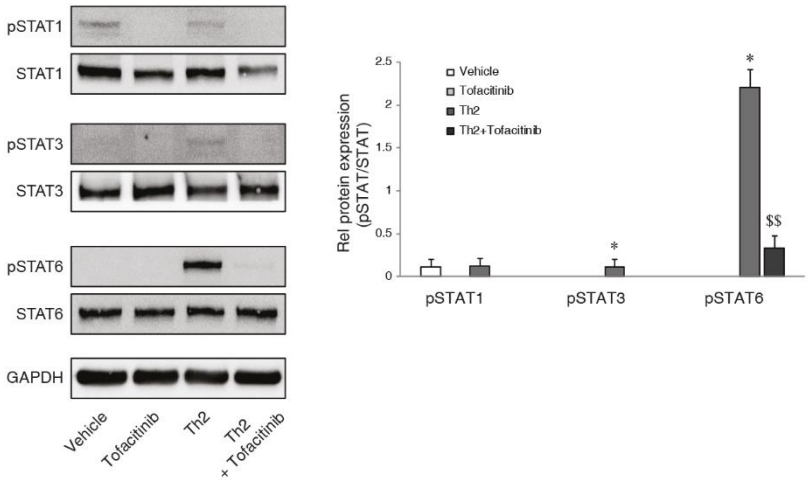


**Figure S1.** Effects of tofacitinib on STAT signalling (STAT1, STAT3, and STAT6) and their phosphorylated forms. Western blot analysis of pSTAT1/STAT1, pSTAT3/STAT3, and pSTAT6/STAT6 protein expression performed on 3D HEEs and HEEs treated with Th2 cytokines and tofacitinib. Representative blots are shown. GAPDH was used as endogenous loading control. Densitometric scanning of band intensities was performed to quantify the change in protein expression. Data represented the mean ± SD of three independent experiments; *$p<0.05$ vs vehicle; $^{\$\$}p<0.01$ vs Th2.

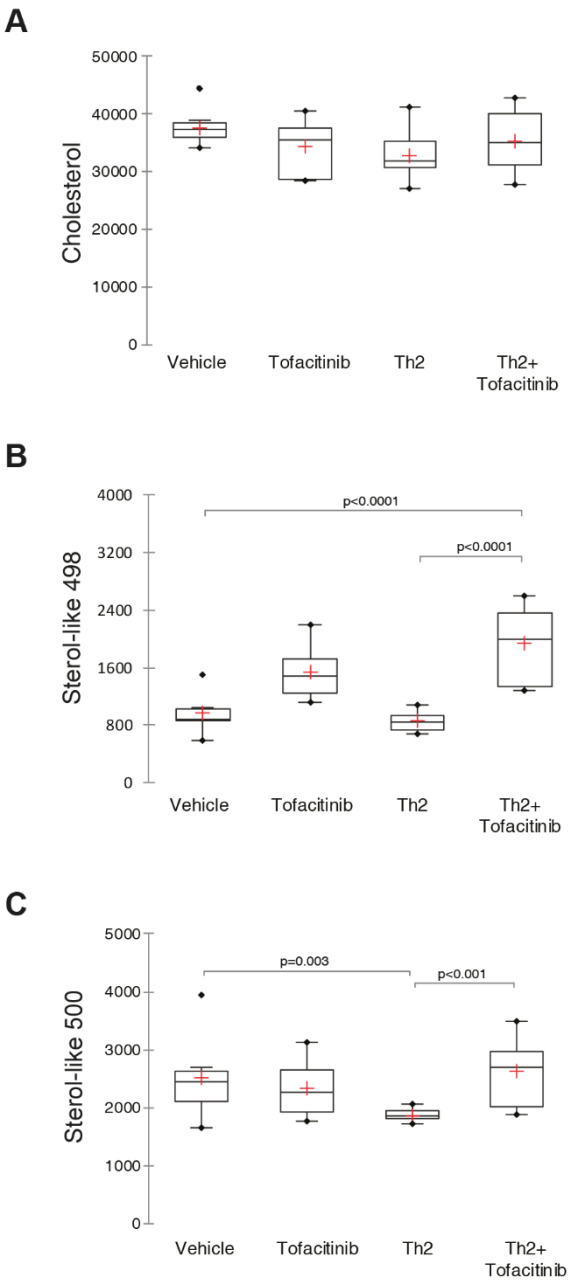


**Figure S2**. Box plots of cholesterol and sterol like metabolites. Concentration of (**A**) cholesterol and (**B,C**) congeners quantified in lipid extracts of 3D HEEs treated with vehicle, tofacitinib, Th2 cytokines, and with the combined tofacitinib and Th2 cytokines against deuterated cholesterol.

| 330713 \| Deuterated Ceramide LIPIDOMIX® | | | | |
|---|---|---|---|---|
| **Compound name** | **Formula** | **Molecular weight** | **Exact mass** | **Conc µM** |
| C16 Ceramide-d7 (d18:1-d7/16:0) | C34H60D7NO3 | 544.94 | 544.5560 | 8 |
| C18 Ceramide-d7 (d18:1-d7/18:0) | C36H64D7NO3 | 573.00 | 572.5873 | 4 |
| C24 Ceramide-d7 (d18:1-d7/24:0) | C42H72D7NO3 | 657.16 | 652.6499 | 8 |
| C24:1 Ceramide-d7 (d18:1-d7/24:1(15Z)) | C42H74D7NO3 | 655.14 | 654.6656 | 4 |
| **330731 \| EquiSPLASH™ LIPIDOMIX®** | | | | |
| **Compound name** | **Formula** | **Molecular weight** | **Exact mass** | **Conc µM** |
| 15:0-18:1(d7) PC | C41H73D7NO8P | 753.11 | 752.6061 | 27 |
| 18:1(d7) Lyso PC | C26H45D7NO7P | 528.72 | 528.3921 | 38 |
| 15:0-18:1(d7) PE | C38H67D7NO8P | 711.03 | 710.5591 | 28 |
| 18:1(d7) Lyso PE | C23H39D7NO7P | 486.64 | 486.3451 | 41 |
| 15:0-18:1(d7) PG (Na Salt) | C39H67D7NaO10P | 764.02 | 763.5357 | 26 |
| 15:0-18:1(d7) PI (NH4 Salt) | C42H75D7NO13P | 847.13 | 846.5963 | 24 |
| 15:0-18:1(d7) PS (Na Salt) | C39H66D7NNaO10P | 777.02 | 776.5309 | 26 |
| 15:0-18:1(d7)-15:0 TG | C51H89D7O6 | 812.37 | 811.7646 | 25 |
| 15:0-18:1(d7) DG | C36H61D7O5 | 587.98 | 587.5506 | 34 |
| 18:1(d7) MG | C21H33D7O4 | 363.59 | 363.3366 | 55 |
| 18:1(d7) Chol Ester | C45H71D7O2 | 658.16 | 657.6441 | 30 |
| d18:1-18:1(d9) SM | C41H72D9N2O6P | 738.12 | 737.6397 | 27 |
| C15 Ceramide-d7 (d18:1-d7/15:0) | C33H58D7NO3 | 530.92 | 530.5404 | 38 |
| **In-house Standards MIX** | | | | |
| **Compound name** | **Formula** | **Molecular weight** | **Exact mass** | **Conc µM** |
| Hexadecanoic-d17 Acid (d17-PA) | C16H15D17O2 | 273.53 | 273.3469 | 80 |
| n-Hexadecyl-1,1,2,2-d4 Hexadecanoate-16,16,16-d3 (d17-PA) | C32H57D7O2 | 487.90 | 487.5346 | 40 |
| Glyceryl trihexadecanoate-d98 (d98TG 48:0) | C51D98O6 | 905.92 | 905.3515 | 20 |
| Deuterated cholesterol sulfate sodium salt (d7-CHS) | C27H38D7NaO4S | 495.34 | 495.3376 | 20 |
| N-palmitoyl-d31-D-erythro-sphingosine (d31-Cer16:0) | C34H37D30NO3 | 569.10 | 567.7004 | 1 |
| Deuterated cholesterol-2,2,3,4,4,6-d6 | C27H40D6O | 392.70 | 392.3925 | 40 |

**Table S1.** List of the deuterated internal standards used for extraction protocol and semi-quantitative analyses.

| Oligonucleotide sequences (5′-3′) | Amplicone size | Accession number |
|---|---|---|
| **ABCA12**<br>sense: ACAGGAATGGCCTTCATCAC<br>antisense: AACATGGTGCCCTGAGAAAC | 317 bp | NM_015657.4 |
| **ACADS**<br>sense: CCTCAGCGAACCAGGGAAC<br>antisense: TTCAGAACCCATGAGTCGCC | 81 bp | NM_000017.4 |
| **ACAT1**<br>sense: GGAGGCTGGTGCAGGAAA<br>antisense: TCCAATGGGTGTTCTTGTAGC | 101 bp | NM_001386677.1 |
| **ACOX1**<br>sense: CGCCGAGAGATCGAGAACAT<br>antisense: GACAGCCACCTCATAACGCT | 96 bp | NM_004035.7 |
| **ALOX3**<br>sense: CACCTACACCAATTTCTGCCTTCC<br>antisense: GCCCACGATTTCTGAGACAAAGC | 133 bp | NM_021628.3 |
| **ALOX12B**<br>sense: GCTGCTGGTGCTCTGGAC<br>antisense: CTGGCGGATGTCGTGTGAG | 151 bp | NM_001139.3 |
| **CA2**<br>sense: AACAATGGTCATGCTTTCAACG<br>antisense: TGTCCATCAAGTGAACCCCAG | 128 bp | NM_000067.3 |
| **CASP14**<br>sense: ACATCGCCTACCGACATGATC<br>antisense: CCGGGTCACCTCTGTCAGAA | 110 bp | NM_012114.3 |
| **CCL26**<br>sense: GCTGCTTCCAATACAGCCACA<br>antisense:TCCTTGGATGGGTACAGACTTTC | 135 bp | NM_001371936.1 |
| **CD36**<br>sense: CTCTTTCCTGCAGCCCAATG<br>antisense: CTGCCACAGCCAGATTGAGA | 95 bp | NM_001001548.3 |
| **CERS1**<br>sense: CAATGTGGGCATCCTTGTGCT<br>antisense: AGTAGAGGCGGAACCAGAAC | 176 bp | NM_001387443.1 |
| **CERS2**<br>sense: GCCAGGTAGAGCGTTGGTTC<br>antisense: GGCAATGAAGGCAATCAGGT | 113 bp | NM_181746.4 |
| **CERS3**<br>sense: TCTCTGCTGACTGCATCTATTG<br>antisense:GAAGCCAGAATCTTTCCAACC | 145 bp | NM_001290341.2 |
| **CERS4**<br>sense: GCAGTATCAGCAAGTGTGCG<br>antisense: CCTGTTGCTGATGGACTCGT | 124 bp | NM_024552.3 |
| **CERS5**<br>sense: TGACACCCTTTTTGTGATCTTCA<br>antisense: GAAGCATAAGGCCCGATTAT | 120 bp | NM_001331069.3 |

| | | |
|---|---|---|
| **CERS6**<br>sense: GGGCGGACCTGAAGAACAC<br>antisense: CGCACGGTTTGGCTACAAAT | 129 bp | NM_203463.3 |
| **CPT1*α***<br>sense**:** CGTCTTTTGGGATCCACGATT<br>antisense TGTGCTGGATGGTGTCTGTCTC | 100 bp | NM_001876.4 |
| **DEGS1**<br>sense: GTCTACACCGACCAGCCG<br>antisense: GCATAGGCCCCAAATATGACC | 188 bp | NM_001321541.2 |
| **DEGS2**<br>sense: GGTGCCTGTGCCCTACATTA<br>antisense: GGCCTCAAGCTCCACTCATC | 135 bp | NM_206918.3 |
| **DHCR7**<br>sense: GCAGGGGTTGTGAACAAGTAT<br>antisense:GAGACGGCATAGCCAAGGAT | 167 bp | NM_001360.3 |
| **DHCR24**<br>sense: AGTCCAGTTCCCCGTTTA<br>antisense: CTTACCCAGCACCTTCAA | 163 bp | NM_014762.4 |
| **ELOVL1**<br>sense: CCAAGGTCAAGGCCAACTGA<br>antisense: CTGACGGACACTGCCCTAAG | 87 bp | NM_001256401.2 |
| **ELOVL2**<br>sense: CTCCCTCTTGTGCCAGTCAG<br>antisense: GACTCCAGTGCTTGCTCAGA | 106 bp | NM_017770.4 |
| **ELOVL3**<br>sense: CAATGAAGCTCCAGGCTCTC<br>antisense: AACCATGCAGGTAAGGCAAC | 90 bp | NM_152310.3 |
| **ELOVL4**<br>sense: CCGGAATGGTCAAATCTCTCC<br>antisense: ACACCATCATCATCAAGCCTC | 111 bp | NM_022726.4 |
| **ELOVL5**<br>sense: AGGAAGGGTGTAGGGTGAGT<br>antisense: AACCAGTTCCCCATTGCTCA | 181 bp | NM_001242830.2 |
| **ELOVL6**<br>sense: CTTTTGTTCAGTTGCCCCGG<br>antisense: TTCGGCTCACCTCTTTTCCC | 175 bp | NM_001130721.2 |
| **ELOVL7**<br>sense: TATTCACGGTCACCCACAGC<br>antisense: CCAAACCACCTGCAGCAAAT | 199 bp | NM_001104558.2 |
| **FADS-2**<br>sense: TGTCTACAGAAAACCCAAGTGG<br>antisense: TGTGGAAGATGTTAGGCTTGG | 128 bp | NM_001281502 |
| **FAS**<br>sense: GACCGCTTCCGAGATTCC<br>antisense: GATGGCAGTCAGGCTCAC | 137 bp | NM_004104 |
| **FLG** | | |

| | | |
|---|---|---|
| sense: GAAGACAAGGATCGCACCAG<br>antisense: ATGGTGTCCTGACCCTCTTG | 76 bp | NM_002016.2 |
| **GAPDH**<br>sense: TGCACCACCAACTGCTTAGC<br>antisense: GGCATGGACTGTGGTCATGAG | 198 bp | NM_001289746 |
| **HMGB1**<br>sense: GTGCCTCGCTGAGGAAAAAT<br>antisense: TCCTCCCGACAAGTTTGCAC | 105 bp | NM_001363661.2 |
| **HMG-CoA reductase**<br>sense: AGCTACAATGTTGTCAAGAC<br>antisense: GCAGATGGTCAGTGTCAC | 97 bp | NM_000859.3 |
| **HMG-CoA synthase**<br>sense: GTATGCCCTGGTAGTTGCAGGAG<br>antisense: TGTTGCATATGTGTCCCACGAA | 147 bp | NM_001324220.2 |
| **IL-1$\alpha$**<br>sense: CGCCAATGACTCAGAGGAAGA<br>antisense: AGGGCGTCATTCAGGATGAA | 120 bp | NM_000575 |
| **IL-1β**<br>sense: CTGAGCTCGCCAGTGAAATG<br>antisense: TTTAGGGCCATCAGCTTCAAA | 77 bp | NM_000576.2 |
| **IL-6**<br>sense: AGCCACTCACCTCTTCAGAACG<br>antisense: GGTTCAGGTTGTTTTCTGCCAG | 141 bp | NM_000600 |
| **IL-8**<br>sense: CTTGGCAGCCTTCCTGATTTC<br>antisense: TTCTGTGTTGGCGCAGTGTG | 168 bp | NM_000584 |
| **IVL**<br>sense: ACCCATCAGGAGCAAATGAAA<br>antisense: GCTCGACAGGCACCTTCTGGC | 67 bp | NM_005547.4 |
| **K6**<br>sense: AGTCCTGCTTCTCTTC<br>antisense: CTGCTGTGGCTCCTGATG | 107 bp | NM_005554.4 |
| **K10**<br>sense: TGATGTGAATGTGGAAATGAATGC<br>antisense: GTAGTCAGTTCCTTGCTCTTTTCA | 147 bp | NM_000421.5 |
| **LOR**<br>sense: TCATGATGCTACCCGAGGTTTG<br>antisense: CAGAACTAGATGCAGCCGGAGA | 87 bp | NM_000427.3 |
| **PPARγ**<br>sense: GCCAAGCTGCTCCAGAAAAT<br>antisense: TGATCACCTGCAGTAGCTGCA | 73 bp | NM_138711 |
| **PDPN**<br>sense: TGACTCCAGGAACCAGCGAAG<br>antisense: GCGAATGCCTGTTACACTGTTGA | 86 bp | NM_006474.5 |
| **PLIN1**<br>sense: ACATTAAAGGGAAGAAGTTGAAGC | 93 bp | NM_002666.5 |

| | | |
|---|---|---|
| antisense: TTCTCCTGCTCAGGGAGGT | | |
| **PLIN2**<br>sense: TGAGATGGCAGAGAACGGTG<br>antisense: GCAATTTGCGGCTCTAGCTT | 90 bp | NM_001122.4 |
| **PLIN5**<br>sense: AAGGCCCTGAAGTGGGTTC<br>antisense: GCATGTGGTCTATCAGCTCCA | 192 bp | NM_001013706.3 |
| **SCD-1**<br>sense: CATAATTCCCGACGTGGCTTT<br>antisense:AGGTTTGTAGTACCTCCTCTGGAACA | 150 bp | NM_005063 |
| **SLC27A4 (FATP4)**<br>sense: AAATCGGGGAGTTCTACGGC<br>antisense: CAGGATGCGGCTGTTGAAAC | 95 bp | NM_198580.3 |
| **SPT**<br>sense: TGGTCATTTGGCCCAGGTC<br>antisense: TTCCAACCATTGGC TTCACATC | 121 bp | NM_004863.4 |
| **SREBP-1**<br>sense: GGAGCCATGGATTGCACTTT<br>antisense: TCAAATAGGCCAGGGAAGTCA | 77 bp | NM_001005291 |
| **SREBP-2**<br>sense: CCGCCTGTTCCGATGTACAC<br>antisense: TGCACATTCAGCCAGGTTCA | 56 bp | NM_004599.4 |
| **TGM1**<br>sense: TCTTCAAGAACCCCCTTCCC<br>antisense: TCTGTAACCCAGAGCCT | 69 bp | NM_000359.3 |
| **TSLP**<br>sense: TGGGGGCTGGTGCCCTACTC<br>antisense: AATTGGCCCCGAAGGCTGGC | 118 bp | NM_033035.5 |

**Table S2.** Forward (F) and reverse (R) primers used for the Real time RT-PCR analysis.

| **Differentiation** | | | |
|---|---|---|---|
| | **Tofacitinib** | **Th2** | **Th2+Tofacitinib** |
| ***CASP14*** | 0,91±0,07 | 0,52±0,24 | 0,85±0,13 |
| ***FLG*** | 1,35±0,69 | 0,55±0,26 | 0,96±0,28 |
| *K6* | 1,41±0,55 | 1,93±0,22 | 1,20±0,28 |
| ***K10*** | 1,47± 0,65 | 1,16±0,52 | 1,15±0,24 |
| ***LOR*** | 1,00±0,41 | 0,58±0,28 | 0,86±0,36 |
| ***IVL*** | 1,03±0,42 | 1,00±0,04 | 0,96±0,18 |
| *TGM1* | 1,29±1,05 | 1,10±0,52 | 1,28±1,06 |
| | | | |
| **Inflammation** | | | |
| ***CCL26*** | 1,37±0,95 | 7,47±3,07 | 0,87±0,47 |
| ***IL-1α*** | 0,95±0,17 | 1,89±0,12 | 0,79±0,04 |
| ***IL-1β*** | 0,93±0,18 | 1,72±0,23 | 0,78±0,24 |
| ***IL-6*** | 0,55±0,22 | 8,20±1,83 | 0,62±0,19 |
| ***IL-8*** | 1,09±0,22 | 1,90±0,73 | 0,98±0,31 |
| ***PDPN*** | 0,81±0,17 | 2,49±0,32 | 0,83±0,11 |
| TSLP | 1,18±0,21 | 0,93±0,20 | 1,15±0,28 |
| | | | |
| **Lipid metabolism** | | | |
| *ABCA12* | 1,17±0,46 | 1,03±0,16 | 1,01±0,31 |
| *ALOX3* | 0,79±0,17 | 1,26±0,44 | 0,89±0,29 |
| *ALOX12B* | 0,80±0,23 | 1,41±0,35 | 1,16±0,85 |
| ***CA2*** | 0,85±0,005 | 5,03±1,55 | 0,93±0,30 |
| *CD36* | 1,84±1,13 | 1,40±0,72 | 1,20±0,07 |
| *CERS1* | 0,58±0,36 | 1,07±0,33 | 1,09±0,30 |
| *CERS2* | 1,21±0,60 | 1,04±0,22 | 1,08±0,42 |
| *CERS3* | 0,96±0,23 | 0,73±0,19 | 0,92±0,26 |
| *CERS4* | 0,88±0,13 | 0,73±0,17 | 0,72±0,17 |
| *CERS5* | 1,06±0,42 | 1,13±0,50 | 1,11±0,51 |
| *CERS6* | 0,90±0,23 | 1,10±0,35 | 0,93±0,31 |
| *DEGS1* | 0,92±0,19 | 1,03±0,34 | 0,91±0,15 |
| ***DEGS2*** | 1,16±0,39 | 1,59±0,29 | 0,70±0,16 |
| *DHCR7* | 1,35±0,58 | 0,95±0,08 | 1,19±0,21 |
| *DHCR24* | 1,48±0,87 | 1,03±0,23 | 1,13±0,34 |
| ***ELOVL1*** | 1,24±0,61 | 0,63±0,12 | 0,95±0,47 |
| *ELOVL2* | 1,31±0,66 | 1,25±1,27 | 0,78±0,17 |
| ***ELOVL3*** | 0,72±0,30 | 0,21±0,16 | 0,71±0,27 |
| ***ELOVL4*** | 1,06±0,11 | 0,47±0,17 | 0,86±0,11 |
| *ELOVL5* | 0,69±0,33 | 1,41±0,59 | 0,97±0,19 |
| *ELOVL6* | 1,10±0,13 | 1,02±0,26 | 0,93±0,27 |
| *ELOVL7* | 1,56± 0,80 | 1,29±0,58 | 0,89±0,09 |
| *FADS* | 1,51±1,33 | 0,77±0,45 | 1,46±1,42 |
| *FAS* | 1,23±0,57 | 1,04±0,47 | 0,94±0,07 |
| *HMGB1* | 0,93±0,15 | 1,02±0,17 | 1,07±0,26 |

| | | | |
|---|---|---|---|
| *HMG-CoA reductase* | 1,12±0,52 | 1,39±0,99 | 0,93±0,13 |
| *HMG-CoA synthase* | 1,19±0,38 | 0,94±0,28 | 1,01±0,39 |
| ***PLIN1*** | 0,81±0,29 | 0,40±0,11 | 0,96±0,20 |
| ***PLIN2*** | 1,19±0,34 | 0,21±0,11 | 0,73±0,03 |
| *PLIN5* | 1,53±1,71 | 0,89±0,38 | 1,05±1,09 |
| *SCD* | 1,19±0,03 | 0,85±0,06 | 0,98±0,17 |
| *SLC27A4* | 1,26 ±0,57 | 0,89±0,37 | 0,91±0,06 |
| ***SPT*** | 1,14±0,19 | 0,55±0,05 | 1,08±0,19 |
| | | | |
| ***Mitochondrial function*** | | | |
| *ACADS* | *1,08*±0,18 | 1,31±*0,23* | *1,03*±0,25 |
| ***ACAT1*** | *0,90*±0,17 | *1,62*±0,16 | *1,09*±0,24 |
| *ACOX1* | *1,02*±0,26 | *1,35*±0,16 | *0,93*±0,11 |
| ***CPT1α*** | *0,90*±0,15 | *1,53*±0,14 | *1,10*±0,14 |
| | | | |
| **Transcription Factors** | | | |
| *SREBP1* | 1,78±1,15 | 0,89±0,54 | 1,05±0,19 |
| *SREBP2* | 1,37±0,42 | 0,89±0,51 | 0,94±0,12 |
| ***PPARγ*** | 1,09±0,58 | 0,57±0,27 | 0,97±0,40 |

**Table S3.** mRNA expression of inflammatory and lipid genes in treated HEEs compared to vehicle. Mean values and standard deviation (SD) of fold changes (FC) of mRNA expression of inflammatory and lipid genes in Th2 and tofacitinib-treated HEEs compared to vehicle. The genes whose transcription was significantly modified with treatments are reported in bold.

| Compound | Technique | Neutral Mass | p ( [Th2] vs [Th2+T] vs [T] vs [V] ) | q-value | p ([Th2+T] vs [Th2]) | p ([T] vs [Th2]) | p ([V] vs [Th2]) | p ([V] vs [Th2+T]) | p ([V] vs [T]) |
|---|---|---|---|---|---|---|---|---|---|
| **FA 16:1n-7** | GCMS (TMS) | 311.3000 | 0.0000 | 0.000 | 0.000 | 0.000 | 0.000 | | |
| **FA 27:0** | LCMS (HR) | 410.4122 | 0.0075 | 0.030 | | | 0.008 | | |
| **FA 29:0** | LCMS (HR) | 438.4433 | 0.0074 | 0.030 | | | 0.023 | 0.030 | |
| **FA 30:0** | LCMS (HR) | 452.4591 | 0.0079 | 0.030 | | | 0.005 | | |
| **Sterol-like 458** | GCMS (TMS) | 458.0000 | 0.0002 | 0.002 | 0.007 | 0.000 | | | 0.004 |
| **Sterol-like 498** | GCMS (TMS) | 498.0000 | 0.0000 | 0.000 | 0.000 | 0.000 | | 0.000 | 0.001 |
| **HexCer 42:1;O2** | LCMS (HR) | 811.6972 | 0.0143 | 0.047 | | | 0.049 | 0.030 | 0.026 |
| **HexCer 44:1;O2** | LCMS (HR) | 839.7276 | 0.0075 | 0.030 | | | 0.049 | 0.025 | 0.009 |
| **HexCer 48:2;O2** | LCMS (HR) | 893.7699 | 0.0036 | 0.021 | 0.016 | 0.029 | 0.004 | | |
| **Cer[NH]40:1** | LCMS (HR) | 637.5973 | 0.0140 | 0.047 | | 0.048 | | | |
| **TG 44:2** | LCMS (HR) | 746.6431 | 0.0003 | 0.003 | 0.001 | 0.001 | | 0.034 | 0.046 |
| **TG 46:3** | LCMS (HR) | 772.6581 | 0.0000 | 0.000 | 0.000 | 0.000 | | 0.006 | 0.020 |
| **TG 46:2** | LCMS (HR) | 774.6750 | 0.0000 | 0.000 | 0.000 | 0.000 | 0.017 | 0.000 | 0.000 |
| **TG 46:1** | LCMS (HR) | 776.6905 | 0.0001 | 0.001 | 0.000 | 0.001 | | 0.027 | |
| **TG 48:4** | LCMS (HR) | 798.6726 | 0.0004 | 0.004 | 0.001 | 0.003 | | | |
| **TG 48:3** | LCMS (HR) | 800.6894 | 0.0000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| **TG 48:2** | LCMS (HR) | 802.7060 | 0.0000 | 0.000 | 0.000 | 0.000 | 0.024 | 0.003 | 0.018 |
| **TG 48:1** | LCMS (HR) | 804.7221 | 0.0070 | 0.030 | 0.007 | 0.021 | | | |
| **TG 48:0** | LCMS (HR) | 806.7366 | 0.0020 | 0.013 | | | 0.001 | | 0.045 |
| **TG 50:5** | LCMS (HR) | 824.6894 | 0.0079 | 0.030 | 0.008 | 0.036 | | | |
| **TG 50:4** | LCMS (HR) | 826.7046 | 0.0000 | 0.000 | 0.000 | 0.000 | 0.009 | 0.000 | 0.001 |
| **TG 50:3** | LCMS (HR) | 828.7207 | 0.0000 | 0.000 | 0.000 | 0.000 | 0.002 | 0.000 | 0.004 |
| **TG 50:2** | LCMS (HR) | 830.7370 | 0.0008 | 0.006 | 0.001 | 0.004 | | | |
| **TG 51:2** | LCMS (HR) | 844.7524 | 0.0010 | 0.008 | 0.001 | 0.018 | 0.014 | | |
| **TG 52:5** | LCMS (HR) | 852.7207 | 0.0000 | 0.000 | 0.000 | 0.001 | | 0.002 | 0.035 |
| **TG 52:4** | LCMS (HR) | 854.7361 | 0.0000 | 0.000 | 0.000 | 0.000 | | 0.000 | 0.003 |
| **TG 52:3** | LCMS (HR) | 856.7523 | 0.0001 | 0.001 | 0.000 | 0.001 | | 0.016 | |
| **TG 53:3** | LCMS (HR) | 870.7668 | 0.0010 | 0.008 | 0.001 | 0.006 | 0.030 | | |
| **TG 54:4** | LCMS (HR) | 882.7672 | 0.0006 | 0.005 | 0.001 | 0.014 | | 0.007 | |
| **DG 34:0** | LCMS (HR) | 596.5380 | 0.0076 | 0.030 | | | 0.016 | 0.014 | 0.037 |
| **DG 34:2** | LCMS (HR) | 592.5067 | 0.0000 | 0.000 | 0.000 | 0.001 | 0.001 | | |
| **DG 35:0** | LCMS (HR) | 610.5536 | 0.0065 | 0.030 | | | 0.010 | 0.014 | 0.046 |
| **DG 36:1** | LCMS (HR) | 622.5536 | 0.0000 | 0.000 | 0.000 | 0.000 | | 0.004 | 0.000 |
| **DG 37:0** | LCMS (HR) | 638.5849 | 0.0076 | 0.030 | | | 0.015 | 0.011 | |
| **DG 38:0** | LCMS (HR) | 652.6006 | 0.0055 | 0.029 | | | 0.007 | 0.015 | 0.049 |
| **DG 38:1** | LCMS (HR) | 650.5849 | 0.0012 | 0.009 | 0.039 | 0.002 | | | 0.013 |
| **DG 38:2** | LCMS (HR) | 648.5693 | 0.0144 | 0.047 | 0.039 | 0.027 | | | |
| **DG 40:0** | LCMS (HR) | 680.6319 | 0.0105 | 0.038 | | | 0.013 | 0.027 | |
| **PC 32:2** | LCMS (HR) | 729.5315 | 0.0025 | 0.015 | 0.003 | 0.011 | | | |
| **PC 34:5** | LCMS (HR) | 751.5141 | 0.0024 | 0.015 | 0.003 | 0.017 | | | |
| **PC 36:2** | LCMS (HR) | 785.5950 | 0.0095 | 0.035 | | 0.020 | 0.013 | | |
| **PC 36:1** | LCMS (HR) | 787.6070 | 0.0106 | 0.038 | | 0.009 | | | |
| **PC 38:2** | LCMS (HR) | 813.6253 | 0.0056 | 0.029 | 0.049 | 0.008 | 0.013 | | |
| **PC 40:4** | LCMS (HR) | 837.6184 | 0.0063 | 0.030 | | 0.019 | 0.007 | | |
| **LPC 20:4** | LCMS (HR) | 543.3303 | 0.0022 | 0.014 | | 0.002 | | | 0.019 |
| **SM 40:2;O2** | LCMS (HR) | 784.6493 | 0.0053 | 0.029 | | | | 0.007 | 0.013 |
| **SM 44:1;O2** | LCMS (HR) | 842.7179 | 0.0066 | 0.030 | 0.030 | 0.012 | | | |
| **PE 32:2** | LCMS (HR) | 687.4836 | 0.0000 | 0.000 | 0.000 | 0.000 | 0.000 | | |
| **PE 32:1** | LCMS (HR) | 689.4989 | 0.0124 | 0.043 | 0.037 | | 0.016 | | |
| **PE 34:3** | LCMS (HR) | 713.4995 | 0.0020 | 0.013 | 0.002 | 0.012 | 0.024 | | |
| **PE O-38:3** | LCMS (HR) | 755.5821 | 0.0061 | 0.030 | | | 0.013 | 0.010 | 0.048 |

| Compound | FC (abs) ([Th2] vs [V]) | Regulation | FC (abs) ([Th2+T] vs [V]) | Regulation | FC (abs) ([T] vs [V]) | Regulation |
|---|---|---|---|---|---|---|
| **FA 16:1n-7** | 2.098 | down | 1.045 | up | 1.034 | up |
| **FA 27:0** | 2.229 | down | 1.839 | down | 1.316 | down |
| **FA 29:0** | 2.126 | down | 2.061 | down | 1.171 | down |
| **FA 30:0** | 1.953 | down | 1.565 | down | 1.422 | down |
| **Sterol-like 458** | 1.089 | up | 1.183 | down | 1.311 | down |
| **Sterol-like 498** | 1.120 | down | 1.919 | up | 1.546 | up |
| **HexCer 42:1;O2** | 1.505 | down | 1.558 | down | 1.574 | down |
| **HexCer 44:1;O2** | 1.657 | down | 1.755 | down | 1.920 | down |
| **HexCer 48:2;O2** | 1.964 | down | 1.113 | down | 1.166 | down |
| **Cer[NH]40:1** | 1.004 | down | 1.381 | up | 1.466 | up |
| **TG 44:2** | 1.246 | down | 1.488 | up | 1.461 | up |
| **TG 46:3** | 1.427 | down | 1.689 | up | 1.569 | up |
| **TG 46:2** | 1.337 | down | 1.784 | up | 1.650 | up |
| **TG 46:1** | 1.301 | down | 1.410 | up | 1.328 | up |
| **TG 48:4** | 1.367 | down | 1.507 | up | 1.365 | up |
| **TG 48:3** | 1.743 | down | 1.985 | up | 1.815 | up |
| **TG 48:2** | 1.507 | down | 1.712 | up | 1.534 | up |
| **TG 48:1** | 1.387 | down | 1.254 | up | 1.169 | up |
| **TG 48:0** | 1.419 | down | 1.169 | down | 1.246 | down |
| **TG 50:5** | 1.359 | down | 1.477 | up | 1.291 | up |
| **TG 50:4** | 1.428 | down | 1.817 | up | 1.635 | up |
| **TG 50:3** | 1.720 | down | 1.933 | up | 1.672 | up |
| **TG 50:2** | 1.463 | down | 1.430 | up | 1.292 | up |
| **TG 51:2** | 1.548 | down | 1.190 | up | 1.016 | down |
| **TG 52:5** | 1.283 | down | 1.788 | up | 1.491 | up |
| **TG 52:4** | 1.265 | down | 1.789 | up | 1.542 | up |
| **TG 52:3** | 1.442 | down | 1.674 | up | 1.443 | up |
| **TG 53:3** | 1.396 | down | 1.186 | up | 1.083 | up |
| **TG 54:4** | 1.090 | down | 1.538 | up | 1.356 | up |
| **DG 34:0** | 2.502 | down | 2.553 | down | 2.253 | down |
| **DG 34:2** | 1.225 | down | 1.095 | up | 1.002 | up |
| **DG 35:0** | 2.765 | down | 2.663 | down | 2.265 | down |
| **DG 36:1** | 1.174 | up | 1.304 | down | 1.424 | down |
| **DG 37:0** | 2.623 | down | 2.727 | down | 2.157 | down |
| **DG 38:0** | 3.331 | down | 2.982 | down | 2.495 | down |
| **DG 38:1** | 1.085 | up | 1.180 | down | 1.338 | down |
| **DG 38:2** | 1.091 | up | 1.172 | down | 1.188 | down |
| **DG 40:0** | 3.046 | down | 2.729 | down | 2.335 | down |
| **PC 32:2** | 1.430 | down | 1.382 | up | 1.247 | up |
| **PC 34:5** | 1.343 | down | 1.681 | up | 1.440 | up |
| **PC 36:2** | 1.558 | up | 1.121 | up | 1.026 | up |
| **PC 36:1** | 1.422 | up | 1.006 | down | 1.132 | down |
| **PC 38:2** | 1.537 | up | 1.081 | up | 1.025 | down |
| **PC 40:4** | 1.376 | up | 1.171 | up | 1.038 | up |
| **LPC 20:4** | 1.143 | up | 1.271 | down | 1.587 | down |
| **SM 40:2;O2** | 1.246 | up | 1.438 | up | 1.398 | up |
| **SM 44:1;O2** | 1.094 | up | 1.193 | down | 1.240 | down |
| **PE 32:2** | 2.467 | down | 1.054 | up | 1.023 | up |
| **PE 32:1** | 1.512 | down | 1.051 | down | 1.077 | down |
| **PE 34:3** | 1.497 | down | 1.156 | up | 1.041 | up |
| **PE O-38:3** | 1.490 | up | 1.514 | up | 1.388 | up |

**Table S4.** Abundance profiles of FAs, Sterol-like, HexCers, TGs, DGs, PCs, SMs, Pes in HEEs treated with tofacitinib and Th2 cytokines and their combination. q-values, p-values and fold changes (FC) of 51 significative lipid species obtained after one-way ANOVA (V= vehicle; T= tofacitinib).

| Variable | V | T | Th2 | Th2+T | SD V | SD T | SD Th2 | SD Th2+T | FC Th2/V | FC Th2+T/ Th2 | Kruskal-Wallis |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **HexCer 34:1;O2** | 79.013 | 51.642 | 44.198 | 50.746 | 52.933 | 16.660 | 13.460 | 14.488 | 0.559 | 0.983 | 0.497 |
| **HexCer 36:1;O2** | 33.712 | 14.759 | 16.055 | 12.733 | 51.408 | 15.075 | 17.516 | 12.974 | 0.476 | 0.863 | 0.668 |
| **HexCer 38:1;O2** | 17.115 | 9.819 | 11.283 | 11.644 | 8.734 | 4.457 | 3.687 | 5.754 | 0.659 | 1.186 | 0.267 |
| **HexCer 40:1;O2** | 35.077 | 21.850 | 28.692 | 26.606 | 6.056 | 7.151 | 6.028 | 4.312 | 0.818 | 1.218 | **0.025** |
| **HexCer 42:1;O2** | 93.709 | 59.554 | 61.659 | 60.280 | 20.258 | 11.331 | 8.097 | 12.543 | 0.658 | 1.012 | **0.005** |
| **HexCer 44:1;O2** | 55.407 | 26.880 | 32.056 | 29.213 | 32.243 | 10.529 | 14.840 | 10.094 | 0.579 | 1.087 | 0.078 |
| **HexCer 46:1;O2** | 12.064 | 5.915 | 7.430 | 6.153 | 3.889 | 2.399 | 1.431 | 2.612 | 0.616 | 1.040 | **0.012** |
| **HexCer 40:2;O2** | 4.355 | 3.736 | 2.633 | 3.863 | 1.752 | 1.476 | 0.723 | 1.355 | 0.605 | 1.034 | 0.296 |
| **HexCer 42:2;O2** | 19.130 | 13.290 | 9.507 | 12.868 | 9.409 | 3.526 | 3.106 | 5.081 | 0.497 | 0.968 | 0.176 |
| **HexCer 44:2;O2** | 17.158 | 10.490 | 7.054 | 10.651 | 9.076 | 5.404 | 3.766 | 4.684 | 0.411 | 1.015 | 0.113 |
| **HexCer 46:2;O2** | 10.694 | 6.295 | 4.162 | 5.739 | 7.360 | 5.088 | 3.329 | 4.162 | 0.389 | 0.912 | 0.174 |
| **HexCer 46:1;O2** | 12.064 | 5.915 | 7.430 | 6.153 | 3.889 | 2.399 | 1.431 | 2.612 | 0.616 | 1.040 | **0.012** |

**Table S5.** Abundance profile of HexCers in HEEs treated with tofacitinib and Th2 cytokines and their combination. Mean values and standard deviation (SD) of amounts (pmol/mg protein) of HexCers and p-valued obtained after Kruskal-Wallis test (V= vehicle; T= tofacitinib).

| Variable | V | T | Th2 | Th2+T | SD V | SD T | SD Th2 | SD Th2+T | FC Th2/V | FC Th2+T/ Th2 | Kruskal-Wallis |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **12Me-C15:0** | 134.120 | 87.798 | 80.242 | 97.606 | 50.099 | 21.189 | 26.972 | 48.949 | 0.598 | 1.216 | 0.071 |
| **13Me-C15:0** | 99.972 | 68.128 | 63.521 | 79.203 | 33.887 | 14.897 | 20.403 | 38.144 | 0.635 | 1.247 | 0.079 |
| **14Me-C17:0** | 604.961 | 399.191 | 379.805 | 440.240 | 218.028 | 47.375 | 115.049 | 181.997 | 0.628 | 1.159 | **0.012** |
| **15Me-C17:0** | 347.713 | 240.652 | 229.746 | 278.781 | 104.273 | 37.014 | 59.023 | 116.545 | 0.661 | 1.213 | 0.051 |
| **FA 12:0** | 746.474 | 425.844 | 251.069 | 345.680 | 669.040 | 314.172 | 94.576 | 130.755 | 0.336 | 1.377 | 0.060 |
| **FA 13:0** | 61.920 | 39.019 | 29.763 | 44.321 | 28.350 | 15.302 | 9.395 | 28.880 | 0.481 | 1.489 | **0.015** |
| **FA 14:0** | 4614.256 | 3249.785 | 2699.352 | 3571.032 | 1407.297 | 461.435 | 559.758 | 1393.404 | 0.585 | 1.323 | **0.002** |
| **FA 14:1** | 24.748 | 19.677 | 13.803 | 22.746 | 14.323 | 7.632 | 7.404 | 15.046 | 0.558 | 1.648 | 0.195 |
| **FA 15:0** | 771.658 | 516.667 | 459.158 | 590.885 | 248.618 | 75.206 | 85.815 | 211.943 | 0.595 | 1.287 | **0.004** |
| **FA 16:0** | 57609.383 | 39020.630 | 37581.088 | 42919.251 | 28832.940 | 6709.082 | 7206.616 | 14368.278 | 0.652 | 1.142 | 0.060 |
| **FA 16:1n-10** | 82.528 | 80.832 | 93.287 | 86.226 | 11.630 | 13.787 | 13.153 | 15.123 | 1.130 | 0.924 | 0.186 |
| **FA 16:1n-7** | 1324.638 | 1421.656 | 607.980 | 1473.994 | 466.981 | 488.951 | 121.223 | 658.808 | 0.459 | 2.424 | **<0.0001** |
| **FA 17:0** | 2042.903 | 1390.867 | 1354.314 | 1599.834 | 668.251 | 195.520 | 307.664 | 603.101 | 0.663 | 1.181 | 0.053 |
| **FA 17:1** | 7073.464 | 4698.568 | 5634.488 | 5714.523 | 4176.796 | 2732.069 | 4477.394 | 4651.240 | 0.797 | 1.014 | 0.535 |
| **FA 18:0** | 78785.285 | 51377.971 | 50595.111 | 55167.599 | 46859.494 | 10374.799 | 10109.213 | 17694.526 | 0.642 | 1.090 | 0.148 |
| **FA 18:1n-9** | 5048.400 | 4482.580 | 4372.361 | 4791.400 | 1405.642 | 1406.185 | 1567.190 | 2041.068 | 0.866 | 1.096 | 0.782 |
| **FA 18:1 (II)** | 4315.466 | 4016.429 | 4312.789 | 4383.628 | 1991.115 | 1960.945 | 2614.538 | 2770.871 | 0.999 | 1.016 | 0.972 |
| **FA 18:2** | 112.784 | 100.204 | 94.456 | 111.899 | 21.380 | 21.722 | 9.356 | 18.749 | 0.837 | 1.185 | **0.049** |
| **FA 19:0** | 156.885 | 104.965 | 112.427 | 124.687 | 56.707 | 20.483 | 30.721 | 51.201 | 0.717 | 1.109 | 0.107 |
| **FA 20:0** | 913.234 | 675.365 | 670.214 | 774.540 | 224.648 | 107.328 | 94.006 | 233.001 | 0.734 | 1.156 | **0.032** |
| **FA 20:1n-9** | 95.120 | 99.206 | 110.367 | 115.001 | 32.011 | 23.046 | 20.420 | 36.468 | 1.160 | 1.042 | 0.583 |
| **FA 20:1 (II)** | 214.719 | 214.669 | 201.909 | 240.973 | 129.009 | 108.682 | 110.769 | 151.318 | 0.940 | 1.193 | 0.936 |
| **FA 22:0** | 190.982 | 156.318 | 144.019 | 179.501 | 58.765 | 36.965 | 36.526 | 55.562 | 0.754 | 1.246 | 0.190 |
| **FA 24:0** | 335.140 | 331.402 | 313.659 | 356.055 | 144.769 | 68.861 | 66.704 | 80.639 | 0.936 | 1.135 | 0.591 |
| **FA 24:1** | 29.063 | 31.944 | 31.600 | 33.897 | 20.159 | 16.277 | 20.905 | 15.798 | 1.087 | 1.073 | 0.889 |
| **FA 26:0** | 156.473 | 158.371 | 144.473 | 175.473 | 94.857 | 68.117 | 50.555 | 53.186 | 0.923 | 1.215 | 0.705 |
| **FA 27:0** | 164.838 | 120.719 | 72.652 | 90.891 | 52.881 | 26.180 | 21.196 | 36.599 | 0.441 | 1.251 | **<0.0001** |
| **FA 28:0** | 808.332 | 639.140 | 562.844 | 604.151 | 335.814 | 281.797 | 304.665 | 297.498 | 0.696 | 1.073 | 0.121 |
| **FA 29:0** | 49.100 | 39.965 | 20.905 | 21.434 | 24.326 | 18.487 | 6.059 | 5.697 | 0.426 | 1.025 | **0.000** |
| **FA 30:0** | 143.497 | 101.409 | 76.031 | 101.650 | 27.063 | 22.282 | 24.535 | 55.565 | 0.530 | 1.337 | **0.000** |
| **FOH 16:0** | 64.286 | 42.821 | 39.126 | 42.448 | 24.773 | 11.720 | 14.048 | 14.838 | 0.609 | 1.085 | 0.052 |
| **FOH 18:0** | 723.319 | 523.187 | 539.635 | 413.343 | 273.845 | 77.802 | 134.476 | 54.287 | 0.746 | 0.766 | **0.000** |
| **FOH 17:1** | 128.305 | 123.237 | 74.699 | 124.253 | 41.077 | 43.838 | 14.942 | 69.996 | 0.582 | 1.663 | **0.015** |
| **Cholesterol** | 37497.070 | 34373.354 | 32843.825 | 35193.946 | 2615.163 | 4651.090 | 4214.859 | 5189.979 | 0.876 | 1.072 | 0.089 |
| **Sterol-like 458** | 856.041 | 682.010 | 924.804 | 750.019 | 231.427 | 187.419 | 121.773 | 169.203 | 1.080 | 0.811 | **0.012** |
| **Sterol-like 486** | 22.627 | 19.929 | 22.829 | 23.364 | 11.482 | 8.011 | 5.705 | 9.302 | 1.009 | 1.023 | 0.683 |
| **Sterol-like 498** | 965.622 | 1535.763 | 855.508 | 1933.638 | 267.166 | 362.499 | 137.342 | 509.651 | 0.886 | 2.260 | **<0.0001** |
| **Sterol-like 500** | 2521.194 | 2332.211 | 1869.067 | 2623.533 | 696.018 | 461.251 | 96.054 | 565.419 | 0.741 | 1.404 | **0.002** |
| **Sterol-like 520** | 1719.558 | 1872.025 | 703.946 | 2299.893 | 1362.577 | 1517.390 | 762.844 | 2173.004 | 0.409 | 3.267 | 0.072 |

**Table S6.** Abundance profile of FFAs, FOHs, cholesterol, and related metabolites in HEEs treated with tofacitinib and Th2 cytokines and their combination. Mean values and standard deviation (SD) of amounts (pmol/mg protein) of FFAs, FOHs, cholesterol, and related metabolites and p-valued obtained after Kruskal-Wallis test (V= vehicle; T= tofacitinib).

| Variable | V | T | Th2 | Th2+T | SD V | SD T | SD Th2 | SD Th2+T | FC Th2/V | FC Th2+T/ Th2 | Kruskal-Wallis |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **DG 28:0** | 19.683 | 10.759 | 17.689 | 14.424 | 12.026 | 5.390 | 11.821 | 9.271 | 0.899 | 0.815 | 0.451 |
| **DG 29:0** | 23.762 | 25.662 | 18.568 | 16.748 | 9.798 | 25.075 | 12.616 | 13.075 | 0.781 | 0.902 | 0.695 |
| **DG 30:0** | 46.069 | 36.022 | 42.880 | 35.864 | 19.041 | 11.605 | 18.774 | 16.274 | 0.931 | 0.836 | 0.685 |
| **DG 30:1** | 38.240 | 36.252 | 29.614 | 37.579 | 6.956 | 6.656 | 6.104 | 3.481 | 0.774 | 1.269 | 0.114 |
| **DG 31:0** | 42.771 | 25.468 | 30.272 | 24.532 | 30.330 | 7.384 | 9.166 | 5.251 | 0.708 | 0.810 | 0.480 |
| **DG 32:0** | 333.420 | 181.093 | 197.919 | 171.760 | 135.292 | 31.072 | 59.545 | 44.963 | 0.594 | 0.868 | **0.023** |
| **DG 32:1** | 135.598 | 123.472 | 108.219 | 119.027 | 32.500 | 13.641 | 6.248 | 14.216 | 0.798 | 1.100 | **0.046** |
| **DG 32:2** | 120.121 | 85.260 | 69.163 | 84.411 | 51.033 | 7.605 | 17.491 | 16.011 | 0.576 | 1.220 | **0.047** |
| **DG 33:0** | 35.990 | 17.165 | 18.095 | 16.055 | 16.333 | 6.428 | 4.952 | 3.339 | 0.503 | 0.887 | **0.012** |
| **DG 33:1** | 7.155 | 3.915 | 4.339 | 4.715 | 4.350 | 1.229 | 1.550 | 1.213 | 0.606 | 1.087 | 0.397 |
| **DG 34:0** | 5134.489 | 2102.854 | 1881.575 | 1810.608 | 2990.608 | 629.909 | 504.398 | 346.880 | 0.366 | 0.962 | **0.006** |
| **DG 34:1** | 244.192 | 186.523 | 221.503 | 199.851 | 57.286 | 23.834 | 39.157 | 37.926 | 0.907 | 0.902 | 0.191 |
| **DG 34:2** | 268.442 | 270.079 | 218.899 | 293.857 | 21.410 | 33.969 | 13.325 | 23.741 | 0.815 | 1.342 | **0.003** |
| **DG 34:3** | 16.132 | 12.120 | 14.102 | 13.384 | 5.865 | 5.082 | 6.448 | 4.271 | 0.874 | 0.949 | 0.718 |
| **DG 35:0** | 110.479 | 44.691 | 36.214 | 36.949 | 67.523 | 13.943 | 9.703 | 6.878 | 0.328 | 1.020 | **0.004** |
| **DG 36:0** | 12903.171 | 4684.880 | 5277.373 | 5095.372 | 7720.221 | 2721.892 | 1505.703 | 1097.572 | 0.409 | 0.966 | **0.014** |
| **DG 36:1** | 192.721 | 135.049 | 226.648 | 147.441 | 16.564 | 7.085 | 23.803 | 6.563 | 1.176 | 0.651 | **0.000** |
| **DG 36:2** | 248.603 | 230.415 | 276.973 | 229.306 | 35.664 | 44.886 | 40.916 | 25.512 | 1.114 | 0.828 | 0.183 |
| **DG 36:3** | 35.810 | 33.380 | 34.033 | 32.766 | 12.245 | 10.140 | 4.509 | 3.563 | 0.950 | 0.963 | 0.950 |
| **DG 37:0** | 32.607 | 13.647 | 11.495 | 10.630 | 20.477 | 3.939 | 4.306 | 2.087 | 0.353 | 0.925 | **0.004** |
| **DG 38:0** | 213.974 | 75.161 | 54.717 | 60.469 | 161.387 | 28.100 | 13.727 | 12.436 | 0.256 | 1.105 | **0.004** |
| **DG 38:1** | 28.342 | 21.253 | 31.180 | 24.289 | 1.168 | 1.994 | 5.941 | 4.200 | 1.100 | 0.779 | **0.007** |
| **DG 38:2** | 48.003 | 40.961 | 52.933 | 41.288 | 5.014 | 8.388 | 10.332 | 7.141 | 1.103 | 0.780 | 0.122 |
| **DG 39:0** | 17.907 | 8.552 | 8.423 | 8.094 | 10.540 | 3.030 | 1.971 | 2.531 | 0.470 | 0.961 | **0.031** |
| **DG 40:0** | 94.742 | 35.370 | 26.530 | 29.253 | 69.975 | 11.874 | 6.213 | 4.936 | 0.280 | 1.103 | **0.004** |
| **DG 40:1** | 5.090 | 4.772 | 3.014 | 3.393 | 0.936 | 3.364 | 0.712 | 0.985 | 0.592 | 1.126 | **0.039** |

**Table S7.** Abundance profile of the detected DGs in HEEs treated with tofacitinib and Th2 cytokines and their combination. Mean values and standard deviation (SD) of DGs amounts (pmol/mg protein) and p-values obtained after Kruskal-Wallis test (V= vehicle; T= tofacitinib).

| Variable | V | T | Th2 | Th2+T | SD V | SD T | SD Th2 | SD Th2+T | FC Th2/V | FC Th2+T/ Th2 | Kruskal-Wallis |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **LPC 16:1** | 658.521 | 393.146 | 591.994 | 504.143 | 313.448 | 153.622 | 244.057 | 187.436 | 0.899 | 0.852 | 0.323 |
| **LPC 18:1** | 1003.224 | 638.477 | 1135.754 | 756.751 | 543.617 | 314.724 | 419.736 | 252.621 | 1.132 | 0.666 | 0.264 |
| **LPC 20:4** | 228.984 | 147.839 | 232.135 | 194.487 | 76.333 | 40.801 | 77.545 | 75.187 | 1.014 | 0.838 | 0.151 |

| Variable | V | T | Th2 | Th2+T | SD V | SD T | SD Th2 | SD Th2+T | FC Th2/V | FC Th2+T/ Th2 | Kruskal-Wallis |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **SM 32:1;O2** | 507.252 | 606.776 | 472.607 | 638.588 | 213.789 | 227.562 | 68.099 | 246.319 | 0.932 | 1.351 | 0.355 |
| **SM 34:1;O2** | 3838.108 | 4258.493 | 4101.612 | 4491.207 | 1276.181 | 1525.192 | 371.994 | 1410.462 | 1.069 | 1.095 | 0.907 |
| **SM 38:1;O2** | 356.317 | 306.801 | 321.436 | 347.154 | 55.476 | 57.013 | 26.778 | 53.739 | 0.902 | 1.080 | 0.312 |
| **SM 40:2;O2** | 168.522 | 236.503 | 205.987 | 243.977 | 45.734 | 62.899 | 35.886 | 77.555 | 1.222 | 1.184 | 0.114 |
| **SM 40:1;O2** | 321.262 | 330.667 | 369.799 | 339.093 | 44.833 | 63.442 | 63.445 | 87.168 | 1.151 | 0.917 | 0.608 |
| **SM 42:2;O2** | 535.778 | 684.000 | 500.797 | 579.418 | 172.224 | 206.848 | 93.556 | 201.226 | 0.935 | 1.157 | 0.479 |
| **SM 42:1;O2** | 476.606 | 411.638 | 528.218 | 488.355 | 106.666 | 129.964 | 105.510 | 197.125 | 1.108 | 0.925 | 0.397 |
| **SM 44:2;O2** | 259.032 | 288.910 | 253.861 | 310.999 | 79.636 | 87.126 | 84.472 | 136.553 | 0.980 | 1.225 | 0.838 |
| **SM 44:1;O2** | 220.649 | 177.949 | 240.265 | 194.015 | 66.722 | 54.477 | 70.120 | 91.500 | 1.089 | 0.808 | 0.518 |

**Table S8.** LPCs and SMs abundance in HEEs treated with tofacitinib and Th2 cytokines and their combination. Mean values and standard deviation (SD) of LPCs and SMs amounts (pmol/mg protein) and p-values obtained after Kruskal-Wallis test (V= vehicle; T= tofacitinib).

| Variable | V | T | Th2 | Th2+T | SD V | SD T | SD Th2 | SD Th2+T | FC Th2/V | FC Th2+T/ Th2 | Kruskal-Wallis |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **PC 28:0** | 72.556 | 86.635 | 64.414 | 86.690 | 25.869 | 21.638 | 2.958 | 15.349 | 0.888 | 1.346 | 0.121 |
| **PC 30:1** | 363.036 | 414.532 | 270.569 | 441.088 | 111.126 | 97.212 | 26.768 | 62.598 | 0.745 | 1.630 | **0.025** |
| **PC 30:0** | 429.872 | 480.167 | 406.527 | 493.309 | 150.149 | 116.436 | 45.342 | 76.664 | 0.946 | 1.213 | 0.242 |
| **PC 32:3** | 54.340 | 69.492 | 48.518 | 67.028 | 23.087 | 19.537 | 9.453 | 15.533 | 0.893 | 1.382 | 0.120 |
| **PC 32:2** | 593.076 | 733.282 | 403.813 | 798.889 | 160.393 | 175.175 | 58.762 | 122.110 | 0.681 | 1.978 | **0.004** |
| **PC 32:1** | 2279.819 | 2459.669 | 2221.289 | 2646.048 | 674.509 | 623.356 | 187.683 | 353.756 | 0.974 | 1.191 | 0.375 |
| **PC 32:0** | 669.581 | 692.197 | 627.625 | 743.045 | 172.967 | 148.260 | 59.016 | 77.236 | 0.937 | 1.184 | 0.295 |
| **PC 34:5** | 56.899 | 80.608 | 39.832 | 88.712 | 24.669 | 31.503 | 11.638 | 21.988 | 0.700 | 2.227 | **0.017** |
| **PC 34:4** | 205.033 | 264.787 | 200.554 | 283.490 | 101.124 | 99.151 | 51.715 | 63.304 | 0.978 | 1.414 | 0.193 |
| **PC 34:3** | 190.221 | 236.385 | 195.964 | 263.818 | 56.823 | 59.583 | 31.520 | 42.841 | 1.030 | 1.346 | 0.083 |
| **PC 34:2** | 3046.460 | 3357.770 | 3045.855 | 3649.991 | 816.785 | 804.729 | 229.870 | 479.498 | 1.000 | 1.198 | 0.203 |
| **PC 34:1** | 3923.240 | 3909.379 | 5305.062 | 4176.788 | 1020.698 | 862.900 | 216.771 | 469.748 | 1.352 | 0.787 | **0.005** |
| **PC 36:6** | 37.791 | 52.499 | 44.445 | 55.506 | 21.403 | 20.902 | 21.371 | 14.353 | 1.176 | 1.249 | 0.365 |
| **PC 36:5** | 266.085 | 353.449 | 284.163 | 389.565 | 130.059 | 139.674 | 82.862 | 96.329 | 1.068 | 1.371 | 0.256 |
| **PC 36:4** | 364.474 | 439.612 | 538.063 | 481.705 | 171.394 | 157.303 | 163.863 | 103.527 | 1.476 | 0.895 | 0.355 |
| **PC 36:3** | 341.978 | 404.727 | 550.746 | 466.697 | 83.106 | 99.921 | 141.608 | 107.146 | 1.610 | 0.847 | 0.058 |
| **PC 36:2** | 3798.176 | 3865.215 | 5740.706 | 4151.404 | 965.132 | 856.386 | 299.921 | 497.056 | 1.511 | 0.723 | **0.004** |
| **PC 36:1** | 1118.534 | 974.054 | 1547.321 | 1084.716 | 287.142 | 184.354 | 140.640 | 133.281 | 1.383 | 0.701 | **0.003** |
| **PC 38:6** | 43.200 | 58.933 | 69.472 | 66.818 | 16.742 | 19.063 | 23.444 | 13.557 | 1.608 | 0.962 | 0.133 |
| **PC 38:5** | 297.971 | 356.849 | 500.127 | 388.550 | 135.120 | 124.846 | 161.422 | 82.875 | 1.678 | 0.777 | 0.199 |
| **PC 38:4** | 108.636 | 116.699 | 161.701 | 127.605 | 42.696 | 34.386 | 46.264 | 26.909 | 1.488 | 0.789 | 0.207 |
| **PC 38:3** | 69.938 | 75.001 | 103.151 | 87.734 | 15.704 | 13.277 | 14.854 | 10.498 | 1.475 | 0.851 | **0.010** |
| **PC 38:2** | 512.442 | 495.778 | 766.097 | 540.655 | 130.654 | 112.935 | 78.390 | 73.817 | 1.495 | 0.706 | **0.004** |
| **PC 38:1** | 104.608 | 91.907 | 134.592 | 101.430 | 23.309 | 16.136 | 12.891 | 13.059 | 1.287 | 0.754 | **0.005** |
| **PC 40:5** | 43.385 | 49.675 | 61.669 | 53.913 | 17.705 | 16.876 | 22.417 | 11.251 | 1.421 | 0.874 | 0.409 |
| **PC 40:4** | 11.331 | 11.706 | 15.534 | 12.921 | 3.309 | 3.046 | 4.386 | 2.348 | 1.371 | 0.832 | 0.276 |
| **PC 40:2** | 59.926 | 57.750 | 70.858 | 62.568 | 12.587 | 9.610 | 8.940 | 6.624 | 1.182 | 0.883 | 0.203 |
| **PC 40:1** | 32.911 | 24.547 | 26.969 | 28.065 | 6.006 | 3.373 | 3.886 | 4.202 | 0.819 | 1.041 | 0.124 |

| Species | Formula | Number | Number | Molecular Species |
|---|---|---|---|---|
| **PC 30:1** | C38H74NO8P | 30 | 1 | PC(14:0_16:1) |
| **PC 32:2** | C40H76NO8P | 32 | 2 | PC(16:1_16:1) |
| **PC 34:1** | C42H82NO8P | 34 | 1 | PC(16:0_18:1) |
| **PC 36:1** | C44H86NO8P | 36 | 1 | PC(18:0_18:1) |
| **PC 36:2** | C44H84NO8P | 36 | 2 | PC(18:1_18:1) |
| **PC 38:1** | C46H90NO8P | 38 | 1 | PC(18:0_20:1) |
| **PC 38:2** | C46H88NO8P | 38 | 2 | PC(18:1_20:1) |
| **PC 38:3** | C46H86NO8P | 38 | 3 | PC(18:2_20:1) |

**Table S9**. Abundance of PCs members and molecular species characterized for candidate PCs in HEEs treated with tofacitinib and Th2 cytokines and their combination. Mean values and standard deviation (SD) of PCs amounts (pmol/mg protein) and p-values obtained after Kruskal-Wallis test and molecular species characterized for candidate PCs (V= vehicle; T= tofacitinib).

| Variable | V | T | Th2 | Th2+T | SD V | SD T | SD Th2 | SD Th2+T | FC Th2/V | FC Th2+T/ Th2 | Kruskal-Wallis |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **PE 32:2** | 136.331 | 141.254 | 48.576 | 138.623 | 74.145 | 78.738 | 13.255 | 72.493 | 0.356 | 2.854 | **0.048** |
| **PE 32:1** | 386.007 | 365.716 | 234.543 | 362.082 | 177.739 | 175.920 | 52.979 | 168.272 | 0.608 | 1.544 | 0.376 |
| **PE 34:3** | 58.063 | 60.935 | 37.100 | 65.857 | 20.145 | 21.215 | 6.588 | 19.362 | 0.639 | 1.775 | 0.073 |
| **PE 34:2** | 1635.223 | 1709.511 | 1051.920 | 1688.017 | 766.121 | 857.251 | 235.204 | 814.253 | 0.643 | 1.605 | 0.442 |
| **PE 34:1** | 1622.136 | 1572.856 | 1436.696 | 1531.582 | 629.022 | 677.531 | 370.660 | 653.183 | 0.886 | 1.066 | 0.955 |
| **PE 36:4** | 37.618 | 40.812 | 38.209 | 44.249 | 15.762 | 12.011 | 13.344 | 9.335 | 1.016 | 1.158 | 0.821 |
| **PE 36:3** | 442.157 | 496.093 | 488.639 | 520.844 | 116.383 | 134.168 | 105.301 | 100.491 | 1.105 | 1.066 | 0.685 |
| **PE 36:2** | 4923.203 | 5511.188 | 5826.972 | 5355.556 | 1983.609 | 2593.998 | 1921.428 | 2438.002 | 1.184 | 0.919 | 0.848 |
| **PE 36:1** | 1177.716 | 1108.873 | 1345.298 | 1143.576 | 322.841 | 390.566 | 407.357 | 404.933 | 1.142 | 0.850 | 0.790 |
| **PE 38:5** | 19.024 | 19.804 | 18.182 | 20.983 | 16.098 | 7.666 | 5.966 | 6.180 | 0.956 | 1.154 | 0.769 |
| **PE 38:3** | 82.499 | 99.191 | 93.873 | 103.175 | 22.506 | 29.011 | 21.060 | 27.634 | 1.138 | 1.099 | 0.579 |
| **PE 38:2** | 483.570 | 549.925 | 657.929 | 561.450 | 126.688 | 183.863 | 225.836 | 175.020 | 1.361 | 0.853 | 0.584 |
| **PE 40:2** | 69.100 | 84.486 | 86.385 | 79.654 | 13.343 | 21.622 | 27.084 | 21.124 | 1.250 | 0.922 | 0.420 |
| **PE 40:1** | 20.373 | 19.921 | 21.843 | 19.713 | 6.942 | 5.495 | 5.865 | 3.847 | 1.072 | 0.902 | 0.919 |

| Variable | V | T | Th2 | Th2+T | SD V | SD T | SD Th2 | SD Th2+T | FC Th2/V | FC Th2+T/ Th2 | Kruskal-Wallis |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **PE O-34:4** | 30.288 | 32.303 | 26.714 | 35.276 | 13.903 | 10.672 | 5.534 | 5.935 | 0.882 | 1.321 | 0.375 |
| **PE O-34:3** | 882.260 | 946.209 | 731.467 | 1011.629 | 345.067 | 347.086 | 48.389 | 259.461 | 0.829 | 1.383 | 0.228 |
| **PE O-34:2** | 1608.800 | 1679.021 | 1731.419 | 1779.729 | 496.662 | 541.434 | 222.958 | 372.096 | 1.076 | 1.028 | 0.932 |
| **PE O-36:5** | 55.179 | 65.169 | 66.160 | 72.281 | 22.172 | 21.647 | 14.750 | 10.768 | 1.199 | 1.093 | 0.475 |
| **PE O-36:4** | 293.463 | 334.247 | 311.473 | 375.397 | 88.333 | 103.506 | 60.905 | 55.429 | 1.061 | 1.205 | 0.279 |
| **PE O-36:3** | 1815.346 | 2012.523 | 2210.712 | 2182.253 | 647.743 | 699.689 | 331.716 | 526.381 | 1.218 | 0.987 | 0.685 |
| **PE O-36:2** | 402.089 | 442.459 | 492.919 | 486.941 | 130.687 | 132.665 | 87.795 | 98.500 | 1.226 | 0.988 | 0.720 |
| **PE O-38:6** | 71.383 | 93.333 | 97.183 | 101.250 | 27.382 | 29.625 | 18.969 | 15.247 | 1.361 | 1.042 | 0.230 |
| **PE O-38:5** | 42.491 | 56.086 | 59.543 | 61.133 | 17.956 | 16.751 | 9.671 | 10.867 | 1.401 | 1.027 | 0.259 |
| **PE O-38:4** | 32.836 | 46.141 | 41.351 | 48.162 | 15.191 | 15.984 | 6.990 | 11.323 | 1.259 | 1.165 | 0.205 |
| **PE O-38:3** | 183.085 | 252.795 | 261.801 | 267.557 | 67.569 | 78.312 | 60.071 | 66.015 | 1.430 | 1.022 | 0.207 |
| **PE O-38:2** | 58.137 | 77.476 | 67.174 | 78.248 | 20.645 | 21.289 | 15.818 | 14.715 | 1.155 | 1.165 | 0.224 |

| Variable | V | T | Th2 | T+Th2 | SD V | SD T | SD Th2 | SD T+Th2 | FC Th2/V | FC T+Th2/ Th2 | Kruskal-Wallis |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **PG 36:1** | 28.154 | 27.109 | 41.272 | 28.960 | 13.660 | 7.092 | 14.600 | 4.796 | 1.466 | 0.702 | 0.215 |
| **PG 36:2** | 27.284 | 24.915 | 30.874 | 22.146 | 15.414 | 9.088 | 9.630 | 8.792 | 1.132 | 0.717 | 0.511 |
| **PG 34:1** | 45.986 | 8.446 | 58.005 | 46.309 | 18.460 | 5.209 | 12.912 | 8.762 | 1.261 | 0.798 | **0.031** |

| Variable | V | T | Th2 | T+Th2 | SD V | SD T | SD Th2 | SD T+Th2 | FC Th2/V | FC T+Th2/ Th2 | Kruskal-Wallis |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **PI 36:1** | 1335.418 | 1394.762 | 1628.428 | 1335.581 | 320.494 | 287.884 | 214.064 | 298.802 | 1.219 | 0.820 | 0.186 |
| **PI 32:1** | 240.182 | 240.172 | 141.570 | 320.831 | 154.009 | 85.501 | 43.390 | 134.540 | 0.589 | 2.266 | 0.054 |
| **PI 34:1** | 933.958 | 954.599 | 778.859 | 1169.714 | 317.045 | 242.225 | 113.643 | 247.805 | 0.834 | 1.502 | 0.057 |

**Table S10**. Abundance of PEs, PGs and PIs in HEEs treated with tofacitinib and Th2 cytokines and their combination. Mean values and standard deviation (SD) of PEs, PGs, PIs, amounts (pmol/mg protein) and p-values obtained after Kruskal-Wallis test (V= vehicle; T= tofacitinib).

| Variable | V | T | Th2 | SD V | SD T | SD Th2 | SD Th2+T | FC Th2/V | FC Th2+T/ Th2 | Kruskal-Wallis |
|---|---|---|---|---|---|---|---|---|---|---|
| **TG 40:0** | 13.748 | 14.720 | 10.658 | 5.951 | 7.857 | 2.681 | 4.751 | 0.775 | 1.262 | 0.613 |
| **TG 42:2** | 9.867 | 12.736 | 7.131 | 5.600 | 8.412 | 2.010 | 5.213 | 0.723 | 1.575 | 0.473 |
| **TG 42:1** | 57.998 | 37.264 | 24.197 | 43.725 | 13.574 | 4.525 | 7.494 | 0.417 | 1.513 | **0.040** |
| **TG 42:0** | 18.266 | 17.486 | 14.011 | 5.855 | 5.440 | 3.142 | 3.329 | 0.767 | 1.237 | 0.226 |
| **TG 43:0** | 27.150 | 11.997 | 11.772 | 22.872 | 6.252 | 6.313 | 2.940 | 0.434 | 1.122 | 0.468 |
| **TG 44:3** | 14.380 | 16.023 | 11.722 | 4.081 | 1.992 | 3.915 | 3.524 | 0.815 | 1.467 | 0.126 |
| **TG 44:2** | 35.698 | 52.843 | 27.822 | 12.057 | 19.053 | 4.742 | 11.444 | 0.779 | 1.869 | **0.008** |
| **TG 44:1** | 60.778 | 78.539 | 50.696 | 12.240 | 25.529 | 8.802 | 7.676 | 0.834 | 1.588 | **0.010** |
| **TG 44:0** | 38.939 | 38.488 | 29.873 | 15.168 | 11.546 | 7.720 | 13.035 | 0.767 | 1.285 | 0.408 |
| **TG 46:3** | 32.585 | 51.101 | 21.845 | 12.772 | 19.162 | 3.239 | 8.540 | 0.670 | 2.413 | **0.002** |
| **TG 46:2** | 130.229 | 223.777 | 97.945 | 15.600 | 76.334 | 16.137 | 28.377 | 0.752 | 2.375 | **0.000** |
| **TG 46:1** | 208.646 | 280.080 | 157.249 | 47.533 | 71.372 | 18.609 | 45.746 | 0.754 | 1.842 | **0.003** |
| **TG 46:0** | 113.681 | 103.645 | 77.893 | 36.478 | 37.131 | 21.811 | 53.199 | 0.685 | 1.342 | 0.321 |
| **TG 47:2** | 15.940 | 17.064 | 11.844 | 5.667 | 4.276 | 4.666 | 8.518 | 0.743 | 1.549 | 0.297 |
| **TG 47:1** | 39.779 | 27.559 | 21.041 | 18.039 | 7.127 | 3.542 | 8.979 | 0.529 | 1.390 | **0.034** |
| **TG 47:0** | 36.949 | 28.546 | 23.547 | 14.962 | 9.276 | 6.920 | 9.838 | 0.637 | 1.155 | 0.373 |
| **TG 48:4** | 13.035 | 17.687 | 9.357 | 3.815 | 4.800 | 1.894 | 3.157 | 0.718 | 2.045 | **0.004** |
| **TG 48:3** | 163.642 | 304.215 | 93.170 | 30.202 | 96.335 | 11.589 | 23.688 | 0.569 | 3.446 | **0.000** |
| **TG 48:2** | 614.596 | 949.387 | 396.236 | 158.423 | 262.426 | 41.255 | 119.700 | 0.645 | 2.583 | **0.001** |
| **TG 48:1** | 713.438 | 812.384 | 468.773 | 305.980 | 303.215 | 71.111 | 326.580 | 0.657 | 1.828 | 0.110 |
| **TG 48:0** | 217.902 | 182.490 | 151.770 | 75.576 | 81.511 | 49.412 | 100.040 | 0.697 | 1.293 | 0.515 |
| **TG 50:5** | 8.314 | 11.277 | 5.901 | 2.825 | 5.152 | 1.375 | 5.205 | 0.710 | 2.125 | 0.100 |
| **TG 50:4** | 39.244 | 66.950 | 27.784 | 7.395 | 25.837 | 6.987 | 17.431 | 0.708 | 2.594 | **0.001** |
| **TG 50:3** | 736.315 | 1245.896 | 416.695 | 182.226 | 368.493 | 41.428 | 144.876 | 0.566 | 3.327 | **0.000** |
| **TG 50:2** | 2052.556 | 2583.343 | 1290.322 | 812.354 | 831.632 | 111.755 | 778.886 | 0.629 | 2.153 | **0.044** |
| **TG 50:1** | 1158.027 | 1150.781 | 821.328 | 602.823 | 551.641 | 234.794 | 678.343 | 0.709 | 1.497 | 0.613 |
| **TG 52:5** | 21.787 | 33.597 | 17.051 | 8.526 | 16.679 | 6.932 | 16.403 | 0.783 | 2.299 | 0.065 |
| **TG 52:4** | 114.888 | 182.596 | 92.695 | 17.781 | 57.145 | 24.018 | 39.399 | 0.807 | 2.229 | **0.001** |
| **TG 52:3** | 1932.404 | 2768.731 | 1265.879 | 637.924 | 827.802 | 65.009 | 561.282 | 0.655 | 2.444 | **0.002** |
| **TG 52:2** | 2717.757 | 3077.670 | 2036.677 | 1197.180 | 1167.842 | 336.002 | 1250.757 | 0.749 | 1.628 | 0.203 |
| **TG 53:3** | 55.032 | 60.188 | 38.269 | 15.756 | 18.743 | 5.490 | 21.315 | 0.695 | 1.709 | **0.043** |
| **TG 54:6** | 94.428 | 86.898 | 87.496 | 30.510 | 19.656 | 9.057 | 10.106 | 0.927 | 1.097 | 0.539 |
| **TG 54:5** | 53.341 | 59.791 | 46.122 | 25.237 | 26.025 | 13.419 | 19.826 | 0.865 | 1.446 | 0.551 |
| **TG 54:4** | 169.073 | 235.225 | 157.913 | 24.163 | 64.167 | 35.872 | 25.168 | 0.934 | 1.640 | **0.006** |
| **TG 54:3** | 2110.295 | 2724.330 | 1742.479 | 746.298 | 834.777 | 149.647 | 666.291 | 0.826 | 1.626 | **0.031** |

| Species | Formula | Number | DBs | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|---|---|---|
| **TG 44:1** | C47 H88 O6 | 44 | 1 | TG(12:0_16:0_16:1) | TG(14:0_14:0_16:1) | TG(14:0_16:0_14:1) | | | |
| **TG 46:1** | C49 H92 O6 | 46 | 1 | TG(12:0_16:0_18:1) | TG(14:0_16:0_16:1) | TG(15:0_16:0_15:1) | | | |
| **TG 44:2** | C47 H86 O6 | 44 | 2 | TG(12:0_14:1_18:1) | TG(12:0_16:1_16:1) | TG(14:0_14:1_16:1) | TG(16:0_12:1_16:1) | | |
| **TG 46:2** | C49 H90 O6 | 46 | 2 | TG(12:0_16:1_18:1) | TG(14:0_14:1_18:1) | TG(14:0_16:1_16:1) | TG(16:0_14:1_16:1) | | |
| **TG 48:2** | C51 H94 O6 | 48 | 2 | TG(14:0_16:1_18:1) | TG(16:0_16:1_16:1) | | | | |
| **TG 46:3** | C49 H88 O6 | 46 | 3 | TG(12:0_16:1_18:2) | TG(14:0_14:1_18:2) | TG(12:1_16:1_18:1) | TG(14:1_14:1_18:1) | TG(14:1_16:1_16:1) | |
| **TG 48:3** | C51 H92 O6 | 48 | 3 | TG(14:0_16:1_18:2) | TG(16:0_14:1_18:2) | TG(16:0_16:1_16:2) | TG(14:1_16:1_18:1) | TG(16:1_16:1_16:1) | |
| **TG 50:3** | C53 H96 O6 | 50 | 3 | TG(14:0_18:1_18:2) | TG(16:0_14:1_20:2) | TG(16:0_16:1_18:2) | TG(14:1_16:1_20:1) | TG(14:1_18:1_18:1) | TG(16:1_16:1_18:1) |
| **TG 52:3** | C55 H100 O6 | 52 | 3 | TG(16:0_18:1_18:2) | TG(20:0_14:1_18:2) | TG(14:1_18:1_20:1) | TG(16:1_16:1_20:1) | TG(16:1_18:1_18:1) | |
| **TG 50:4** | C53 H94 O6 | 50 | 4 | TG(14:0_18:2_18:2) | TG(16:0_16:1_18:3) | TG(16:1_16:1_18:2) | | | |
| **TG 52:4** | C55 H98 O6 | 52 | 4 | TG(16:0_18:2_18:2) | TG(16:1_16:1_20:2) | TG(16:1_18:1_18:2) | | | |
| **TG 54:4** | C57 H102 O6 | 54 | 4 | TG(16:1_18:1_20:2) | TG(18:1_18:1_18:2) | | | | |

**Table S11.** TGs amounts and molecular species characterized for candidates TGs in HEEs treated with tofacitinib and Th2 cytokines and their combination. Mean values and standard deviation (SD) of TGs amounts (pmol/mg protein) and p-values obtained after Kruskal-Wallis test and molecular species characterized for candidate TGs. The number of molecular species are reported from 1 to 6 (V= vehicle; T= tofacitinib; DBs = number of double bounds).

| Variable | V | T | Th2 | Th2+T | SD V | SD T | SD Th2+T | SD Th2 | FC Th2/V | FC Th2+T/ Th2 | Kruskal-Wallis |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Cholesterol Sulfate** | 3650.722 | 3476.127 | 4601.769 | 3794.5 | 648.154 | 547.234 | 315.653 | 1029.698 | 1.261 | 0.825 | 0.227 |

| Variable | V | T | Th2 | Th2+T | SD V | SD T | SD Th2 | SD Th2+T | FC Th2/V | FC Th2+T/ Th2 | Kruskal-Wallis |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Cer[NS]34:2** | 73.093 | 75.599 | 73.267 | 74.492 | 47.115 | 45.175 | 43.464 | 44.82 | 1.002 | 1.017 | 0.998 |
| **Cer[NS]35:2** | 3.595 | 2.834 | 3.404 | 2.867 | 3.851 | 2.87 | 3.846 | 3.274 | 0.947 | 0.842 | 0.717 |
| **Cer[NS]36:2** | 99.992 | 106.255 | 92.375 | 104.254 | 45.205 | 37.735 | 34.44 | 26.119 | 0.924 | 1.129 | 0.883 |
| **Cer[NS]37:2** | 2.423 | 2.049 | 1.583 | 2.171 | 0.684 | 0.684 | 0.535 | 0.995 | 0.653 | 1.371 | 0.344 |
| **Cer[NS]38:2** | 68.854 | 65.654 | 73.585 | 61.931 | 49.354 | 42.75 | 61.538 | 39.339 | 1.069 | 0.842 | 1 |
| **Cer[NS]39:2** | 4.571 | 5.531 | 4.389 | 4.622 | 2.234 | 2.275 | 2.289 | 2.932 | 0.96 | 1.053 | 0.79 |
| **Cer[NS]40:2** | 207.305 | 225.463 | 246.077 | 214.712 | 151.579 | 150.379 | 212.334 | 142.932 | 1.187 | 0.873 | 0.917 |
| **Cer[NS]41:2** | 18.435 | 20.728 | 16.293 | 21.057 | 9.645 | 9.521 | 9.777 | 10.543 | 0.884 | 1.292 | 0.895 |
| **Cer[NS]42:2** | 895.153 | 844.043 | 904.436 | 809.028 | 675.165 | 568.659 | 661.799 | 273.798 | 1.01 | 0.895 | 0.995 |
| **Cer[NS]43:2** | 22.685 | 24.437 | 19.503 | 25.367 | 10.145 | 7.206 | 9.989 | 5.868 | 0.86 | 1.301 | 0.829 |
| **Cer[NS]44:2** | 611.793 | 629.392 | 615.463 | 563.926 | 591.665 | 564.666 | 503.855 | 198.622 | 1.006 | 0.916 | 0.792 |
| **Cer[NS]45:2** | 15.161 | 14.94 | 9.822 | 13.73 | 9.286 | 7.815 | 5.442 | 6.883 | 0.648 | 1.398 | 0.767 |
| **Cer[NS]46:2** | 632.81 | 564.18 | 382.411 | 410.095 | 504.994 | 387.958 | 286.661 | 173.072 | 0.604 | 1.072 | 0.79 |
| **Cer[NS]47:2** | 8.362 | 9.059 | 4.969 | 9.334 | 5.311 | 4.501 | 2.479 | 5.624 | 0.594 | 1.878 | 0.279 |
| **Cer[NS]48:2** | 415.6 | 413.619 | 269.841 | 328.667 | 334.625 | 263.752 | 177.822 | 172.428 | 0.649 | 1.218 | 0.721 |
| **Cer[NS]49:2** | 4.173 | 3.702 | 1.699 | 3.964 | 2.474 | 2.25 | 1.149 | 1.863 | 0.407 | 2.333 | 0.085 |
| **Cer[NS]50:2** | 79.378 | 96.657 | 61.049 | 77.936 | 64.058 | 59.918 | 34.806 | 43.762 | 0.769 | 1.277 | 0.728 |
| **Cer[NS]32:1** | 301.571 | 306.68 | 261.204 | 259.79 | 155.768 | 138.947 | 134.713 | 68.487 | 0.866 | 0.995 | 0.876 |
| **Cer[NS]33:1** | 37.155 | 36.827 | 29.52 | 35.613 | 14.027 | 8.384 | 8.135 | 6.03 | 0.794 | 1.206 | 0.373 |
| **Cer[NS]34:1** | 3249.15 | 3637.743 | 3146.112 | 3328.847 | 1258.018 | 1228.447 | 1362.937 | 552.05 | 0.968 | 1.058 | 0.944 |
| **Cer[NS]35:1** | 9.795 | 8.342 | 6.957 | 9.874 | 3.805 | 3.904 | 2.684 | 0.831 | 0.71 | 1.419 | 0.239 |
| **Cer[NS]36:1** | 750.66 | 791.208 | 661.577 | 814.007 | 338.093 | 246.068 | 238.329 | 227.072 | 0.881 | 1.23 | 0.825 |
| **Cer[NS]37:1** | 15.895 | 14.602 | 9.708 | 15.518 | 8.664 | 4.203 | 2.268 | 3.803 | 0.611 | 1.598 | 0.085 |
| **Cer[NS]38:1** | 846.817 | 915.861 | 708.212 | 973.155 | 354.816 | 246.001 | 186.178 | 210.44 | 0.836 | 1.374 | 0.254 |
| **Cer[NS]39:1** | 50.25 | 51.227 | 34.081 | 59.099 | 28.625 | 25.536 | 14.371 | 31.733 | 0.678 | 1.734 | 0.532 |
| **Cer[NS]40:1** | 2728.849 | 2771.405 | 2539.89 | 2878.591 | 1394.637 | 1029.195 | 1309.535 | 1156.533 | 0.931 | 1.133 | 0.819 |
| **Cer[NS]41:1** | 202.397 | 198.566 | 136.578 | 223.632 | 115.138 | 94.559 | 60.074 | 112.471 | 0.675 | 1.637 | 0.401 |
| **Cer[NS]42:1** | 6327.418 | 6287.925 | 5911.758 | 6218.356 | 3423.084 | 2432.674 | 3252.343 | 2632.491 | 0.934 | 1.052 | 0.96 |
| **Cer[NS]43:1** | 274.014 | 274.445 | 205.207 | 305.321 | 154.335 | 128.047 | 93.442 | 165.914 | 0.749 | 1.488 | 0.539 |
| **Cer[NS]44:1** | 5680.251 | 5547.25 | 5545.631 | 5420.329 | 2875.593 | 2167.24 | 3053.903 | 2285.251 | 0.976 | 0.977 | 0.913 |
| **Cer[NS]45:1** | 70.324 | 70.27 | 54.275 | 74.358 | 41.807 | 42.14 | 28.936 | 44.005 | 0.772 | 1.37 | 0.838 |
| **Cer[NS]46:1** | 987.304 | 954.324 | 924.676 | 1060.45 | 635.873 | 536.193 | 599.545 | 680.586 | 0.937 | 1.147 | 0.79 |
| **Cer[NS]47:1** | 15.377 | 11.912 | 9.638 | 15.697 | 8.726 | 9.197 | 6.075 | 9.822 | 0.627 | 1.629 | 0.377 |
| **Cer[NS]48:1** | 168.054 | 159.653 | 145.576 | 173.85 | 111.824 | 106.528 | 98.647 | 110.876 | 0.866 | 1.194 | 0.846 |
| **Cer[NS]49:1** | 4.175 | 3.134 | 2.32 | 4.61 | 1.623 | 1.658 | 1.012 | 1.444 | 0.556 | 1.987 | 0.066 |
| **Cer[NS]50:1** | 33.223 | 35.345 | 29.776 | 32.416 | 20.771 | 15.79 | 14.205 | 13.306 | 0.896 | 1.089 | 0.958 |

| Variable | V | T | Th2 | Th2+T | SD V | SD T | SD Th2 | SD Th2+T | FC Th2/V | FC Th2+T/ Th2 | Kruskal-Wallis |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Cer[NDS]32:0** | 22.243 | 17.731 | 16.158 | 17.403 | 5.769 | 3.725 | 6.043 | 2.816 | 0.726 | 1.077 | 0.156 |
| **Cer[NDS]33:0** | 1.775 | 1.255 | 1.052 | 1.331 | 1.657 | 0.654 | 0.767 | 0.968 | 0.593 | 1.265 | 0.743 |
| **Cer[NDS]34:0** | 124.528 | 111.921 | 104.56 | 126.486 | 49.94 | 31.246 | 25.605 | 5.251 | 0.84 | 1.21 | 0.502 |
| **Cer[NDS]35:0** | 1.006 | 0.662 | 0.732 | 0.705 | 0.189 | 0.325 | 0.35 | 0.345 | 0.728 | 0.962 | 0.33 |
| **Cer[NDS]36:0** | 50.13 | 47.064 | 46.391 | 52.07 | 34.645 | 29.87 | 30.598 | 30.85 | 0.925 | 1.122 | 0.748 |
| **Cer[NDS]37:0** | 2.244 | 2.213 | 1.946 | 2.931 | 1.58 | 1.296 | 1.836 | 2.137 | 0.867 | 1.506 | 0.843 |
| **Cer[NDS]38:0** | 62.953 | 58.576 | 57.03 | 68.462 | 46.625 | 37.896 | 44.826 | 53.553 | 0.906 | 1.2 | 0.909 |
| **Cer[NDS]39:0** | 4.547 | 3.238 | 2.719 | 3.856 | 2.186 | 1.641 | 1.034 | 1.57 | 0.598 | 1.418 | 0.447 |
| **Cer[NDS]40:0** | 156.69 | 140.152 | 146.606 | 183.942 | 99.017 | 90.78 | 122.132 | 98.545 | 0.936 | 1.255 | 0.819 |
| **Cer[NDS]41:0** | 8.809 | 6.723 | 6.909 | 9.685 | 4.481 | 3.935 | 4.768 | 4.492 | 0.784 | 1.402 | 0.414 |
| **Cer[NDS]42:0** | 185.888 | 176.797 | 215.4 | 238.121 | 101.903 | 78.386 | 134.566 | 107.864 | 1.159 | 1.105 | 0.533 |
| **Cer[NDS]43:0** | 7.053 | 6.486 | 6.246 | 7.093 | 3.592 | 3.626 | 4.634 | 4.044 | 0.886 | 1.136 | 0.732 |
| **Cer[NDS]44:0** | 171.079 | 140.342 | 166.334 | 161.279 | 114.903 | 103.032 | 145.534 | 110.995 | 0.972 | 0.97 | 0.96 |
| **Cer[NDS]45:0** | 7.241 | 5.159 | 4.639 | 5.603 | 3.771 | 2.259 | 2.03 | 2.438 | 0.641 | 1.208 | 0.416 |
| **Cer[NDS]46:0** | 84.237 | 73.053 | 78.842 | 87.398 | 51.939 | 48.778 | 65.033 | 56.567 | 0.936 | 1.109 | 0.932 |
| **Cer[NDS]47:0** | 6.057 | 4.813 | 3.695 | 4.264 | 3.5 | 1.232 | 1.006 | 1.327 | 0.61 | 1.154 | 0.384 |
| **Cer[NDS]48:0** | 50.387 | 43.985 | 41.89 | 48.108 | 30.351 | 27.409 | 30.155 | 30.918 | 0.831 | 1.148 | 0.845 |
| **Cer[NP]38:0** | 120.277 | 121.364 | 138.344 | 129.861 | 48.914 | 30.418 | 38.207 | 15.734 | 1.15 | 0.939 | 0.74 |
| **Cer[NP]39:0** | 8.844 | 9.847 | 8.074 | 9.693 | 4.799 | 3.514 | 2.752 | 0.985 | 0.913 | 1.2 | 0.515 |
| **Cer[NP]40:0** | 325.907 | 313.89 | 373.332 | 335.014 | 127.111 | 86.506 | 183.495 | 84.635 | 1.146 | 0.897 | 0.983 |
| **Cer[NP]41:0** | 30.418 | 30.305 | 25.208 | 30.271 | 13.378 | 11.285 | 7.288 | 6.249 | 0.829 | 1.201 | 0.69 |
| **Cer[NP]42:0** | 1091.252 | 963.1 | 1173.769 | 1043.273 | 308.396 | 158.583 | 402.161 | 147.719 | 1.076 | 0.889 | 0.742 |
| **Cer[NP]43:0** | 28.291 | 26.486 | 24.5 | 27.327 | 10.915 | 7.625 | 8.857 | 6.963 | 0.866 | 1.115 | 0.889 |
| **Cer[NP]44:0** | 509.72 | 493.832 | 550.248 | 468.123 | 118.994 | 115.707 | 163.703 | 70.469 | 1.08 | 0.851 | 0.739 |
| **Cer[NP]45:0** | 12.053 | 10.076 | 10.602 | 9.251 | 6.11 | 2.393 | 2.004 | 1.701 | 0.88 | 0.873 | 0.771 |
| **Cer[NP]46:0** | 397.667 | 375.841 | 376.959 | 305.995 | 403.732 | 469.971 | 426.197 | 201.981 | 0.948 | 0.812 | 0.819 |
| **Cer[NP]47:0** | 10.4 | 7.205 | 6.993 | 7.472 | 5.398 | 1.66 | 0.971 | 0.901 | 0.672 | 1.068 | 0.588 |
| **Cer[NP]48:0** | 333.553 | 375.258 | 249.865 | 275.607 | 218.338 | 223.088 | 237.442 | 76.971 | 0.749 | 1.103 | 0.44 |
| **Cer[NP]49:0** | 4.322 | 3.013 | 2.314 | 3.051 | 2.651 | 0.63 | 0.837 | 0.576 | 0.535 | 1.319 | 0.261 |
| **Cer[NP]50:0** | 71.53 | 94.931 | 60.187 | 80.682 | 23.897 | 29.314 | 38.027 | 11.615 | 0.841 | 1.341 | 0.314 |
| **Cer[AH]34:1** | 9.668 | 10.907 | 10.274 | 9.21 | 8.322 | 9.523 | 10.136 | 6.268 | 1.063 | 0.896 | 0.933 |
| **Cer[AH]36:1** | 31.283 | 36.848 | 31.93 | 32.426 | 24.476 | 30.66 | 29.343 | 22.261 | 1.021 | 1.016 | 0.974 |
| **Cer[AH]38:1** | 6.654 | 5.795 | 5.309 | 5.428 | 4.185 | 3.578 | 3.633 | 3.127 | 0.798 | 1.022 | 0.668 |
| **Cer[AH]40:1** | 27.262 | 28.046 | 15.509 | 34.682 | 30.837 | 34.181 | 14.128 | 41.542 | 0.569 | 2.236 | 0.688 |
| **Cer[AH]42:1** | 46.395 | 43.029 | 24.396 | 48.608 | 48.844 | 46.814 | 19.236 | 55.938 | 0.526 | 1.992 | 0.854 |
| **Cer[AH]44:1** | 33.212 | 31.931 | 23.919 | 31.122 | 13.512 | 12.948 | 5.921 | 14.039 | 0.72 | 1.301 | 0.659 |
| **Cer[AH]46:1** | 14.543 | 13.463 | 11.96 | 11.497 | 9.912 | 8.448 | 7.947 | 6.638 | 0.822 | 0.961 | 0.766 |
| **Cer[AP]38:0** | 4.9 | 3.965 | 3.745 | 4.198 | 2.645 | 1.224 | 1.397 | 0.608 | 0.764 | 1.121 | 0.69 |
| **Cer[AP]40:0** | 8.086 | 8.212 | 7.295 | 7.824 | 4.796 | 2.779 | 3.043 | 1.073 | 0.902 | 1.073 | 0.809 |
| **Cer[AP]42:0** | 30.3 | 26.08 | 25.674 | 24.297 | 14.067 | 4.768 | 6.01 | 4.218 | 0.847 | 0.946 | 0.901 |
| **Cer[AP]44:0** | 15.671 | 12.023 | 12.558 | 11.972 | 7.511 | 2.272 | 2.628 | 1.115 | 0.801 | 0.953 | 0.883 |
| **Cer[AP]46:0** | 6.465 | 4.368 | 3.902 | 3.493 | 4.837 | 0.613 | 0.949 | 0.707 | 0.603 | 0.895 | 0.178 |

| Variable | V | T | Th2 | Th2+T | SD V | SD T | SD Th2 | SD Th2+T | FC Th2/V | FC Th2+T/ Th2 | Kruskal-Wallis |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Cer[NH]40:1** | 15.781 | 22.945 | 18.614 | 20.763 | 9.894 | 13.223 | 16.346 | 8.931 | 1.18 | 1.115 | 0.435 |
| **Cer[NH]41:1** | 3.905 | 4.458 | 3.362 | 4.072 | 1.481 | 1.93 | 2.426 | 1.947 | 0.861 | 1.211 | 0.653 |
| **Cer[NH]42:1** | 119.129 | 117.868 | 102.385 | 99.059 | 57.916 | 50.129 | 45.253 | 35.138 | 0.859 | 0.968 | 0.655 |
| **Cer[NH]43:1** | 7.172 | 7.237 | 4.961 | 5.578 | 2.698 | 1.628 | 2.619 | 2.67 | 0.692 | 1.125 | 0.267 |
| **Cer[NH]44:1** | 110.61 | 108.108 | 96.841 | 88.834 | 62.952 | 54.335 | 47.889 | 21.773 | 0.876 | 0.917 | 0.94 |
| **Cer[NH]45:1** | 3.441 | 3.262 | 2.112 | 3.193 | 0.718 | 0.908 | 0.799 | 0.713 | 0.614 | 1.512 | **0.044** |
| **Cer[NH]46:1** | 81.387 | 83.714 | 72.001 | 62.905 | 34.765 | 34.486 | 34.94 | 14.608 | 0.885 | 0.874 | 0.755 |
| **Cer[AS]34:1** | 117.714 | 132.066 | 114.854 | 161.501 | 39.469 | 31.909 | 19.386 | 25.331 | 0.976 | 1.406 | 0.069 |
| **Cer[AS]35:1** | 23.264 | 22.506 | 21.387 | 21.957 | 17.34 | 17.922 | 16.496 | 16.362 | 0.919 | 1.027 | 0.864 |
| **Cer[AS]36:1** | 10.205 | 13.639 | 7.429 | 14.634 | 6.763 | 7.804 | 3.734 | 5.518 | 0.728 | 1.97 | 0.167 |
| **Cer[AS]37:1** | 3.52 | 4.243 | 1.822 | 4.045 | 2.141 | 1.693 | 2.243 | 1.198 | 0.518 | 2.22 | 0.191 |
| **Cer[AS]38:1** | 60.886 | 65.247 | 38.235 | 74.814 | 52.906 | 30.246 | 21.46 | 20.839 | 0.628 | 1.957 | 0.097 |
| **Cer[AS]39:1** | 20.016 | 22.022 | 11.629 | 25.183 | 16.328 | 11.058 | 10.583 | 5.084 | 0.581 | 2.166 | 0.252 |
| **Cer[AS]40:1** | 199.794 | 206.556 | 127.798 | 235.23 | 139.45 | 82.476 | 49.141 | 79.342 | 0.64 | 1.841 | 0.128 |
| **Cer[AS]41:1** | 42.887 | 52.305 | 21.646 | 59.228 | 33.898 | 22.787 | 19.325 | 20.537 | 0.505 | 2.736 | 0.107 |
| **Cer[AS]42:1** | 350.2 | 369.315 | 214.81 | 406.995 | 230.083 | 120.963 | 78.674 | 117.35 | 0.613 | 1.895 | 0.077 |
| **Cer[AS]43:1** | 32.142 | 35.475 | 16.36 | 38.451 | 23.173 | 14.089 | 12.784 | 13.279 | 0.509 | 2.35 | 0.228 |
| **Cer[AS]44:1** | 203.249 | 210.641 | 156.594 | 217.456 | 109.535 | 62.928 | 51.616 | 77.141 | 0.77 | 1.389 | 0.449 |
| **Cer[AS]45:1** | 8.323 | 8.86 | 4.269 | 8.17 | 4.035 | 3.02 | 2.546 | 2.253 | 0.513 | 1.914 | 0.088 |
| **Cer[AS]46:1** | 43.456 | 40.239 | 34.612 | 43.903 | 28.578 | 24.347 | 23.09 | 28.069 | 0.797 | 1.268 | 0.87 |

| Variable | V | T | Th2 | Th2+T | SD V | SD T | SD Th2 | SD Th2+T | FC Th2/V | FC Th2+T/ Th2 | Kruskal-Wallis |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Cer[EODS]64:2** | 31.302 | 29.801 | 28.152 | 25.798 | 45.79 | 43.678 | 42.006 | 38.945 | 0.899 | 0.916 | 0.872 |
| **Cer[EODS]66:2** | 158.978 | 153.396 | 112.118 | 114.578 | 134.485 | 89.724 | 62.497 | 68.331 | 0.705 | 1.022 | 0.779 |
| **Cer[EODS]68:2** | 107.131 | 115.202 | 83.175 | 90.78 | 54.337 | 47.603 | 42.881 | 18.673 | 0.776 | 1.091 | 0.695 |
| **Cer[EOS]64:3** | 222.846 | 204.009 | 156.529 | 161.03 | 191.448 | 140.365 | 107.059 | 101.839 | 0.702 | 1.029 | 0.809 |
| **Cer[EOS]66:3** | 965.313 | 897.068 | 679.523 | 649.214 | 839.596 | 664.375 | 482.775 | 390.776 | 0.704 | 0.955 | 0.782 |
| **Cer[EOS]68:3** | 266.899 | 338.615 | 273.418 | 269.888 | 225.079 | 325.325 | 275.482 | 191.121 | 1.024 | 0.987 | 0.867 |
| **Cer[EOH]64:3** | 19.102 | 21.791 | 10.717 | 21.014 | 7.773 | 5.688 | 6.161 | 7.971 | 0.561 | 1.961 | 0.068 |
| **Cer[EOH]66:3** | 59.624 | 75.666 | 39.248 | 71.981 | 31.076 | 16.558 | 22.617 | 24.608 | 0.658 | 1.834 | 0.121 |
| **Cer[EOH]68:3** | 72.078 | 83.497 | 44.781 | 84.792 | 42.24 | 18.687 | 20.096 | 23.455 | 0.621 | 1.893 | 0.093 |
| **Cer[EOP]64:2** | 18.306 | 17.827 | 12.996 | 16.097 | 7.642 | 4.855 | 4.765 | 3.484 | 0.71 | 1.239 | 0.351 |
| **Cer[EOP]66:2** | 75.438 | 74.92 | 51.777 | 62.004 | 31.645 | 35.604 | 38.666 | 11.123 | 0.686 | 1.198 | 0.218 |
| **Cer[EOP]68:2** | 82.664 | 84.365 | 59.029 | 82.729 | 28.823 | 31.682 | 26.61 | 14.444 | 0.714 | 1.401 | 0.355 |

| Variable | V | T | Th2 | Th2+T | SD V | SD T | SD Th2 | SD Th2+T | FC Th2/V | FC Th2+T/ Th2 | Kruskal-Wallis |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **CerNS(16)** | 14.462 | 13.722 | 14.104 | 14.5 | 1.766 | 2.164 | 2.487 | 1.007 | 0.975 | 1.028 | 0.454 |
| **CerNS(17)** | 0.892 | 0.842 | 0.835 | 0.849 | 0.191 | 0.131 | 0.153 | 0.124 | 0.936 | 1.017 | 0.97 |
| **CerNS(18)** | 70.48 | 65.164 | 65.854 | 68.558 | 7.013 | 5.977 | 7.085 | 5.228 | 0.934 | 1.041 | 0.256 |
| **CerNS(19)** | 0.15 | 0.128 | 0.139 | 0.148 | 0.03 | 0.011 | 0.018 | 0.015 | 0.928 | 1.061 | 0.22 |
| **CerNS(20)** | 3.172 | 2.891 | 3.097 | 3.23 | 1.002 | 0.662 | 0.748 | 0.729 | 0.976 | 1.043 | 0.795 |
| **CerNS(22)** | 1.108 | 1.031 | 1.092 | 1.048 | 0.698 | 0.325 | 0.532 | 0.24 | 0.986 | 0.96 | 0.95 |
| **CerNS(24)** | 0.212 | 0.137 | 0.156 | 0.156 | 0.112 | 0.07 | 0.086 | 0.046 | 0.737 | 0.995 | 0.449 |
| **CerNP(16)** | 2.469 | 2.286 | 2.433 | 2.353 | 0.267 | 0.327 | 0.428 | 0.324 | 0.986 | 0.967 | 0.804 |
| **CerNP(18)** | 13.963 | 12.388 | 12.604 | 12.776 | 1.147 | 1.041 | 1.512 | 1.196 | 0.903 | 1.014 | 0.064 |
| **CerNP(20)** | 2.391 | 1.864 | 2.364 | 2.036 | 0.699 | 0.335 | 0.553 | 0.628 | 0.989 | 0.862 | 0.259 |

**Table S12.** Cholesterol sulfate, ceramides and of the selected SBs amounts in HEEs treated with tofacitinib and Th2 cytokines and their combination. Mean values and standard deviation (SD) of Cholesterol Sulfate, ceramides and of the selected SBs amounts (pmol/mg protein) and p-values obtained after Kruskal-Wallis test (V= vehicle; T= tofacitinib).