**Supplementary Materials**

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| **Table S1. Combined lipopolysaccharide (LPS) and collagen induced arthritis (CIA) animal exposure modeling at 1 week.** | | | | |
|  | **Sham** | **CIA** | **LPS** | **CIA + LPS** |
| BALF Total Cells (x105) | 0.73 ± 0.09 | 0.63 ± 0.07 | **10.1 ± 1.16##** | **10.30 ± 1.18##,++** |
| BALF Neutrophils (x105) | 0.32 ± 0.05 | 0.27 ± 0.41 | **8.78 ± 1.11##** | **8.43 ± 0.86##,++** |
| BALF Macrophages (x105) | 0.40 ± 0.04 | 0.36 ± 0.05 | **1.09 ± 0.15#** | **1.54 ± 0.41##,++** |
| BALF Lymphocytes (x105) | 0.011 ± 0.002 | 0.006 ± 0.003 | 0.171 ± 0.046 | **0.339 ± 0.094##,++** |
| BALF TNF-⍺ (pg/ml) | 4.9 ± 2.7 | 10.5 ± 4.0 | **142.0 ± 47.1#** | **161.5 ± 25.1##,++** |
| BALF IL-6 (pg/ml) | 19 ± 6 | 12 ± 3 | **409 ± 105##** | **730 ± 147###,+++** |
| BALF CXCL2 (pg/ml) | 85.1 ± 10.5 | 126 ± 35 | **293 ± 121##** | **213 ± 34.6##** |
| BALF Fibronectin (µg/ml) | 0.42 ± 0.05 | **0.66 ± 0.09#** | **1.16 ± 0.26#** | **2.29 ± 0.41###,++,\*** |
| Lung IL-33 (ng/ml) | 5.1 ± 1.0 | 5.1 ± 1.1 | **11.4 ± 1.5##** | **14.0 ± 0.6####,+++,\*\*\*** |
| Lung Fibronectin (µg/ml) | 0.19 ± 0.03 | 0.18 ± 0.03 | **0.39 ± 0.06#** | **0.57 ± 0.05####,++++,\*** |
| Lung C5a (µg/ml) | 3.1 ± 0.4 | 3.1 ± 0.3 | 3.1 ± 0.1 | 3.1 ± 0.7 |
| Lung IL-25 (pg/ml) | 20.1 ± 4.3 | 19.4 ± 2.9 | 23.6 ± 3.5 | 25.2 ± 2.7 |
| Lung TIMP-1 (ng/ml) | 0.52 ± 0.06 | 0.62 ± 0.19 | **8.43 ± 2.01###** | **6.19 ± 0.91##,++** |
| Lung MMP-3 (ng/ml) | 4.10 ± 0.85 | 4.17 ± 0.90 | 4.18 ± 0.50 | 4.08 ± 0.16 |
| Lung MMP-8 (µg/ml) | 0.43 ± 0.05 | 0.55 ± 0.05 | **1.80 ± 0.22##** | **2.01 ± 0.33###,+++** |
| Lung MMP-9 (µg/ml) | 0.11 ± 0.09 | 0.09 ± 0.01 | **0.50 ± 0.08###** | **0.55 ± 0.07###,+++** |
| Lung Total Cells (x105) | 76.5 ± 2.9 | 63.4 ± 7.4 | **407.8 ± 52.9#** | 335.1 ± 79.4**++** |
| Lung Neutrophils (%) | 18.1 ± 1.6 | 20.2 ± 2.0 | **38.5 ± 2.0##** | **34.6 ± 3.3#,+** |
| Lung Alveolar Mϕ (%) | 17.2 ± 1.9 | 23.0 ± 3.4 | **1.4 ± 0.3##** | **2.8 ± 0.7##,+** |
| Lung Activated Mϕ (%) | 0.7 ± 0.2 | 1.2 ± 0.4 | **3.5 ± 0.1##** | **4.8 ± 0.7##,+** |
| Lung Monocytes- Mϕ (%) | 0.6 ± 0.2 | 1.0 ± 0.5 | **4.3 ± 0.8#** | **7.9 ±1.4##,+** |
| Lung Monocytes (%) | 0.7 ± 0.1 | 0.6 ± 0.04 | **1.5 ± 0.4#** | **2.6 ± 0.6##,++** |
| Serum Pentraxin-2 (µg/ml) | 16.7 ± 0.9 | **132.4 ± 32.8#** | **127.0 ± 14.3##** | **228.5 ± 36.3####,+,\*** |
| Serum MAA IgG (ng/ml) | 648.0 ± 101.6 | 1325 ± 109.6 | 421 ± 155 | **2539.0 ± 597.2##\*\*** |
| Serum ACPA IgG (ng/ml) | 32.91 ± 20.46 | 365.3 ± 165.5 | 0 ± 0 | 70.93 ± 47.7 |
| Serum MAA-CIT IgG (ng/ml) | 553.6 ± 90.01 | 1076 ± 217.7 | 315.6 ± 134.5 | **1453 ± 38.3##,++++** |

Statistical difference vs. sham (#p<0.05, ##p<0.01, ###p<0.001, ####p<0.0001) and bolded; difference between CIA+LPS and LPS (\*p<0.05, \*\*p<0.01, \*\*\*p<0.001; difference between CIA+LPS and CIA (+p<0.05, ++p<0.01, ++p<0.001, ++++p<0.0001). ACPA: anti-citrullinated protein antibody; BALF: Bronchoalveolar lavage fluid; MMP: matrix metalloproteinase; TIMP-1: tissue inhibitor of metalloproteinases; MAA: Malondialdehyde acetaldehyde; CIT: citrullinated proteins; Mφ: Macrophages

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| **Table S2. Combined lipopolysaccharide (LPS) and collagen induced arthritis (CIA) animal exposure modeling at 3 weeks.** | | | | |
|  | **Sham** | **CIA** | **LPS** | **CIA + LPS** |
| BALF Total Cells (x105) | 0.73 ± 0.19 | 0.85 ± 0.51 | **2.36 ± 0.45##** | **3.13 ± 0.61##,++** |
| BALF Neutrophils (x105) | 0.24 ± 0.56 | **0.0 ± 0.02#** | **1.78 ± 0.50##** | **2.57 ± 0.51###,+++** |
| BALF Macrophages (x105) | 0.48 ± 0.15 | 0.78 ± 0.51 | 0.55 ± 0.08 | 0.52 ± 0.11 |
| BALF Lymphocytes (x105) | 0.007 ± 0.004 | 0.001 ± 0.001 | 0.032 ± 0.020 | 0.048 ± 0.028 |
| BALF TNF-⍺ (pg/ml) | 13.4 ± 2.9 | 6.5 ± 1.0# | **35.7 ± 8.8#** | **45.6 ± 3.0##,+++** |
| BALF IL-6 (pg/ml) | 3.2 ± 1.2 | 1.2 ± 0.4 | **216.0 ± 63.0##** | **311.3 ± 26.9###,+++** |
| BALF CXCL2 (pg/ml) | 69.8 ± 4.4 | **42 ± 6.1##** | **193 ± 38##** | **202 ± 38##,,++** |
| BALF Fibronectin (µg/ml) | 0.39 ± 0.06 | 0.33 ± 0.03 | **0.88 ± 0.13##** | **1.12 ± 0.06####,++++** |
| Lung IL-33 (ng/ml) | 3.5 ± 0.6 | 5.8 ± 1.2 | 5.9 ± 0.9 | **16.1 ± 2.3####,+++,**\*\*\* |
| Lung Fibronectin (µg/ml) | 0.23 ± 0.01 | 0.35 ± 0.04 | 0.25 ± 0.02 | **0.50 ± 0.07##,**\*\* |
| Lung C5a (µg/ml) | 1.6 ± 0.1 | 1.8 ± 0.2 | 1.5 ± 0.9 | **2.4 ± 0.3#,**\* |
| Lung IL-25 (pg/ml) | 11.8 ± 1.4 | 11.2 ± 1.0 | 13.1 ± 0.7 | 10.0 ± 1.0 |
| Lung TIMP-1 (ng/ml) | 0.73 ± 0.98 | **0.69 ± 0.16++** | **0.67 ± 0.16\*\*** | **1.90 ± 0.28##** |
| Lung MMP-3 (ng/ml) | 4.61 ± 0.91 | 5.86 ± 0.90 | 4.99 ± 0.48 | 6.36 ± 1.07 |
| Lung MMP-8 (µg/ml) | 0.31 ± 0.05 | **0.62 ± 0.10#** | 0.52 ± 0.07 | **0.95 ± 0.14##,**\* |
| Lung MMP-9 (µg/ml) | 0.05 ± 0.01 | 0.10 ± 0.02 | 0.08 ± 0.03 | **0.18 ± 0.03##** |
| Lung Total Cells (x105) | 41.3 ± 10.6 | **50.1 ± 10.5+** | 66.9 ± 10.1 | **108.3 ± 20.1##** |
| Lung Neutrophils (%) | 18.2 ± 0.7 | 16.8 ± 4.2 | 21.2 ± 1.3 | 23.1 ± 2.5 |
| Lung Alveolar Mϕ (%) | 21.8 ± 2.5 | 16.8 ± 1.7 | 17.6 ± 2.7 | **16.0 ± 1.2#** |
| Lung Activated Mϕ (%) | 1.6 ± 0.2 | 2.2 ± 0.6 | **3.8 ± 0.4##** | **5.9 ± 0.9###,++** |
| Lung Monocytes- Mϕ (%) | 1.1 ± 0.1 | 1.5 ± 0.4 | **2.2 ± 0.1##** | **4.1 ± 1.3##** |
| Lung Monocytes (%) | 0.8 ± 0.1 | 0.8 ± 0.1 | 1.2 ± 0.1 | **1.5 ± 0.2#,+** |
| Serum Pentraxin-2 (µg/ml) | 12.3 ± 1.3 | **44.2 ± 12.5##** | 13.3 ± 2.4 | **32.9 ± 3.2##,**\*\* |
| Serum MAA IgG (ng/ml) | 409.4 ± 53.74 | **1574 ±126###** | 216.5 ± 26.43 | 446 ± 72.38 |
| Serum ACPA IgG (ng/ml) | 7.68 ± 7.68 | 119.8 ± 52.9 | 0 ± 0 | 19.46 ± 12.79 |
| Serum MAA-CIT IgG (ng/ml) | 249.9 ± 72.38 | **1056 ± 127.4##** | 369.6 ± 158.5 | 394.1 ± 112.8 |

Statistical difference vs. sham (#p<0.05, ##p<0.01, ###p<0.001, ####p<0.0001) and bolded; difference between CIA+LPS and LPS (\*p<0.05, \*\*p<0.01, \*\*\*p<0.001; difference between CIA+LPS and CIA (+p<0.05, ++p<0.01, ++p<0.001, ++++p<0.0001). ACPA: anti-citrullinated protein antibody; BALF: Bronchoalveolar lavage fluid; MMP: matrix metalloproteinase; TIMP-1: tissue inhibitor of metalloproteinases; MAA: Malondialdehyde acetaldehyde; CIT: citrullinated proteins; Mφ: Macrophages