 3 |
| 30uM PFOS | 0.14 | 0.64 | 2 | 6 |
| 100uM PFOS | 1.98 | 1.12 | 2 | 6 |
| 300uM PFOS | 17.46 | 5.82 | 2 | 6 |
| 1mM PFOS | -1.71 | . | 1 | 3 |
|  |  |  |  |  |
| 10uM PFNA | 0.72 | . | 1 | 3 |
| 30uM PFNA | -0.38 | 0.46 | 2 | 6 |
| 100uM PFNA | 0.37 | 0.40 | 2 | 6 |
| 300uM PFNA | 14.88 | 6.42 | 2 | 6 |
| 1mM PFNA | -2.58 | . | 1 | 3 |
|  |  |  |  |  |
| 10uM Oleic acid | 0.23 | . | 1 | 3 |
| 30uM Oleic acid | 1.16 | 0.18 | 2 | 6 |
| 100uM Oleic acid | 5.80 | 2.04 | 2 | 6 |
| 300uM Oleic acid | 12.90 | 8.69 | 2 | 6 |
| 1mM Oleic acid | 23.66 | 0.87 | 2 | 6 |
|  |  |  |  |  |
| 10uM Linoleic acid | 1.71 | 0.90 | 4 | 12 |
| 30uM Linoleic acid | 5.93 | 3.01 | 4 | 12 |
| 100uM Linoleic acid | 4.44 | 2.56 | 4 | 12 |
| 300uM Linoleic acid | 2.14 | 4.45 | 4 | 12 |
| 1mM Linoleic acid | -2.06 | 0.55 | 2 | 6 |
|  |  |  |  |  |
| 30uM Octanoic acid | 1.33 | 0.40 | 2 | 6 |
| 100uM Octanoic acid | 2.12 | 0.96 | 2 | 6 |
| 300uM Octanoic acid | 8.58 | 0.59 | 2 | 6 |
| 1mM Octanoic acid | 60.46 | 7.40 | 2 | 6 |
|  |  |  |  |  |
| 30uM Clofibric acid | 1.02 | 0.19 | 2 | 6 |
| 100uM Clofibric acid | 2.02 | 0.35 | 2 | 6 |
| 300uM Clofibric acid | 11.06 | 1.26 | 2 | 6 |
| 1mM Clofibric acid | 39.28 | 1.65 | 2 | 6 |
|  |  |  |  |  |
| 30uM PFHxS | 0.41 | 0.53 | 4 | 12 |
| 100uM PFHxS | 1.52 | 0.84 | 4 | 12 |
| 300uM PFHxS | 17.56 | 3.81 | 4 | 12 |
| 1mM PFHxS | 8.93 | 7.66 | 4 | 12 |
|  |  |  |  |  |
| 30uM PFDA | -0.59 | 0.08 | 2 | 6 |
| 100uM PFDA | 0.39 | 0.08 | 2 | 6 |
| 300uM PFDA | 1.05 | 0.58 | 2 | 6 |
| 1mM PFDA | -2.32 | 0.05 | 2 | 6 |
|  |  |  |  |  |
| 30uM 4:2 FTOH | 0.00 | 0.43 | 2 | 6 |
| 100uM 4:2 FTOH | -0.47 | 0.03 | 2 | 6 |
| 300uM 4:2 FTOH | -0.32 | 0.37 | 2 | 6 |
| 1mM 4:2 FTOH | -0.19 | 0.10 | 2 | 6 |
|  |  |  |  |  |
| 30uM PFHxA | -0.34 | 0.78 | 2 | 6 |
| 100uM PFHxA | -0.09 | 0.12 | 2 | 6 |
| 300uM PFHxA | 2.97 | 0.36 | 2 | 6 |
| 1mM PFHxA | 12.26 | 1.79 | 2 | 6 |
|  |  |  |  |  |
| 1uM PFOSA | -0.49 | . | 1 | 3 |
| 3uM PFOSA | -0.47 | . | 1 | 3 |
| 10uM PFOSA | -0.56 | . | 1 | 3 |
| 30uM PFOSA | 0.06 | 0.22 | 3 | 9 |
| 100uM PFOSA | -1.16 | 0.13 | 2 | 6 |
| 300uM PFOSA | -1.98 | 0.09 | 2 | 6 |
| 1mM PFOSA | -2.34 | 0.04 | 2 | 6 |
|  |  |  |  |  |
| 30uM EtPFOSA | -0.48 | 0.16 | 2 | 6 |
| 100uM EtPFOSA | -1.28 | 0.21 | 2 | 6 |
| 300uM EtPFOSA | 0.06 | 0.09 | 2 | 6 |
| 1mM EtPFOSA | 12.92 | 0.96 | 2 | 6 |
|  |  |  |  |  |
| 30uM 8:2FTOH | -0.03 | 0.10 | 2 | 6 |
| 100uM 8:2FTOH | -0.07 | 0.29 | 2 | 6 |
| 300uM 8:2FTOH | -0.29 | 0.07 | 2 | 6 |
| 1mM 8:2FTOH | -0.76 | 0.21 | 2 | 6 |
|  |  |  |  |  |
| 4.11nM Rosiglitazone | 1.34 | 0.15 | 10 | 30 |
| 12.3nM Rosiglitazone | 3.71 | 0.25 | 10 | 30 |
| 37nM Rosiglitazone | 9.87 | 0.51 | 10 | 30 |
| 111nM Rosiglitazone | 31.55 | 1.32 | 10 | 30 |
| 333nM Rosiglitazone | 67.92 | 4.06 | 10 | 30 |
| 1uM Rosiglitazone | 90.68 | 4.48 | 10 | 30 |
| 3uM Rosiglitazone | 94.60 | 2.20 | 10 | 30 |

|  |
| --- |
| **Table S10.** hER assay data |
| **Chemical and Concentration** | **Mean (pmax)** | **SEM (+/-)** | **# of plates** | **# of wells (total)** |
| 10nM PFOA | -0.24 | 0 | 2 | 8 |
| 100nM PFOA | -0.28 | 0.09 | 2 | 8 |
| 1uM PFOA | -0.25 | 0.01 | 2 | 8 |
| 10uM PFOA | -0.11 | 0.02 | 2 | 8 |
| 30uM PFOA | 0.14 | . | 1 | 4 |
| 100uM PFOA | -0.35 | 0.32 | 5 | 20 |
| 200uM PFOA | 1.01 | . | 1 | 4 |
| 250uM PFOA | 1.44 | . | 1 |  |
| 300uM PFOA | 2.95 | 0.71 | 4 | 16 |
| 500uM PFOA | 4.93 | 0.25 | 2 | 8 |
| 1mM PFOA | 1.14 | 1.14 | 4 | 16 |
|  |  |  |  |  |
| 10nM PFMOAA | -0.1 | 0.04 | 2 | 8 |
| 100nM PFMOAA | -0.03 | 0.01 | 2 | 8 |
| 1uM PFMOAA | 0 | 0.12 | 2 | 8 |
| 10uM PFMOAA | 0.27 | 0.1 | 2 | 8 |
| 100uM PFMOAA | 0.04 | 0.04 | 3 | 12 |
| 300uM PFMOAA | -0.12 | . | 1 | 4 |
| 1mM PFMOAA | -0.15 | . | 1 | 4 |
|  |  |  |  |  |
| 10nM PFBS | -0.11 | 0.12 | 2 | 8 |
| 100nM PFBS | -0.23 | 0.12 | 2 | 8 |
| 1uM PFBS | -0.29 | 0.05 | 2 | 8 |
| 10uM PFBS | -0.33 | 0.02 | 2 | 8 |
| 100uM PFBS | -0.37 | 0.06 | 3 | 12 |
| 300uM PFBS | -0.35 | . | 1 | 4 |
| 1mM PFBS | -0.21 | . | 1 | 4 |
|  |  |  |  |  |
| 100nM NBP2 | -0.25 | . | 1 | 4 |
| 1uM NBP2 | -0.4 | . | 1 | 4 |
| 10uM NBP2 | -0.39 | . | 1 | 4 |
| 30uM NBP2 | -1.17 | . | 1 | 4 |
| 100uM NBP2 | -0.38 | 0.29 | 3 | 12 |
| 300uM NBP2 | 0.72 | 0.51 | 2 | 8 |
| 1mM NBP2 | 0.39 | 0.25 | 2 | 8 |
|  |  |  |  |  |
| 30uM HFPO-DA-AS | -1.35 | . | 1 | 4 |
| 100uM HFPO-DA-AS | -1.04 | 0.76 | 2 | 8 |
| 300uM HFPO-DA-AS | -1.13 | 0.84 | 2 | 8 |
| 1mM HFPO-DA-AS | -1.07 | 0.78 | 2 | 8 |
|  |  |  |  |  |
| 30uM HFPO-DA | -0.64 | . | 1 | 4 |
| 100uM HFPO-DA | -1.04 | 0.8 | 2 | 8 |
| 300uM HFPO-DA | -1.23 | 0.96 | 2 | 8 |
| 1mM HFPO-DA | -1.17 | 0.92 | 2 | 8 |
|  |  |  |  |  |
| 10nM 6:2FTOH | -0.82 | 0.03 | 2 | 8 |
| 100nM 6:2FTOH | -0.86 | 0.01 | 2 | 8 |
| 300nM 6:2FTOH | 0.07 | 0 | 2 | 8 |
| 1uM 6:2FTOH | -0.44 | 0.24 | 4 | 16 |
| 3uM 6:2FTOH | 0 | 0.05 | 2 | 8 |
| 10uM 6:2FTOH | -0.18 | 0.2 | 4 | 16 |
| 30uM 6:2FTOH | 3.31 | 3.22 | 4 | 16 |
| 100uM 6:2FTOH | 4.3 | 1.14 | 7 | 28 |
| 300uM 6:2FTOH | 12.45 | 7.87 | 5 | 20 |
| 1mM 6:2FTOH | 46.07 | 17.42 | 5 | 20 |
|  |  |  |  |  |
| 100nM Clofibrate | -0.42 | . | 1 | 4 |
| 300nM Clofibrate | -0.3 | . | 1 | 4 |
| 1uM Clofibrate | -0.01 | . | 1 | 4 |
| 3uM Clofibrate | 0.61 | . | 1 | 4 |
| 10uM Clofibrate | 6.78 | 1.96 | 3 | 12 |
| 30uM Clofibrate | 12.15 | 2.56 | 3 | 12 |
| 100uM Clofibrate | 14.49 | 2.62 | 4 | 16 |
| 300uM Clofibrate | 13.15 | 2.82 | 4 | 16 |
| 1mM Clofibrate | 12.61 | 1.11 | 3 | 12 |
|  |  |  |  |  |
| 3uM WY | 0.13 | 0.15 | 2 | 8 |
| 10uM WY | 0.99 | 0.29 | 2 | 8 |
| 30uM WY | 0.45 | 0.67 | 3 | 12 |
| 100uM WY | -0.41 | 0.84 | 3 | 12 |
| 300uM WY | -2.93 | 0.84 | 3 | 12 |
| 1mM WY | -3.17 | 0.98 | 3 | 12 |
|  |  |  |  |  |
| 10nM PFOS | -0.77 | 0.01 | 2 | 8 |
| 100nM PFOS | -0.66 | 0.03 | 2 | 8 |
| 1uM PFOS | -0.66 | 0.03 | 2 | 8 |
| 10uM PFOS | -0.49 | 0.06 | 2 | 8 |
| 30uM PFOS | -1.5 | 1.57 | 3 | 12 |
| 100uM PFOS | -1.15 | 0.76 | 6 | 24 |
| 200uM PFOS | 2.13 | . | 1 | 4 |
| 300uM PFOS | 3.51 | 0.7 | 4 | 16 |
| 500uM PFOS | 0.15 | . | 1 | 4 |
| 1mM PFOS | -1.65 | 0.4 | 2 | 8 |
|  |  |  |  |  |
| 10nM PFNA | -0.34 | 0.06 | 2 | 8 |
| 100nM PFNA | -0.55 | 0.01 | 2 | 8 |
| 1uM PFNA | -0.69 | 0.05 | 2 | 8 |
| 10uM PFNA | -1.8 | 1.35 | 3 | 12 |
| 30uM PFNA | 3.33 | 5.63 | 3 | 12 |
| 100uM PFNA | 0.26 | 1.44 | 6 | 24 |
| 200uM PFNA | 4.43 | . | 1 | 4 |
| 300uM PFNA | 3.63 | 0.72 | 4 | 16 |
| 500uM PFNA | 0.42 | . | 1 | 4 |
| 1mM PFNA | -1.83 | 0.53 | 2 | 8 |
|  |  |  |  |  |
| 10uM Oleic acid | 0.49 | . | 1 | 4 |
| 30uM Oleic acid | -0.58 | 1.12 | 2 | 8 |
| 100uM Oleic acid | 0.26 | 1.23 | 3 | 12 |
| 300uM Oleic acid | 0.59 | 1.71 | 3 | 12 |
| 1mM Oleic acid | 1.32 | 2.32 | 2 | 8 |
|  |  |  |  |  |
| 30uM Linoleic acid | -1.79 | . | 1 | 4 |
| 100uM Linoleic acid | -1.21 | 0.75 | 3 | 12 |
| 300uM Linoleic acid | -1.92 | 1.08 | 3 | 12 |
| 1mM Linoleic acid | -2.11 | 1 | 3 | 12 |
|  |  |  |  |  |
| 30uM Octanoic acid | -1.04 | . | 1 | 4 |
| 100uM Octanoic acid | -1.04 | 0.79 | 2 | 8 |
| 300uM Octanoic acid | -1.21 | 1.02 | 2 | 8 |
| 1mM Octanoic acid | -0.85 | 1.06 | 2 | 8 |
|  |  |  |  |  |
| 10uM Clofibric acid | 1.15 | . | 1 | 4 |
| 30uM Clofibric acid | 0.62 | 0.84 | 2 | 8 |
| 100uM Clofibric acid | 0.29 | 0.44 | 3 | 12 |
| 300uM Clofibric acid | 0.87 | 1.24 | 3 | 12 |
| 1mM Clofibric acid | 2.19 | 2.63 | 3 | 12 |
|  |  |  |  |  |
| 30uM PFHxS | 0.17 | 0.31 | 3 | 12 |
| 100uM PFHxS | 0.01 | 0.27 | 3 | 12 |
| 200uM PFHxS | 8.21 | 1.96 | 2 | 8 |
| 300uM PFHxS | 4.61 | 4.4 | 3 | 12 |
| 500uM PFHxS | 31 | 4.919 | 2 | 8 |
| 1mM PFHxS | 18.69 | 9.97 | 4 | 16 |
|  |  |  |  |  |
| 30uM PFDA | 0.22 | 0.12 | 2 | 8 |
| 100uM PFDA | -0.19 | 0.21 | 2 | 8 |
| 300uM PFDA | 0.47 | 0.36 | 2 | 8 |
| 1mM PFDA | -0.57 | 0.21 | 2 | 8 |
|  |  |  |  |  |
| 30uM 4:2 FTOH | -0.08 | 0.16 | 2 | 8 |
| 100uM 4:2 FTOH | -0.04 | 0.14 | 2 | 8 |
| 300uM 4:2 FTOH | 0.1 | 0.23 | 2 | 8 |
| 1mM 4:2 FTOH | 0.14 | 0.31 | 2 | 8 |
|  |  |  |  |  |
| 30uM PFHxA | -0.1 | 0.17 | 2 | 8 |
| 100uM PFHxA | -0.22 | 0.17 | 2 | 8 |
| 300uM PFHxA | -0.19 | 0.15 | 2 | 8 |
| 1mM PFHxA | 0.06 | 0.16 | 2 | 8 |
|  |  |  |  |  |
| 1uM PFOSA | -0.3 | . | 1 | 4 |
| 3uM PFOSA | -0.17 | 0.11 | 2 | 8 |
| 10uM PFOSA | 0.17 | 0.18 | 2 | 8 |
| 30uM PFOSA | 4.15 | 1.09 | 5 | 20 |
| 100uM PFOSA | 11.38 | 1.98 | 5 | 20 |
| 200uM PFOSA | 0.08 | . | 1 | 4 |
| 300uM PFOSA | -0.48 | 0.27 | 4 | 16 |
| 500uM PFOSA | -1.31 | . | 1 | 4 |
| 1mM PFOSA | -1.31 | 0.69 | 3 | 12 |
|  |  |  |  |  |
| 1uM EtPFOSA | -0.06 | . | 1 | 4 |
| 3uM EtPFOSA | -0.16 | . | 1 | 4 |
| 10uM EtPFOSA | -0.01 | . | 1 | 4 |
| 30uM EtPFOSA | 0.61 | 0.26 | 3 | 12 |
| 100uM EtPFOSA | 0.03 | 0.25 | 3 | 12 |
| 300uM EtPFOSA | -0.05 | 0.23 | 3 | 12 |
| 1mM EtPFOSA | -0.62 | 0.23 | 2 | 8 |
|  |  |  |  |  |
| 300nM 8:2FTOH | 0.43 | . | 1 | 4 |
| 1uM 8:2FTOH | 0.18 | . | 1 | 4 |
| 3uM 8:2FTOH | 0.51 | . | 1 | 4 |
| 10uM 8:2FTOH | 2.9 | . | 1 | 4 |
| 30uM 8:2FTOH | 44.1 | 15.88 | 2 | 8 |
| 100uM 8:2FTOH | 57.23 | 17.9 | 2 | 8 |
| 300uM 8:2FTOH | 44.83 | 23.35 | 2 | 8 |
| 1mM 8:2FTOH | 8.1 | 0.19 | 2 | 8 |
|  |  |  |  |  |
| 30fM E2 | -0.34 | . | 1 | 4 |
| 100fM E2 | 0.11 | . | 1 | 4 |
| 300fM E2 | 1.37 | 0.26 | 22 | 88 |
| 1pM E2 | 8.65 | 1.15 | 27 | 108 |
| 3pM E2 | 30.8 | 2.97 | 27 | 108 |
| 10pM E2 | 71.75 | 4.55 | 27 | 108 |
| 30pM E2 | 90.58 | 2.46 | 27 | 108 |
| 100pM E2 | 94.46 | 1.41 | 10 | 40 |