

## SUPPLEMENTAL MATERIAL

### **Figure 2 A-F: Names of the proteins depicted in Figure 2 A-F.**

**In panel A:** S10A8 (protein S100-A8), CATS (cathepsin S), S10A9 (protein S100-A9), CATG (cathepsin G), PERM (myeloperoxidase), BPIB1 (BPI fold-containing family B member 1), RNAS2 (non-secretory ribonuclease), YBOX1 (nuclease-sensitive element-binding protein 1), ELNE (neutrophil elastase), IL18, (isoform 2 of interleukin-18), FHR1 (complement factor H-related protein 1), S10AC (protein S100-A12), CFAB (complement factor B), LYSC (lysozyme C), MMP9 (matrix metalloproteinase-9), ATRN (attractin), NGAL (neutrophil gelatinase-associated lipocalin), PA21B (phospholipase A2), PTMA (prothymosin alpha), TXNL1 (thioredoxin), IL1AP (interleukin-1 receptor accessory protein), CD166 (CD166 antigen), VTNC (vitronectin), ICAM1 (intercellular adhesion molecule 1), IL6RB (interleukin-6 receptor subunit beta), CDC42 (cell division control protein 42), PIGR (polymeric immunoglobulin receptor), TRADD (TNF receptor binding type 1), CO4B (complement C4-B), and PAIRB (plasminogen).

**In panel B:** CATA (catalase), GSHR (glutathione reductase), NQO1 (NAD(P)H dehydrogenase), AK1A1 (alcohol dehydrogenase [NADP(+)]), GPX1 (glutathione peroxidase 1), SODC (superoxide dismutase [Cu-Zn]), GSTA1 (glutathione S-transferase A1), GPX4 (phospholipid hydroperoxide glutathione peroxidase), CBR3 (carbonyl reductase [NADPH] 3), AL9A1 (4-trimethylaminobutyraldehyde dehydrogenase), ANXA1 (annexin A1), CBR1 (carbonyl reductase [NADPH] 1), ADHX (alcohol dehydrogenase), HSPB1 (heat shock protein beta-1), LDHA (L-lactate dehydrogenase A), A1AT (alpha-1-antitrypsin), LDHB (L-lactate dehydrogenase B), PRDX6 (peroxiredoxin-6), ARK72 (aflatoxin B1 aldehyde reductase member 2), and AL7A1 (alpha-aminoadipic semialdehyde dehydrogenase).

**In panel C:** MUC5A (mucin-5AC), S10A7-A9 (protein S100-A8 to A9), MUC4 (mucin-4), MUC1 (mucin-1), LYSC (lysozyme C), DEF1 (neutrophil defensin 1), SFPA2 (pulmonary surfactant-associated protein A2), CAMP (cathelicidin antimicrobial peptide), CO6 (complement component C6), PGRP2 (N-acetylmuramoyl-L-alanine amidase), SFTPD (pulmonary surfactant-associated protein D), and CO2 to 5 (complement C2 to C5).

**In panel D:** CFAH (complement factor H), FHR1 (complement factor H-related protein 1), CFAB (complement factor B), CO8G (complement component C8), SFPA2 (pulmonary surfactant-associated protein A2), C1R (complement C1r), C1S (complement C1s), CFAI (complement factor I), CO9 (complement component C9), C4BPA (C4b-binding protein alpha chain), CO7 (complement component C7), CO6 (complement component C6), C1RL (complement C1r subcomponent-like protein), CO8B (complement component C8), CFAD (complement factor D), SFTPD (pulmonary surfactant-associated protein D), CO2 to C5 (complement C2 to C5), and C1QA to C (complement C1q subcomponent subunit A to C).

**In panel E:** LYAG (alpha-glucosidase OS), GLU2B (glucosidase 2), AGAL (alpha-galactosidase A), GANAB (alpha-glucosidase AB), ARSA (arylsulfatase), PPBT (alkaline phosphatase), MA2B1 (alpha-mannosidase), and MA1A1 (mannosyl-oligosaccharide 1,2-alpha-mannosidase).

**In panel F:** LYAG (alpha-glucosidase OS), GLU2B (Glucosidase 2), AGAL (alpha-galactosidase A), GANAB (alpha-glucosidase AB), ARSA (arylsulfatase), PPBT (alkaline phosphatase), MA2B1 (alpha-mannosidase), and MA1A1 (mannosyl-oligosaccharide 1,2-alpha-mannosidase).

**Supplemental Table S1. Inflammation and anti-oxidation proteins.** Gene ID, name and t-test values.

**Supplemental Table S2. Antimicrobial, and complement and surfactant proteins.** Gene ID, name and t-test values.

**Supplemental Table S3. IG and IG receptor, and hydrolytic proteins.** Gene ID, name and t-test values.

**Supplemental Fig S1. HIV-ALF exposed *M.tb* in macrophages.** (A) Association of HIV-ALF vs. Control-ALF-exposed *M.tb* with macrophages showing a differential association favoring recognition of HIV-ALF-exposed *M.tb* over control-ALF-exposed *M.tb*. (B) PLWH ALF leads to increased *M.tb* growth within human macrophages *in vitro*. GFP-*M.tb* Erdman was exposed to HIV-ALF or healthy-ALF. MDMs were infected (MOI 1:1) with ALF-treated GFP-*M.tb* and cell monolayers were lysed at different time points, and then plated to assess bacterial burden by CFU counts (n= 3). Data shown are from a representative experiment. ANOVA Tukey-Posttest; Healthy vs. HIV+; \*p<0.05; \*\*p<0.005; \*\*\*p<0.0005. Each “n” value is an independent experiment using macrophages and ALF from different human donors.

**Supplemental Fig S2. Measurement of cytokines, growth factors and chemokines present in ALF samples of both PLWH and control individuals.** Each dot represents ALF from an individual subject. ALFs from healthy donors (n= 8-17) and HIV+ subjects (without ART; n= 7-9) were normalized by protein content (10 µg/well, by BCA). (A) Th1, (B) Th2, and (C) Th17 cytokines; (D) Growth factors TREM-1 and GM-CSF; and (E) Chemoattractants IL-8 and CCL-2 were measured by Human multiplex LUMINEX assay. Unpaired Student's *t*-test, \*p< 0.05; \*\*p<0.005, \*\*\*p< 0.0005. Each sample corresponds to ALF obtained from different human donors.

**Supplemental Fig S3. Measurement of cytokines, growth factors, and chemokines present in supernatant from the experiments depicted in Fig. 4.** Each dot represents a supernatant from a human macrophage monolayer infected with *M.tb* exposed to control-ALF, HIV-ALF or HIV-ALF+SP-D. Depicted only the cytokines and growth factors that decreased upon the addition of SP-D in HIV-ALF. Two-way ANOVA tables are also provided.

# Table S1

## Inflammation Proteins

| Gene ID | Name   | t test   |
|---------|--|----------|
| S10A8   | Protein S100-A8                              | 0.29     |
| CATS    | Cathepsin S                                  | 0.0012   |
| CASP1   | Caspase-1                                    | < 0.0001 |
| S10A9   | Protein S100-A9                              | 0.32     |
| CATB    | Cathepsin B                                  | 0.0076   |
| YBOX1   | Nuclease-sensitive element-binding protein 1 | 0.0024   |
| PERM    | Myeloperoxidase                              | 0.33     |
| IL18    | Interleukin-18                               | 0.2      |
| ELNE    | Neutrophil elastase                          | 0.29     |
| BPIB1   | BPI fold-containing family B member 1        | 0.15     |
| FHR1    | Complement factor H-related protein 1        | 0.4      |
| RNAS2   | Non-secretory ribonuclease                   | 0.27     |
| LYSC    | Lysozyme C                                   | 0.65     |
| CFAB    | Complement factor B                          | 0.52     |
| CATG    | Cathepsin G                                  | 0.96     |
| ATRN    | Attractin                                    | 0.18     |
| PTMA    | Prothymosin alpha                            | 0.79     |
| NGAL    | Neutrophil gelatinase-associated lipocalin   | 0.84     |
| VTNC    | Vitronectin                                  | 0.64     |
| ICAM1   | Intercellular adhesion molecule 1            | 0.0023   |
| IL1AP   | Interleukin-1 receptor accessory protein     | 0.0032   |
| CDC42   | Cell division control protein 42             | 0.0022   |
| IL6RB   | Interleukin-6 receptor subunit beta          | 0.0051   |
| PIGR    | Polymeric immunoglobulin receptor            | 0.00038  |
| CO4B    | Complement C4-B                              | 0.028    |
|         |  |          |

## Anti-Oxidation Proteins

| Gene ID | Name   | t test   |
|---------|--|----------|
| CATA    | Catalase                                     | < 0.0001 |
| GSHR    | Glutathione reductase, mitochondrial         | 0.00057  |
| NQO1    | NAD(P)H dehydrogenase [quinone] 1            | 0.093    |
| SODC    | Superoxide dismutase [Cu-Zn]                 | 0.11     |
| AK1A1   | Alcohol dehydrogenase [NADP(+)]              | 0.12     |
| GPX1    | Glutathione peroxidase 1                     | 0.052    |
| GSTA1   | Glutathione S-transferase alpha 1            | 0.51     |
| GPX4    | Glutathione peroxidase 4                     | 0.75     |
| CBR3    | Carbonyl reductase [NADPH] 3                 | 0.12     |
| AL9A1   | 4-trimethylaminobutyraldehyde dehydrogenase  | 0.0092   |
| ANXA1   | Annexin A1                                   | 0.33     |
| CBR1    | Carbonyl reductase [NADPH] 1                 | 0.088    |
| ADHX    | Alcohol dehydrogenase                        | 0.0043   |
| HSPB1   | Heat shock protein beta-1                    | 0.0043   |
| LDHA    | L-lactate dehydrogenase A                    | 0.0052   |
| PRDX6   | Peroxiredoxin-6                              | 0.0011   |
| LDHB    | L-lactate dehydrogenase B                    | < 0.0001 |
| AL7A1   | Alpha-aminoadipic semialdehyde dehydrogenase | 0.00047  |
| PRDX5   | Peroxiredoxin-5                              | 0.00065  |
| ARK72   | Aflatoxin B1 aldehyde reductase member 2     | < 0.0001 |
|         |  |          |

# Table S2

## Antimicrobial Proteins

| Gene ID | Name                                       | t test   |
|---------|--|----------|
|         |  |          |
| MUC5A   | Mucin-5AC                                  | < 0.0001 |
| S10A8   | Protein S100-A8                            | 0.29     |
| S10A9   | Protein S100-A9                            | 0.32     |
| S10A7   | Protein S100-A7                            | 0.51     |
| MUC4    | Mucin-4                                    | 0.13     |
| LYSC    | Lysozyme C                                 | 0.65     |
| DEF1    | Neutrophil defensin 1                      | 0.63     |
| MUC1    | Mucin-1                                    | 0.85     |
| SFPA2   | Pulmonary surfactant-associated protein A2 | 0.12     |
| CAMP    | Cathelicidin antimicrobial peptide         | 0.44     |
| PGRP2   | N-acetylmuramoyl-L-alanine amidase         | 0.14     |
| CO6     | Complement component C6                    | 0.092    |
| SFTPD   | Pulmonary surfactant-associated protein D  | 0.0081   |
| CO4A    | Complement C4-A                            | 0.0061   |
| CO2     | Complement C2                              | < 0.0001 |
| CO5     | Complement C5                              | 0.011    |
| CO3     | Complement C3                              | 0.00034  |
|         |  |          |

## Complement and Surfactant Proteins

| Gene ID | Name                                       | t test   |
|---------|--|----------|
| FHR1    | Complement factor H-related protein 1      | 0.4      |
| CFAH    | Complement factor H                        | 0.13     |
| CFAB    | Complement factor B                        | 0.52     |
| CO8G    | Complement component C8                    | 0.95     |
| SFPA2   | Pulmonary surfactant-associated protein A2 | 0.12     |
| C1R     | Complement C1r                             | 0.72     |
| C1S     | Complement C1s                             | 1        |
| CFAI    | Complement factor I                        | 0.23     |
| CO9     | Complement component C9                    | 0.12     |
| C4BPA   | C4b-binding protein alpha chain            | 0.66     |
| C1RL    | Complement C1r subcomponent-like protein   | 0.048    |
| CO6     | Complement component C6                    | 0.092    |
| CO7     | Complement component C7                    | 0.16     |
| CO8B    | Complement component C8                    | 0.028    |
| SFTPD   | Pulmonary surfactant-associated protein D  | 0.0081   |
| CO4A    | Complement C4-A                            | 0.0061   |
| CFAD    | Complement factor D                        | 0.0026   |
| CO2     | Complement C2                              | < 0.0001 |
| CO4B    | Complement C4-B                            | 0.028    |
| C5      | Complement C5                              | 0.011    |
| CO3     | Complement C3                              | 0.00034  |
| C1QC    | Complement C1q subcomponent subunit C      | 0.0056   |
| C1QA    | Complement C1q subcomponent subunit A      | 0.0061   |
| C1QB    | Complement C1q subcomponent subunit B      | 0.0031   |
|         |  |          |

# Table S3

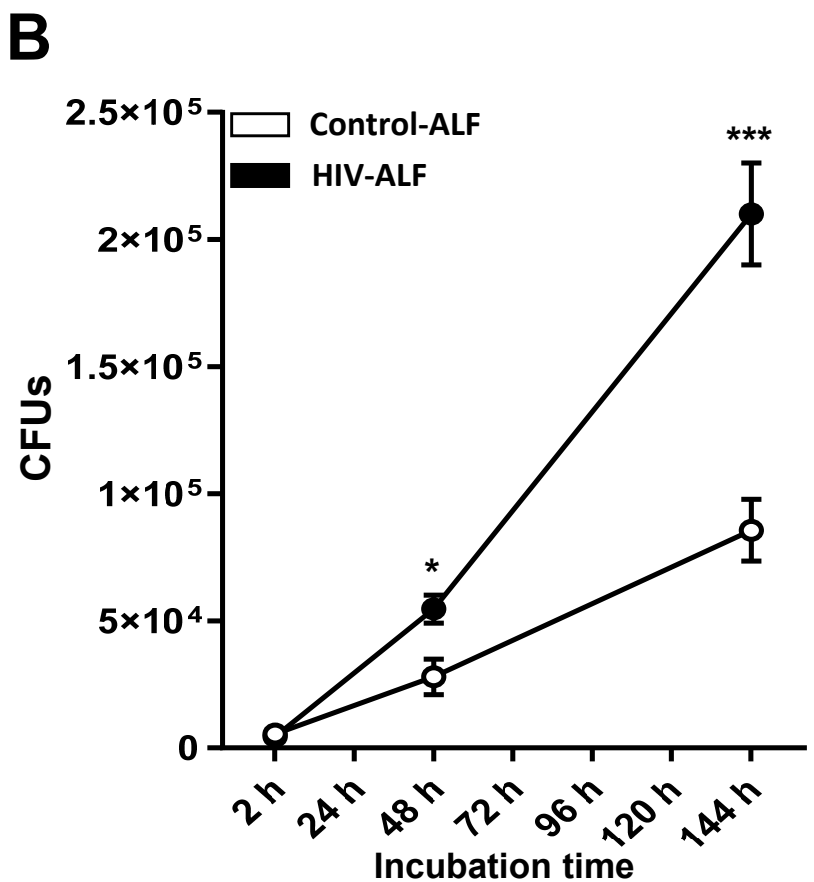
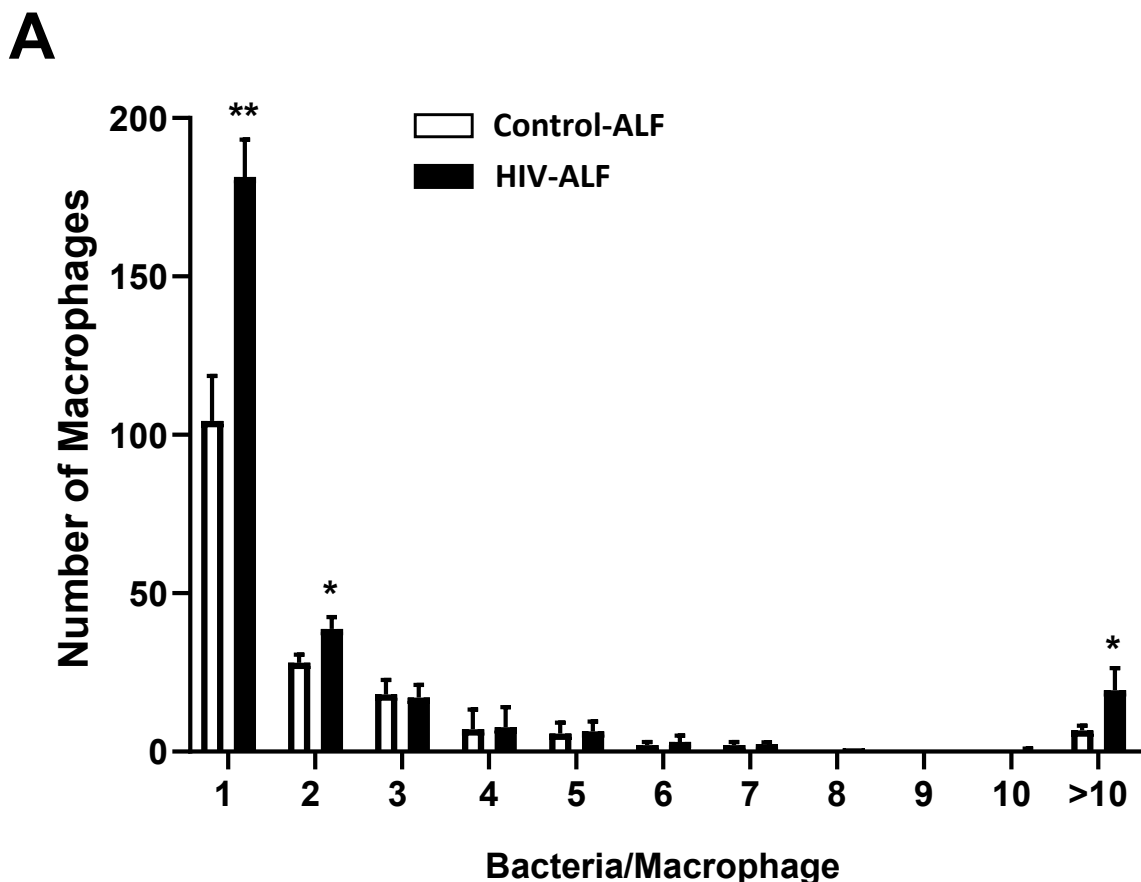
## IG and IG Receptor Proteins

| Gene ID | Name   | t test  |
|---------|--|---------|
|         |  |         |
| IGHD    | Isoform 2 of Immunoglobulin heavy constant delta | 0.28    |
| IGHM    | Immunoglobulin heavy constant mu                 | 0.55    |
| IGHG3   | Immunoglobulin heavy constant gamma 3            | 0.36    |
| IGHG1   | Immunoglobulin heavy constant gamma 1            | 0.7     |
| IGKC    | Immunoglobulin kappa constant                    | 0.42    |
| IGHA2   | Immunoglobulin heavy constant alpha 2            | 0.27    |
| IGHG2   | Immunoglobulin heavy constant gamma 2            | 1       |
| FCGBP   | IgG Fc-binding protein                           | 0.028   |
| IGHA1   | Immunoglobulin heavy constant alpha 1            | 0.016   |
| IGHG4   | Immunoglobulin heavy constant gamma 4            | 0.096   |
| IGJ     | Immunoglobulin J chain                           | 0.0066  |
| PIGR    | Polymeric immunoglobulin receptor                | 0.00038 |

## Hydrolytic Proteins

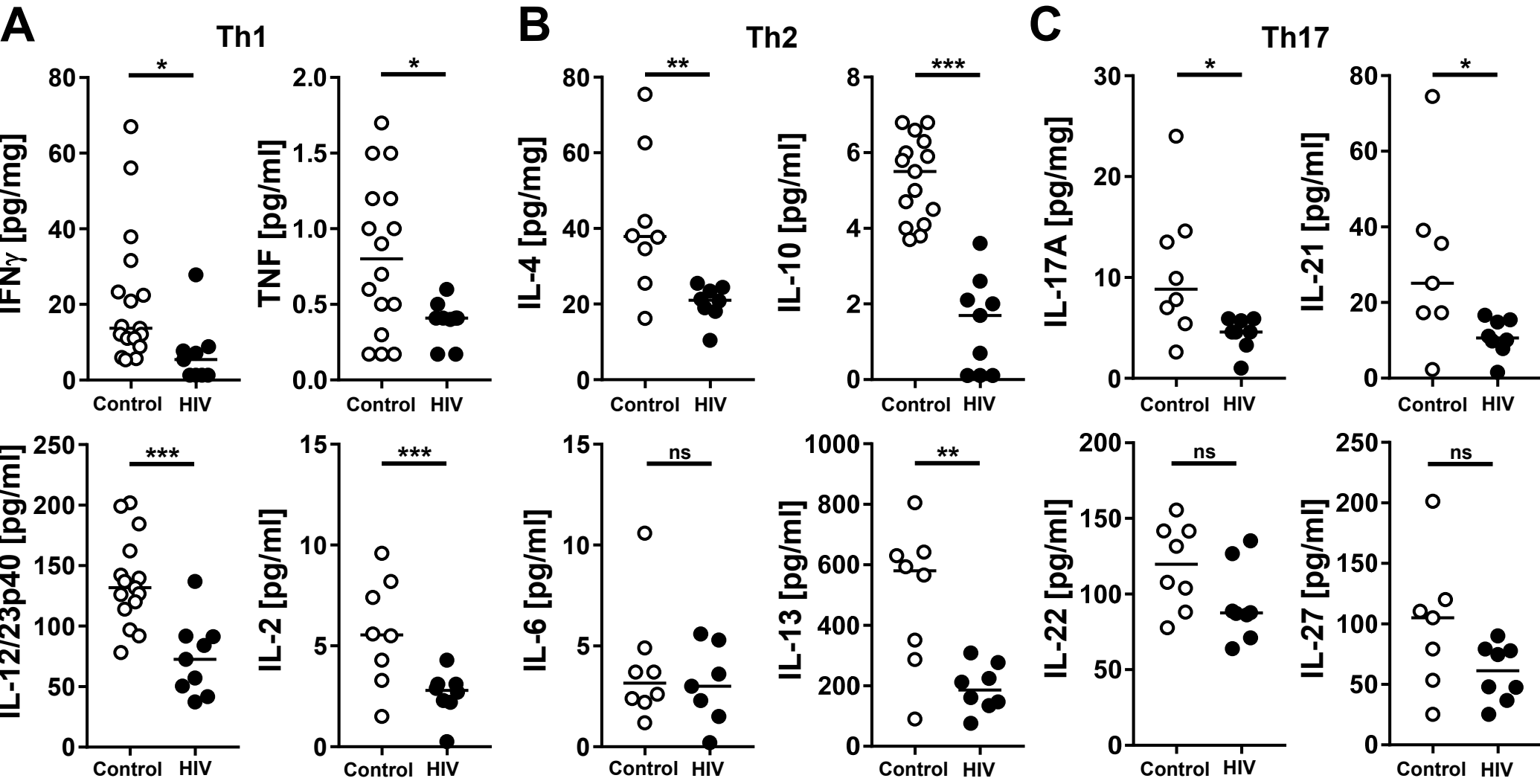
| Gene ID | Name  | t test   |
|---------|---|----------|
| BGAL    | Beta-galactosidase                                | 0.00088  |
| PPA5    | Tartrate-resistant acid phosphatase type 5        | 0.00019  |
| LYAG    | Lysosomal alpha-glucosidase                       | < 0.0001 |
| PERM    | Myeloperoxidase                                   | 0.33     |
| GPX3    | Glutathione peroxidase 3                          | 0.28     |
| GPX1    | Glutathione peroxidase 1                          | 0.052    |
| GPX4    | Glutathione peroxidase 3                          | 0.75     |
| PPBT    | Alkaline phosphatase                              | < 0.0001 |
| IAH1    | Isoamyl acetate-hydrolyzing esterase 1            | < 0.0001 |
| GANAB   | Neutral alpha-glucosidase AB                      | 0.02     |
| MA1A1   | Mannosyl-oligosaccharide 1,2-alpha-mannosidase IA | 0.00054  |
|         |   |          |

# Supplemental Figure S1

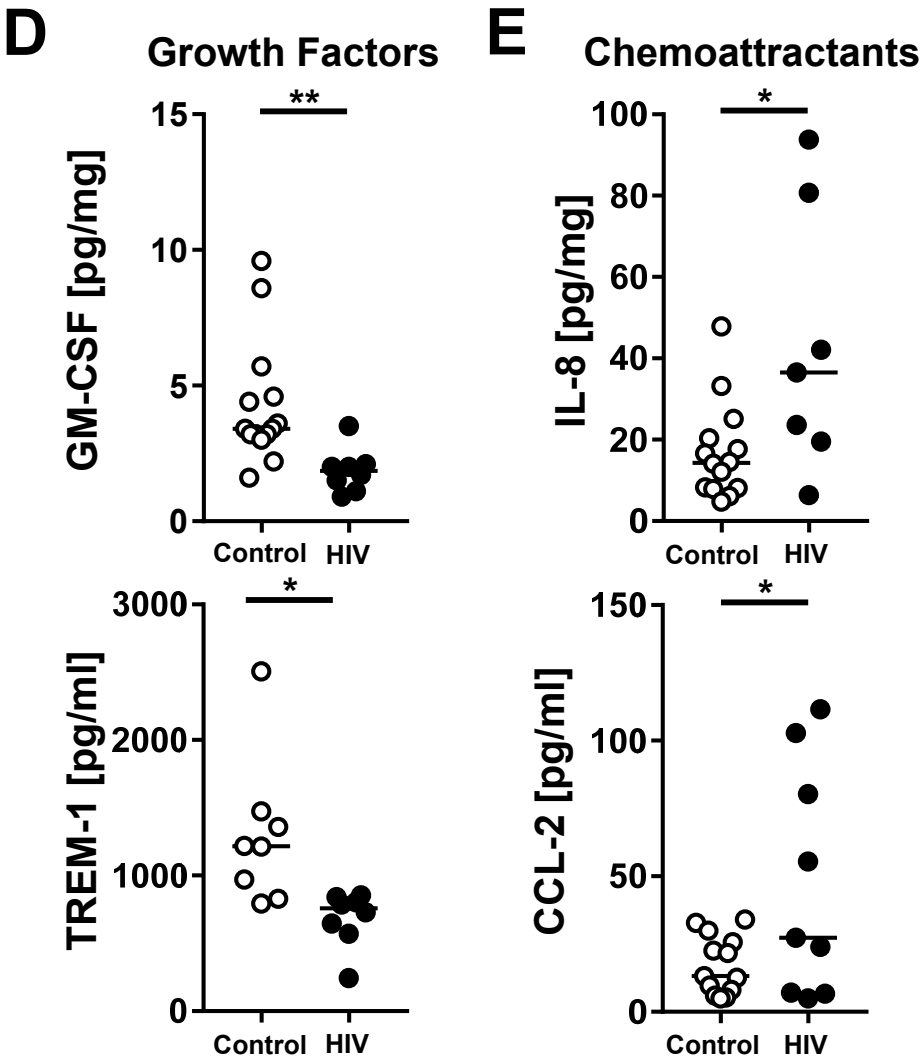




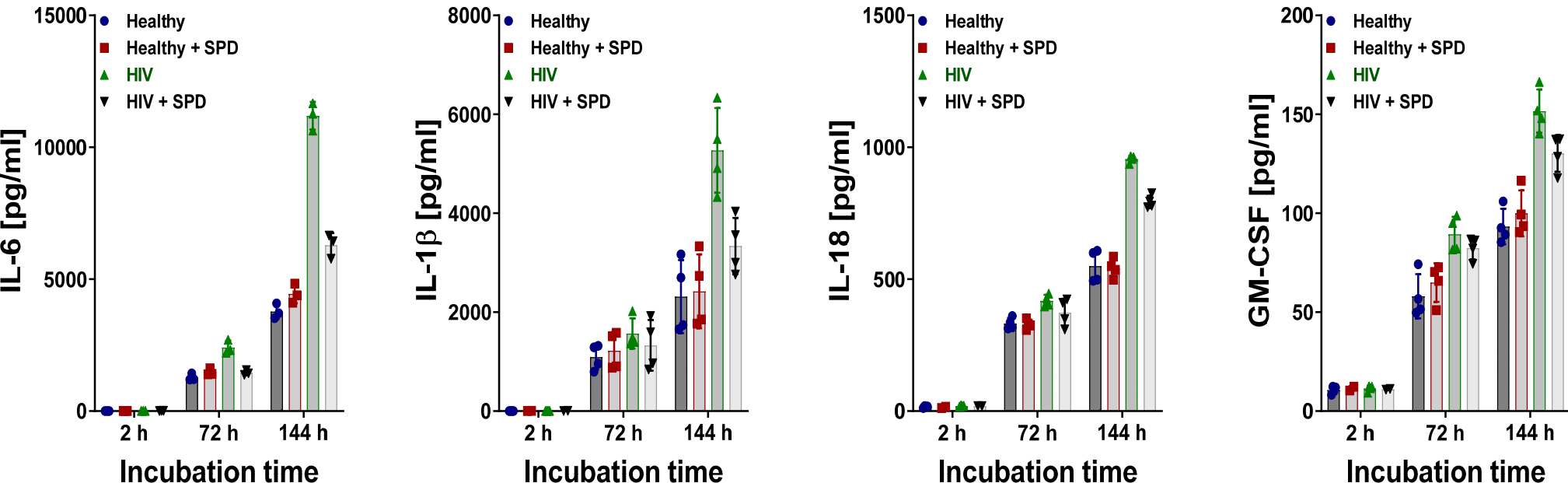
# Supplemental Figure S2



# Supplemental Figure S2 – Cont.



# Supplemental Figure S3



## TWO-WAY ANOVA TABLES

| IL-6          |           |    |           |                   |          |
|---------------|-----------|----|-----------|-------------------|----------|
| ANOVA table   | SS        | DF | MS        | F (DFn, DFd)      | P value  |
| Interaction   | 58950231  | 6  | 9825038   | F (6, 24) = 145.3 | P<0.0001 |
| Row Factor    | 266690882 | 2  | 133345441 | F (2, 24) = 1972  | P<0.0001 |
| Column Factor | 44513335  | 3  | 14837778  | F (3, 24) = 219.4 | P<0.0001 |
| Residual      | 1622815   | 24 | 67617     |                   |          |

| IL-18         |        |    |        |                   |          |
|---------------|--------|----|--------|-------------------|----------|
| ANOVA table   | SS     | DF | MS     | F (DFn, DFd)      | P value  |
| Interaction   | 34.91  | 2  | 17.46  | F (2, 16) = 0.016 | P=0.9845 |
| Row Factor    | 901282 | 2  | 450641 | F (2, 16) = 404.3 | P<0.0001 |
| Column Factor | 93.70  | 1  | 93.70  | F (1, 16) = 0.084 | P=0.7756 |
| Residual      | 17834  | 16 | 1115   |                   |          |

| IL-1β         |          |    |         |                   |          |
|---------------|----------|----|---------|-------------------|----------|
| ANOVA table   | SS       | DF | MS      | F (DFn, DFd)      | P value  |
| Interaction   | 14187    | 2  | 7093    | F (2, 16) = 0.029 | P=0.9716 |
| Row Factor    | 18264709 | 2  | 9132355 | F (2, 16) = 37.11 | P<0.0001 |
| Column Factor | 32738    | 1  | 32738   | F (1, 16) = 0.133 | P=0.7201 |
| Residual      | 3937799  | 16 | 246112  |                   |          |

| GM-CSF        |       |    |       |                   |          |
|---------------|-------|----|-------|-------------------|----------|
| ANOVA table   | SS    | DF | MS    | F (DFn, DFd)      | P value  |
| Interaction   | 36.79 | 2  | 18.39 | F (2, 16) = 0.223 | P=0.8022 |
| Row Factor    | 23461 | 2  | 11730 | F (2, 16) = 142.5 | P<0.0001 |
| Column Factor | 116.5 | 1  | 116.5 | F (1, 16) = 1.415 | P=0.2515 |
| Residual      | 1317  | 16 | 82.31 |                   |          |