**Supplemental Material**

Supplemental Table 1. Protein names and respective Olink® panel sorted in alphabetical order

|  |  |  |  |
| --- | --- | --- | --- |
| **Protein full name** | **Entry name** | **Olink® Panel\*** | **Uniprot ID\*\*** |
| Angiotensin-converting enzyme 2 | ACE2 | CVD II | Q9BYF1 |
| Adenosine Deaminase | ADA | INF | P00813 |
| Adisintegrin and metalloproteinase with thrombospondin motifs 13 | ADAMTS13 | CVD II | Q76LX8 |
| ADM | ADM | CVD II | P35318 |
| Agouti-related protein | AGRP | CVD II | O00253 |
| CD166 antigen | ALCAM | CVD III | Q13740 |
| Protein AMBP | AMBP | CVD II | P02760 |
| Angiopoietin-1 | ANG1 | CVD II | Q15389 |
| Aminopeptidase N | APN | CVD III | P15144 |
| Axin-1 | AXIN1 | INF | O15169 |
| Tyrosine-protein kinase receptor UFO | AXL | CVD III | P30530 |
| Azurocidin | AZU1 | CVD III | P20160 |
| Brain-derived neurotrophic factor | BDNF | INF | P23560 |
| Beta-nerve growth factor | BETANGF | INF | P01138 |
| Bleomycin hydrolase | BLMHYDROLASE | CVD III | Q13867 |
| Bone morphogenetic protein 6 | BMP6 | CVD II | P22004 |
| Natriuretic peptides B | BNP | CVD II | P16860 |
| Eukaryotic translation initiation factor 4E-binding protein 1 | BP1\_4E | INF | Q13541 |
| Carbonic anhydrase 5A, mitochondrial | CA5A | CVD II | P35218 |
| Caspase-3 | CASP3 | CVD III | P42574 |
| Caspase 8 | CASP8 | INF | Q14790 |
| Eotaxin-1 | CCL11 | INF | P51671 |
| C-C motif chemokine 15 | CCL15 | CVD III | Q16663 |
| C-C motif chemokine 16 | CCL16 | CVD III | O15467 |
| C-C motif chemokine 17 | CCL17 | CVD II | Q92583 |
| C-C motif chemokine 19 | CCL19 | INF | Q99731 |
| C-C motif chemokine 20 | CCL20 | INF | P78556 |
| C-C motif chemikine 22 | CCL22 | CVD III | O00626 |
| C-C motif chemokine 23 | CCL23 | INF | P55773 |
| C-C motif chemokine 24 | CCL24 | CVD III | O00175 |
| C-C motif chemokine 25 | CCL25 | INF | O15444 |
| C-C motif chemokine 28 | CCL28 | INF | Q9NRJ3 |
| C-C motif chemokine 3 | CCL3 | CVD II | P10147 |
| C-C motif chemokine 4 | CCL4 | INF | P13236 |
| Scavenger receptor cysteine-rich type 1 protein M130 | CD163 | CVD III | Q86VB7 |
| Natural killer cell receptor 2B4 | CD244 | INF | Q9BZW8 |
| T-cell surface glycoprotein CD4 | CD4 | CVD II | P01730 |
| CD40L receptor | CD40 | INF | P25942 |
| CD40 ligand | CD40L | CVD II | P29965 |
| T-cell surface glycoprotein CD5 | CD5 | INF | P06127 |
| T cell surface glycoprotein CD6 | CD6 | INF | P30203 |
| SLAM family member 5 | CD84 | CVD II | Q9UIB8 |
| Complement component C1q receptor | CD93 | CVD III | Q9NPY3 |
| CUB domain-containing protein 1 | CDCP1 | INF | Q9H5V8 |
| Cadherin-5 | CDH5 | CVD III | P33151 |
| Carcinoembryonic antigenrelated cell adhesion molecule 8 | CEACAM8 | CVD II | P31997 |
| Chitinase-3-like protein 1 | CHI3L1 | CVD III | P36222 |
| Chitotriosidase-1 | CHIT1 | CVD III | Q13231 |
| Contactin-1 | CNTN1 | CVD III | Q12860 |
| Collagen alpha-1(I) chain | COL1A1 | CVD III | P02452 |
| Carboxypeptidase A1 | CPA1 | CVD III | P15085 |
| Carboxypeptidase B | CPB1 | CVD III | P15086 |
| Macrophage colony-stimulating factor 1 | CSF1 | INF | P09603 |
| Cystatin D | CST5 | INF | P28325 |
| Cystatin-B | CSTB | CVD III | P04080 |
| Chymotrypsin C | CTRC | CVD II | Q99895 |
| Cathepsin D | CTSD | CVD III | P07339 |
| Cathepsin L1 | CTSL1 | CVD II | P07711 |
| Cathepsin Z | CTSZ | CVD III | Q9UBR2 |
| Fractalkine | CX3CL1 | INF | P78423 |
| C-X-C motif chemokine 1 (CVD2) | CXCL1 | CVD II | P09341 |
| C-X-C motif chemokine 10 | CXCL10 | INF | P02778 |
| C-X-C motif chemokine 11 | CXCL11 | INF | O14625 |
| C-X-C motif chemokine 16 | CXCL16 | CVD III | Q9H2A7 |
| C-X-C motif chemokine 5 | CXCL5 | INF | P42830 |
| C-X-C motif chemokine 6 | CXCL6 | INF | P80162 |
| C-X-C motif chemokine 9 | CXCL9 | INF | Q07325 |
| Decorin | DCN | CVD II | P07585 |
| 2,4-dienoyl-CoA reductase, mitochondrial | DECR1 | CVD II | Q16698 |
| Dickkopf-related protein 1 | DKK1 | CVD II | O94907 |
| Azurocidin | DLK1 | CVD III | P80370 |
| Delta and Notch-like epidermal growth factor-related receptor | DNER | INF | Q8NFT8 |
| Epidermal growth factor receptor | EGFR | CVD III | P00533 |
| Protein S100-A12 | ENRAGE | INF | P80511 |
| Epithelial cell adhesion molecule | EPCAM | CVD III | P16422 |
| Ephrin type-B receptor 4 | EPHB4 | CVD III | P54760 |
| Fatty acid-binding protein, intestinal | FABP2 | CVD II | P12104 |
| Fatty acid-binding protein, adipocyte | FABP4 | CVD III | P15090 |
| Tumor necrosis factor receptor superfamily member 6 | FAS | CVD III | P25445 |
| Fibroblast growth factor 19 | FGF19 | INF | O95750 |
| Fibroblast growth factor 21 (CVD2) | FGF21 | CVD II | Q9NSA1 |
| Fibroblast growth factor 23 (CVD2) | FGF23 | CVD II | Q9GZV9 |
| Fibroblast growth factor 5 | FGF5 | INF | P12034 |
| Fms-related tyrosine kinase 3 ligand | FLT3L | INF | P49771 |
| Follistatin | FS | CVD II | P19883 |
| Galectin-3 | GAL3 | CVD III | P17931 |
| Galectin-4 | GAL4 | CVD III | P56470 |
| Galectin-9 | GAL9 | CVD II | O00182 |
| Growth/differentiation factor 15 | GDF15 | CVD III | Q99988 |
| Growth/differentiation factor 2 | GDF2 | CVD II | Q9UK05 |
| Growth hormone | GH | CVD II | P01241 |
| Gastric intrinsic factor | GIF | CVD II | P27352 |
| Lactoylglutathione lyase | GLO1 | CVD II | Q04760 |
| Granulins | GRN | CVD III | P28799 |
| Gastrotropin | GT | CVD II | P51161 |
| Hydroxyacid oxidase 1 | HAOX1 | CVD II | Q9UJM8 |
| Proheparin-binding EGF-like growth factor | HBEGF | CVD II | Q99075 |
| Glial cell line-derived neurotrophic factor | HGDNF | INF | P39905 |
| Hepatocyte growth factor | HGF | INF | P14210 |
| Heme oxygenase 1 | HO1 | CVD II | P09601 |
| Osteoclast-associated immunoglobulin-like receptor | HOSCAR | CVD II | Q8IYS5 |
| Heat shock 27 kDa protein | HSP27 | CVD II | P04792 |
| Intercellular adhesion molecule 2 | ICAM2 | CVD III | P13598 |
| Alpha-L-iduronidase | IDUA | CVD II | P35475 |
| Insulin-like growth factor-binding protein 1 | IGFBP1 | CVD III | P08833 |
| Insulin-like Growth Factor-Binding Protein 2 | IGFBP2 | CVD III | P18065 |
| Insulin-like growth factor-binding protein 7 | IGFBP7 | CVD III | Q16270 |
| Low affinity immunoglobulin gamma Fc region receptor II-b | IGGFCRECEPTORIIB | CVD II | P31994 |
| Interleukin-10 | IL10 | INF | P22301 |
| Interleukin-10 receptor subunit alpha | IL10RA | INF | Q13651 |
| Interleukin-10 receptor subunit beta | IL10RB | INF | Q08334 |
| Interleukin-12 subunit beta | IL12B | INF | P29460 |
| Interleukin-13 | IL13 | INF | P35225 |
| Interleukin-15 receptor subunit alpha | IL15RA | INF | Q13261 |
| Pro-interleukin-16 | IL16 | CVD II | Q14005 |
| Interleukin-17A | IL17A | INF | Q16552 |
| Interleukin-17C | IL17C | INF | Q9P0M4 |
| Interleukin-17D | IL17D | CVD II | Q8TAD2 |
| Interleukin-17 receptor A | IL17RA | CVD III | Q96F46 |
| Interleukin-18 (CVD2) | IL18 | CVD II | Q14116 |
| Interleukin-18-binding protein | IL18BP | CVD III | O95998 |
| Interleukin-18 receptor 1 | IL18R1 | INF | Q13478 |
| Interleukin-1 receptor antagonist protein | IL1RA | CVD II | P18510 |
| Interleukin-1 receptor-like 2 | IL1RL2 | CVD II | Q9HB29 |
| Interleukin-1 receptor type 1 | IL1RT1 | CVD III | P14778 |
| Interleukin-1 receptor type 2 | IL1RT2 | CVD III | P27930 |
| Interleukin-20 receptor subunit alpha | IL20RA | INF | Q9UHF4 |
| Interleukin-27 | IL27 | CVD II | Q8NEV9 |
| Interleukin-2 receptor subunit alpha | IL2RA | CVD III | P01589 |
| Interleukin-4 receptor subunit alpha | IL4RA | CVD II | P24394 |
| Interleukin-6 (CVD2) | IL6 | CVD II | P05231 |
| Interleukin-6 receptor subunit alpha | IL6RA | CVD III | P08887 |
| Interleukin-7 | IL7 | INF | P13232 |
| Interleukin-8 | IL8 | INF | P10145 |
| Melusin | ITGB1BP2 | CVD II | Q9UKP3 |
| Integrin beta-2 | ITGB2 | CVD III | P05107 |
| Junctional adhesion molecule A | JAMA | CVD III | Q9Y624 |
| Kidney injury molecule 1 | KIM1 | CVD II | Q96D42 |
| Kallikrein-6 | KLK6 | CVD III | Q92876 |
| Latency-associated peptide transforming growth factor beta 1 | LAPTGFBETA1 | INF | P01137 |
| Low-density lipoprotein receptor | LDLRECEPTOR | CVD III | P01130 |
| Leptin | LEP | CVD II | P41159 |
| Leukemia inhibitory factor receptor | LIFR | INF | P42702 |
| Lectin-like oxidized LDL receptor 1 | LOX1 | CVD II | P78380 |
| Lipoprotein lipase | LPL | CVD II | P06858 |
| Lymphotoxin-beta receptor | LTBR | CVD III | P36941 |
| Macrophage receptor MARCO | MARCO | CVD II | Q9UEW3 |
| Myoglobin | MB | CVD III | P02144 |
| Monocyte chemotactic protein 1 | MCP1\_CVD3 | CVD III | P13500 |
| Monocyte chemotactic protein 2 | MCP2 | INF | P80075 |
| Monocyte chemotactic protein 3 | MCP3 | INF | P80098 |
| Monocyte chemotactic protein 4 | MCP4 | INF | Q99616 |
| Matrix extracellular phosphoglycoprotein | MEPE | CVD III | Q9NQ76 |
| Tyrosine-protein kinase Mer | MERTK | CVD II | Q12866 |
| Matrix metalloproteinase-1 | MMP1 | INF | P03956 |
| Matrix metalloproteinase-10 | MMP10 | INF | P09238 |
| Matrix metalloproteinase-12 | MMP12 | CVD II | P39900 |
| Matrix metalloproteinase-2 | MMP2 | CVD III | P08253 |
| Matrix metalloproteinase-3 | MMP3 | CVD III | P08254 |
| Matrix metalloproteinase-7 | MMP7 | CVD II | P09237 |
| Matrix metalloproteinase-9 | MMP9 | CVD III | P14780 |
| Myeloperoxidase | MPO | CVD III | P05164 |
| NF-kappa-B essential modulator | NEMO | CVD II | Q9Y6K9 |
| Neurogenic locus notch homolog protein 3 | NOTCH3 | CVD III | Q9UM47 |
| Neurotrophin-3 | NT3 | INF | P20783 |
| N-terminal prohormone brain natriuretic peptide | NTPROBNP | CVDII | P16860 |
| Osteoprotegerin | OPG\_CVD3 | CVD III | O00300 |
| Osteopontin | OPN | CVD III | P10451 |
| Oncostatin-M | OSM | INF | P13725 |
| Plasminogen activator inhibitor 1 | PAI | CVD III | P05121 |
| Pappalysin-1 | PAPPA | CVD II | Q13219 |
| Proteinase-activated receptor 1 | PAR1 | CVD II | P25116 |
| Poly [ADP-ribose] polymerase 1 | PARP1 | CVD II | P09874 |
| Proprotein convertase subtilisin/kexin type 9 | PCSK9 | CVD III | Q8NBP7 |
| Platelet-derived growth factor subunit A | PDGFSUBUNITA | CVD III | P04085 |
| Platelet-derived growth factor subunit B | PDGFSUBUNITB | CVD II | P01127 |
| Programmed cell death 1 ligand 1 | PDL1 | INF | Q9NZQ7 |
| Programmed cell death 1 ligand 2 | PDL2 | CVD II | Q9BQ51 |
| Platelet endothelial cell adhesion molecule | PECAM1 | CVD III | P16284 |
| Peptidoglycan recognition protein 1 | PGLYRP1 | CVD III | O75594 |
| Elafin | PI3 | CVD III | P19957 |
| Polymeric immunoglobulin receptor | PIGR | CVD II | P01833 |
| Perlecan | PLC | CVD III | P98160 |
| Placenta growth factor | PLGF | CVD II | P49763 |
| Paraoxonase (PON 3) | PON3 | CVD III | Q15166 |
| Prolargin | PRELP | CVD II | P51888 |
| Brother of CDO | PROTEINBOC | CVD II | Q9BWV1 |
| Serine protease 27 | PRSS27 | CVD II | Q9BQR3 |
| Prostasin | PRSS8 | CVD II | Q16651 |
| Myeloblastin | PRTN3 | CVD III | P24158 |
| P-selectin glycoprotein ligand 1 | PSGL1 | CVD II | Q14242 |
| Pulmonary surfactant-associated protein D | PSPD | CVD III | P35247 |
| Pentraxin-related protein PTX3 | PTX3 | CVD II | P26022 |
| Receptor for advanced glycosylation end products | RAGE | CVD II | Q15109 |
| Retinoic acid receptor responder protein 2 | RARRES2 | CVD III | Q99969 |
| Renin | REN | CVD II | P00797 |
| Resistin | RETN | CVD III | Q9HD89 |
| Stem cell factor (CVD2) | SCF | CVD II | P21583 |
| Secretoglobin family 3A member 2 | SCGB3A2 | CVD III | Q96PL1 |
| E-selectin | SELE | CVD III | P16581 |
| P-selectin | SELP | CVD III | P16109 |
| Serpin A12 | SERPINA12 | CVD II | Q8IW75 |
| Tyrosine-protein phosphatase non-receptor type substrate 1 | SHPS1 | CVD III | P78324 |
| SIR2-like protein 2 | SIRT2 | INF | Q8IXJ6 |
| Signaling lymphocytic activation molecule | SLAMF1 | INF | Q13291 |
| SLAM family member 7 | SLAMF7 | CVD II | Q9NQ25 |
| Superoxide dismutase [Mn], mitochondrial | SOD2 | CVD II | P04179 |
| Sortilin | SORT1 | CVD II | Q99523 |
| Spondin-1 | SPON1 | CVD III | Q9HCB6 |
| Spondin-2 | SPON2 | CVD II | Q9BUD6 |
| Proto-oncogene tyrosine-protein kinase Src | SRC | CVD II | P12931 |
| Sulfotransferase 1A1 | ST1A1 | INF | P50225 |
| ST2 protein | ST2 | CVD III | Q01638 |
| STAM-binding protein | STAMPB | INF | O95630 |
| Serine/threonine-protein kinase 4 | STK4 | CVD II | Q13043 |
| Tissue factor | TF | CVD II | P13726 |
| Trefoil factor 3 | TFF3 | CVD III | Q07654 |
| Tissue factor pathway inhibitor | TFPI | CVD III | P10646 |
| Transforming growth factor alpha | TGFALPHA | INF | P01135 |
| Protein-glutamine gamma-glutamyltransferase 2 | TGM2 | CVD II | P21980 |
| Thrombospondin-2 | THBS2 | CVD II | P35442 |
| Thrombopoietin | THPO | CVD II | P40225 |
| Angiopoietin-1 receptor | TIE2 | CVD II | Q02763 |
| Metalloproteinase inhibitor 4 | TIMP4 | CVD III | Q99727 |
| Trem-like transcript 2 protein | TLT2 | CVD III | Q5T2D2 |
| Thrombomodulin | TM | CVD II | P07204 |
| Tumor necrosis factor | TNF | INF | P01375 |
| TNF-beta | TNFB | INF | P01374 |
| Tumor necrosis factor receptor 1 | TNFR1 | CVD III | P19438 |
| Tumor necrosis factor receptor 2 | TNFR2 | CVD III | P20333 |
| Tumor necrosis factor receptor superfamily member 10A | TNFRSF10A | CVD II | O00220 |
| Tumor necrosis factor receptor superfamily member 10C | TNFRSF10C | CVD III | O14798 |
| Tumor necrosis factor receptor superfamily member 11A | TNFRSF11A | CVD II | Q9Y6Q6 |
| Tumor necrosis factor receptor superfamily member 13B | TNFRSF13B | CVD II | O14836 |
| Tumor necrosis factor receptor superfamily member 14 | TNFRSF14 | CVD III | Q92956 |
| Tumor necrosis factor receptor superfamily member 9 | TNFRSF9 | INF | Q07011 |
| Tumor necrosis factor ligand superfamily member 13B | TNFSF13B | CVD III | Q9Y275 |
| Tumor necrosis factor ligand superfamily member 14 | TNFSF14 | INF | O43557 |
| Tissue-type plasminogen activator | TPA | CVD III | P00750 |
| Transferrin receptor protein 1 | TR | CVD III | P02786 |
| TNF-related apoptosis-inducing ligand | TRAIL | INF | P50591 |
| TNF-related apoptosis-inducing ligand receptor 2 | TRAILR2 | CVD II | O14763 |
| TNF-related activation-induced cytokine | TRANCE | INF | O14788 |
| Tartrate-resistant acid phosphatase type 5 | TRAP | CVD III | P13686 |
| Tumor necrosis factor (Ligand) superfamily, member 12 | TWEAK | INF | O43508 |
| Urokinase-type plasminogen activator | UPA\_CVD3 | CVD III | P00749 |
| Urokinase plasminogen activator surface receptor | UPAR | CVD III | Q03405 |
| Vascular endothelial growth factor A | VEGFA | INF | P15692 |
| Vascular endothelial growth factor D | VEGFD | CVD II | O43915 |
| V-set and immunoglobulin domain-containing protein 2 | VSIG2 | CVD II | Q96IQ7 |
| von Willebrand factor | VWF | CVD III | P04275 |
| Lymphotactin | XCL1 | CVD II | P47992 |

Supplemental Table 2. Baseline patients’ characteristics by tertiles of LVEF

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Characteristic** | **LVEF tertiles** | | | **P-value** |
| **<60%** | **60-65%** | **>65%** |
| N. | 152 | 152 | 152 |  |
| Age, years | 72.8 (68.5, 78.1) | 72.6 (68.4, 77.8) | 72.8 (68.0, 78.0) | 0.99 |
| Men, n (%) | 124 (81.6%) | 111 (73.0%) | 109 (71.7%) | 0.095 |
| CAD, n. (%) | 114 (75.0%) | 114 (75.0%) | 107 (70.4%) | 0.58 |
| Hypertension, n. (%) | 117 (77.0%) | 109 (71.7%) | 126 (82.9%) | 0.067 |
| Diabetes, n. (%) | 57 (37.5%) | 60 (39.5%) | 71 (46.7%) | 0.23 |
| BMI, Kg/m2 | 27.4 (25.3, 31.2) | 28.0 (25.0, 31.5) | 28.3 (25.3, 31.8) | 0.70 |
| Waist circ., cm | 101.5 (93.0, 110.0) | 100.5 (95.0, 109.0) | 102.0 (95.0, 111.0) | 0.46 |
| SBP, mmHg | 140.0 (128.0, 154.0) | 139.0 (126.0, 156.0) | 144.5 (130.0, 159.0) | 0.098 |
| DBP, mmHg | 80.0 (73.0, 88.0) | 78.0 (70.0, 84.0) | 76.5 (70.0, 84.0) | 0.008 |
| Heart rate, bpm | 63.0 (56.0, 69.0) | 59.0 (54.0, 65.0) | 59.0 (54.0, 66.0) | 0.031 |
| LVEF, % \* | 53.9 (49.6, 57.0) | 62.6 (61.3, 64.2) | 69.3 (67.5, 71.9) | <0.001 |
| LVM, g/m2 | 96.9 (84.2, 113.8) | 91.8 (79.1, 109.4) | 93.8 (79.0, 112.3) | 0.099 |
| LAV, ml/m2 | 30.4 (25.5, 36.5) | 29.8 (25.3, 35.3) | 30.7 (25.6, 37.1) | 0.80 |
| E/e’ | 8.9 (7.3, 11.5) | 9.3 (7.7, 11.3) | 9.6 (7.9, 11.8) | 0.30 |
| E/A ratio | 0.8 (0.7, 1.0) | 0.9 (0.7, 1.0) | 0.9 (0.7, 1.1) | 0.004 |
| LVEDD, mm | 49.8 (46.2, 54.0) | 46.9 (43.6, 50.1) | 46.5 (44.0, 50.6) | <0.001 |
| LVEDV, ml/m2 | 46.6 (37.0, 54.5) | 40.6 (35.2, 47.7) | 40.8 (34.6, 47.6) | <0.001 |
| LVESV, ml/m2 | 20.8 (17.1, 25.4) | 15.5 (12.9, 17.8) | 12.3 (10.0, 14.5) | <0.001 |
| eGFR, ml/min/1.73m2 | 70.6 (62.5, 83.1) | 72.3 (61.5, 86.3) | 74.2 (63.3, 86.0) | 0.50 |
| eGFR <60, n. (%) | 33 (21.7%) | 30 (19.7%) | 32 (21.1%) | 0.91 |
| Urea, mmol/L | 8.4 (5.8, 14.3) | 8.0 (5.7, 13.6) | 8.9 (5.8, 13.9) | 0.93 |
| Hemoglobin, g/dl | 14.0 (13.3, 14.9) | 14.0 (13.1, 15.0) | 13.8 (12.9, 14.7) | 0.20 |
| Sodium, mmol/L | 140.0 (138.0, 141.0) | 139.5 (138.0, 141.0) | 139.0 (138.0, 141.0) | 0.34 |
| Potassium, mmol/L | 4.4 (4.1, 4.6) | 4.3 (4.1, 4.6) | 4.3 (4.1, 4.5) | 0.54 |
| NT-pro BNP, pg/mL | 251.8 (160.5, 405.5) | 183.9 (121.4, 293.4) | 196.4 (128.9, 303.2) | <0.001 |
| Anti-platelet, n. (%) | 112 (73.7%) | 120 (78.9%) | 125 (82.2%) | 0.19 |
| Beta-blocker, n. (%) | 110 (72.4%) | 103 (67.8%) | 108 (71.1%) | 0.66 |
| ACEi/ARB, n. (%) | 123 (80.9%) | 115 (75.7%) | 118 (77.6%) | 0.53 |
| CCB, n. (%) | 28 (18.4%) | 32 (21.1%) | 32 (21.1%) | 0.80 |
| Thiazide, n. (%) | 22 (14.5%) | 20 (13.2%) | 33 (21.7%) | 0.096 |
| Statin, n. (%) | 122 (80.3%) | 126 (82.9%) | 132 (86.8%) | 0.30 |

Legend: CAD, coronary artery disease; BMI, body mass index; SBP, systolic blood pressure; DBP, diastolic blood pressure; LVEF, left ventricular ejection fraction; LVM, left ventricular mass indexed to body surface area; LVH, left ventricular hypertrophy; LAV, left atrial volume indexed to body surface area; LVEDD, left ventricular end-diastolic diameter; LVEDV, left ventricular end-diastolic volume; LVESV, left ventricular end-systolic volume; eGFR, estimated glomerular filtration rate; ACEi/ARB, angiotensin converting enzyme/angiotensin receptor blocker; CCB, calcium channel blocker; \*LVEF analyzed in 4 cavities.

Supplemental Table 3. Association of circulating proteins with LVEF (logistic regression: upper vs. lower tertile) assessed with the Simpson bi-plane method

|  |  |  |
| --- | --- | --- |
| **Protein** | **Coefficient (95%CI)**  **LVEF: >65% vs. <60%** | **P-value** |
| bnp | -0.44 (-0.7 to -0.19) | 0.0006 |
| ntprobnp | -0.56 (-0.9 to -0.22) | 0.0014 |
| ccl23 | 0.91 (0.29 to 1.53) | 0.0041 |
| col1a1 | -0.91 (-1.55 to -0.26) | 0.0057 |
| tpa | -0.47 (-0.81 to -0.13) | 0.0065 |
| tnfb | 0.82 (0.2 to 1.45) | 0.0101 |
| picp | -0.74 (-1.35 to -0.13) | 0.0183 |
| il8 | 0.5 (0.08 to 0.91) | 0.0195 |
| cd6 | 0.57 (0.04 to 1.09) | 0.0334 |
| mcp3 | 0.55 (0.04 to 1.06) | 0.0358 |
| enrage | -0.39 (-0.75 to -0.02) | 0.0382 |
| ren | 0.32 (0 to 0.63) | 0.0482 |
| st1a1 | 0.3 (0 to 0.61) | 0.051 |
| notch3 | -0.71 (-1.42 to 0) | 0.0514 |
| mepe | -0.69 (-1.38 to 0.01) | 0.0536 |
| ccl3 | 0.42 (-0.01 to 0.85) | 0.0573 |
| hoscar | -1.04 (-2.12 to 0.04) | 0.0602 |
| nrtn | -1.13 (-2.38 to 0.11) | 0.0751 |
| il1ra | 0.46 (-0.06 to 0.98) | 0.0813 |
| tgfalpha | -0.74 (-1.58 to 0.1) | 0.0833 |
| trail | 0.8 (-0.12 to 1.71) | 0.0874 |
| par1 | 0.5 (-0.08 to 1.08) | 0.0901 |
| gal3 | -0.6 (-1.29 to 0.1) | 0.0918 |
| spon1 | -0.72 (-1.56 to 0.12) | 0.0936 |
| cd5 | 0.52 (-0.09 to 1.13) | 0.096 |
| mcp1 | 0.53 (-0.1 to 1.17) | 0.0973 |
| opg | 0.58 (-0.13 to 1.28) | 0.1085 |
| troponin T | -0.31 (-0.7 to 0.07) | 0.1131 |
| stk4 | 0.17 (-0.04 to 0.38) | 0.1145 |
| il18r1 | 0.47 (-0.12 to 1.05) | 0.1216 |
| tr | -0.31 (-0.7 to 0.08) | 0.1221 |
| pgf | 0.66 (-0.19 to 1.52) | 0.1275 |
| opn | -0.44 (-1 to 0.13) | 0.1291 |
| pdl2 | 0.57 (-0.18 to 1.32) | 0.1343 |
| tff3 | 0.45 (-0.15 to 1.05) | 0.1392 |
| cxcl16 | 0.7 (-0.24 to 1.63) | 0.1439 |
| ccl4 | 0.3 (-0.1 to 0.7) | 0.1465 |
| fgf19 | -0.23 (-0.53 to 0.08) | 0.1466 |
| il13 | -0.33 (-0.79 to 0.12) | 0.1513 |
| mcp2 | 0.31 (-0.11 to 0.73) | 0.1528 |
| tfpi | 0.47 (-0.18 to 1.13) | 0.1577 |
| laptgfbeta1 | 0.42 (-0.17 to 1) | 0.1623 |
| dlk1 | 0.32 (-0.13 to 0.76) | 0.1632 |
| fgf23 | -0.37 (-0.89 to 0.16) | 0.1688 |
| il17c | -0.3 (-0.73 to 0.13) | 0.1711 |
| boc | 0.59 (-0.26 to 1.44) | 0.1739 |
| csf1 | 0.76 (-0.34 to 1.87) | 0.1765 |
| csf1 | 0.76 (-0.34 to 1.87) | 0.1765 |
| gdf2 | 0.47 (-0.21 to 1.16) | 0.1766 |
| alcam | 0.64 (-0.29 to 1.58) | 0.1769 |
| opg | 0.51 (-0.25 to 1.26) | 0.191 |
| cdcp1 | 0.29 (-0.15 to 0.73) | 0.1983 |
| ccl17 | 0.16 (-0.08 to 0.4) | 0.2004 |
| vwf | -0.13 (-0.34 to 0.07) | 0.2016 |
| il1rl2 | 0.41 (-0.23 to 1.04) | 0.2074 |
| cx3cl1 | 0.4 (-0.23 to 1.03) | 0.2093 |
| il20 | 0.5 (-0.29 to 1.28) | 0.2135 |
| citp | -0.33 (-0.85 to 0.2) | 0.2252 |
| ccl15 | -0.33 (-0.88 to 0.21) | 0.2288 |
| gdnf | 0.38 (-0.24 to 1) | 0.233 |
| mmp9 | -0.41 (-1.07 to 0.26) | 0.2334 |
| ambp | 0.87 (-0.56 to 2.3) | 0.2348 |
| pigr | -0.95 (-2.53 to 0.63) | 0.2373 |
| lep | 0.23 (-0.15 to 0.6) | 0.2377 |
| il2ra | -0.37 (-0.99 to 0.25) | 0.2397 |
| cpb1 | -0.21 (-0.57 to 0.15) | 0.2455 |
| il1rt2 | 0.42 (-0.29 to 1.12) | 0.2463 |
| trailr2 | 0.4 (-0.28 to 1.09) | 0.2495 |
| fabp4 | 0.29 (-0.2 to 0.77) | 0.2502 |
| nemo | 0.12 (-0.08 to 0.31) | 0.2539 |
| lif | -0.89 (-2.43 to 0.64) | 0.2546 |
| mcp4 | 0.23 (-0.17 to 0.63) | 0.2595 |
| ifngamma | 46.67 (-34.5 to 5127.89) | 0.2601 |
| pglyrp1 | -0.28 (-0.78 to 0.22) | 0.2663 |
| cxcl1 | 0.11 (-0.08 to 0.3) | 0.2673 |
| bmp6 | 0.29 (-0.23 to 0.82) | 0.2685 |
| gh | 0.08 (-0.06 to 0.23) | 0.2705 |
| cd163 | 0.3 (-0.24 to 0.84) | 0.2709 |
| tm | 0.46 (-0.36 to 1.29) | 0.2714 |
| dkk1 | 0.21 (-0.17 to 0.59) | 0.2752 |
| fabp2 | 0.17 (-0.14 to 0.49) | 0.28 |
| src | 0.14 (-0.11 to 0.39) | 0.2812 |
| cstb | 0.33 (-0.27 to 0.93) | 0.282 |
| pappa | -0.26 (-0.74 to 0.22) | 0.2831 |
| cxcl1 | 0.11 (-0.09 to 0.31) | 0.2841 |
| cd40 | 0.32 (-0.27 to 0.9) | 0.2882 |
| il18 | -0.27 (-0.79 to 0.24) | 0.2923 |
| cxcl6 | 0.16 (-0.14 to 0.47) | 0.2927 |
| il18 | -0.27 (-0.77 to 0.23) | 0.2955 |
| cxcl9 | 0.21 (-0.19 to 0.6) | 0.302 |
| prelp | -0.64 (-1.87 to 0.58) | 0.3049 |
| axin1 | 0.1 (-0.09 to 0.29) | 0.307 |
| gt | 0.19 (-0.18 to 0.55) | 0.3098 |
| chit1 | -0.12 (-0.35 to 0.11) | 0.3133 |
| mcp1 | 0.28 (-0.27 to 0.82) | 0.3189 |
| cst5 | 0.25 (-0.27 to 0.77) | 0.3436 |
| fgf23 | -0.24 (-0.75 to 0.26) | 0.3458 |
| marco | 0.54 (-0.58 to 1.67) | 0.3462 |
| cd40l | 0.09 (-0.1 to 0.28) | 0.3512 |
| il12b | 0.19 (-0.21 to 0.59) | 0.3541 |
| osm | -0.14 (-0.43 to 0.16) | 0.355 |
| cxcl5 | 0.07 (-0.08 to 0.21) | 0.3556 |
| ca5a | 0.13 (-0.15 to 0.42) | 0.3615 |
| grn | 0.34 (-0.4 to 1.07) | 0.3662 |
| il5 | 0.12 (-0.15 to 0.39) | 0.3726 |
| upa | 0.34 (-0.41 to 1.1) | 0.3741 |
| shps1 | 0.29 (-0.35 to 0.92) | 0.3791 |
| tf | 0.36 (-0.45 to 1.16) | 0.3837 |
| cxcl10 | 0.16 (-0.2 to 0.53) | 0.3869 |
| cpa1 | -0.14 (-0.47 to 0.18) | 0.3875 |
| iggfcreceptoriib | 0.14 (-0.17 to 0.45) | 0.3876 |
| il24 | 0.21 (-0.27 to 0.69) | 0.3929 |
| ang1 | 0.09 (-0.12 to 0.29) | 0.3935 |
| cd244 | 0.26 (-0.35 to 0.88) | 0.4009 |
| tnfrsf11a | 0.28 (-0.39 to 0.95) | 0.4069 |
| il6 | -0.15 (-0.5 to 0.21) | 0.4208 |
| il1rt1 | -0.3 (-1.02 to 0.43) | 0.4264 |
| tnfrsf10c | -0.22 (-0.75 to 0.32) | 0.4269 |
| tnfrsf14 | 0.23 (-0.34 to 0.79) | 0.4284 |
| betangf | -0.29 (-1.01 to 0.43) | 0.4285 |
| prss8 | 0.32 (-0.48 to 1.12) | 0.4301 |
| casp8 | 0.17 (-0.26 to 0.61) | 0.432 |
| fgf5 | 0.71 (-1.07 to 2.49) | 0.4354 |
| parp1 | 0.15 (-0.23 to 0.53) | 0.4369 |
| il27 | -0.27 (-0.96 to 0.41) | 0.4373 |
| cntn1 | -0.27 (-0.97 to 0.42) | 0.4397 |
| decr1 | 0.07 (-0.11 to 0.25) | 0.4406 |
| vegfd | 0.28 (-0.44 to 1) | 0.4478 |
| gp6 | -0.12 (-0.44 to 0.2) | 0.4538 |
| tnfr2 | 0.24 (-0.39 to 0.88) | 0.4546 |
| cd8a | -0.15 (-0.53 to 0.24) | 0.4554 |
| trap | 0.26 (-0.42 to 0.94) | 0.457 |
| ccl19 | 0.11 (-0.19 to 0.41) | 0.4645 |
| tslp | -0.59 (-2.16 to 0.99) | 0.4648 |
| il6 | -0.13 (-0.48 to 0.22) | 0.4662 |
| mmp3 | 0.16 (-0.28 to 0.6) | 0.4682 |
| idua | 0.21 (-0.36 to 0.78) | 0.469 |
| trance | 0.16 (-0.28 to 0.6) | 0.469 |
| ephb4 | -0.3 (-1.12 to 0.52) | 0.4758 |
| slamf7 | 0.13 (-0.24 to 0.51) | 0.4827 |
| tgm2 | -0.1 (-0.39 to 0.19) | 0.4827 |
| cxcl11 | 0.11 (-0.19 to 0.4) | 0.4834 |
| haox1 | 0.07 (-0.13 to 0.27) | 0.484 |
| gal4 | 0.15 (-0.27 to 0.58) | 0.4879 |
| vegfa | 0.27 (-0.49 to 1.02) | 0.4885 |
| tnfrsf10a | 0.24 (-0.45 to 0.93) | 0.4923 |
| ada | 0.21 (-0.4 to 0.82) | 0.4973 |
| lox1 | -0.15 (-0.59 to 0.29) | 0.4989 |
| icam2 | -0.21 (-0.81 to 0.4) | 0.5041 |
| cd4 | -0.28 (-1.12 to 0.56) | 0.5093 |
| tlt2 | -0.17 (-0.69 to 0.34) | 0.5113 |
| il22ra1 | -0.29 (-1.14 to 0.57) | 0.5132 |
| fas | 0.23 (-0.46 to 0.92) | 0.5134 |
| hbegf | 0.12 (-0.24 to 0.48) | 0.5165 |
| mmp2 | -0.23 (-0.94 to 0.48) | 0.5187 |
| itgb1bp2 | 0.06 (-0.13 to 0.25) | 0.5252 |
| scf | -0.25 (-1.02 to 0.52) | 0.5279 |
| apn | 0.24 (-0.53 to 1.02) | 0.5357 |
| ctsd | -0.17 (-0.73 to 0.39) | 0.5413 |
| serpina12 | -0.12 (-0.52 to 0.28) | 0.5502 |
| scgb3a2 | -0.11 (-0.47 to 0.25) | 0.5536 |
| ccl11 | -0.18 (-0.76 to 0.41) | 0.555 |
| pdgfsubunitb | 0.05 (-0.12 to 0.22) | 0.5631 |
| il33 | 0.76 (-1.82 to 3.35) | 0.5633 |
| mmp7 | 0.15 (-0.36 to 0.65) | 0.5637 |
| il7 | 0.09 (-0.22 to 0.41) | 0.5683 |
| scf\_inf | -0.22 (-0.99 to 0.54) | 0.5709 |
| timp4 | -0.16 (-0.74 to 0.41) | 0.5758 |
| igfbp1 | 0.08 (-0.21 to 0.38) | 0.579 |
| fs | -0.18 (-0.81 to 0.46) | 0.5841 |
| ccl24 | -0.08 (-0.38 to 0.22) | 0.591 |
| adm | 0.22 (-0.58 to 1.01) | 0.5912 |
| mmp10 | -0.13 (-0.58 to 0.33) | 0.5923 |
| tnfsf13b | -0.17 (-0.81 to 0.46) | 0.5951 |
| ctsz | 0.18 (-0.51 to 0.88) | 0.6066 |
| tnfsf14 | 0.12 (-0.34 to 0.57) | 0.6083 |
| itgb2 | 0.15 (-0.42 to 0.72) | 0.61 |
| sod2 | -0.55 (-2.67 to 1.57) | 0.6112 |
| pspd | 0.08 (-0.22 to 0.37) | 0.6141 |
| cd93 | -0.21 (-1.03 to 0.61) | 0.616 |
| pai | -0.06 (-0.3 to 0.18) | 0.6187 |
| dner | 0.24 (-0.7 to 1.17) | 0.6203 |
| sele | 0.1 (-0.32 to 0.52) | 0.6281 |
| pdl1 | 0.16 (-0.49 to 0.81) | 0.6285 |
| retn | -0.12 (-0.59 to 0.36) | 0.6299 |
| stambp | 0.06 (-0.19 to 0.32) | 0.6319 |
| il4ra | -0.17 (-0.9 to 0.57) | 0.6518 |
| il18bp | 0.16 (-0.56 to 0.89) | 0.6551 |
| thpo | 0.16 (-0.55 to 0.87) | 0.6556 |
| il10rb | 0.17 (-0.6 to 0.95) | 0.6617 |
| kim1 | -0.07 (-0.39 to 0.25) | 0.6663 |
| ldlreceptor | 0.11 (-0.4 to 0.63) | 0.668 |
| rarres2 | 0.18 (-0.63 to 0.98) | 0.6704 |
| flt3l | 0.12 (-0.42 to 0.66) | 0.6722 |
| mpo | 0.2 (-0.74 to 1.14) | 0.6767 |
| jama | 0.05 (-0.17 to 0.26) | 0.6798 |
| il6ra | -0.13 (-0.75 to 0.49) | 0.682 |
| epcam | -0.06 (-0.33 to 0.22) | 0.6847 |
| hgf | 0.14 (-0.53 to 0.81) | 0.689 |
| slamf1 | -0.09 (-0.53 to 0.35) | 0.6929 |
| ltbr | -0.15 (-0.92 to 0.62) | 0.7037 |
| pdgfsubunita | 0.04 (-0.18 to 0.27) | 0.704 |
| artn | 0.13 (-0.52 to 0.78) | 0.7042 |
| tnf | -0.16 (-1.02 to 0.69) | 0.7059 |
| casp3 | 0.03 (-0.14 to 0.21) | 0.7098 |
| sirt2 | 0.04 (-0.15 to 0.22) | 0.7102 |
| tnfr1 | 0.14 (-0.59 to 0.86) | 0.7103 |
| st2 | -0.09 (-0.6 to 0.41) | 0.7169 |
| sort1 | 0.17 (-0.74 to 1.07) | 0.7188 |
| prtn3 | 0.16 (-0.76 to 1.08) | 0.7301 |
| ccl20 | 0.05 (-0.22 to 0.31) | 0.739 |
| cd84 | 0.08 (-0.41 to 0.58) | 0.7406 |
| ccl16 | 0.07 (-0.36 to 0.51) | 0.7407 |
| pon3 | 0.08 (-0.4 to 0.56) | 0.7417 |
| il4 | 0.07 (-0.34 to 0.48) | 0.7426 |
| ptx3 | -0.09 (-0.65 to 0.47) | 0.7475 |
| glo1 | 0.06 (-0.29 to 0.4) | 0.7505 |
| gif | 0.04 (-0.2 to 0.27) | 0.7509 |
| il1alpha | -0.13 (-0.91 to 0.65) | 0.7528 |
| igfbp7 | 0.11 (-0.58 to 0.81) | 0.7534 |
| mmp1 | -0.04 (-0.29 to 0.21) | 0.7561 |
| thbs2 | -0.16 (-1.23 to 0.91) | 0.7683 |
| gal9 | -0.13 (-1.01 to 0.74) | 0.7692 |
| il15ra | 0.13 (-0.79 to 1.06) | 0.7759 |
| axl | -0.1 (-0.79 to 0.59) | 0.7795 |
| chi3l1 | -0.04 (-0.33 to 0.25) | 0.782 |
| pi3 | 0.06 (-0.39 to 0.5) | 0.7934 |
| selp | 0.04 (-0.26 to 0.33) | 0.7949 |
| nt3 | -0.06 (-0.55 to 0.43) | 0.7967 |
| blmhydrolase | 0.07 (-0.5 to 0.65) | 0.7978 |
| fgf21 | 0.03 (-0.18 to 0.23) | 0.8039 |
| dcn | -0.1 (-0.91 to 0.7) | 0.8058 |
| il17a | -0.04 (-0.37 to 0.29) | 0.8075 |
| agrp | -0.06 (-0.58 to 0.45) | 0.8096 |
| klk6 | -0.08 (-0.72 to 0.57) | 0.8107 |
| tnfrsf9 | 0.07 (-0.51 to 0.65) | 0.8113 |
| ho1 | -0.08 (-0.75 to 0.59) | 0.814 |
| fgf21 | 0.03 (-0.2 to 0.26) | 0.8154 |
| pcsk9 | -0.09 (-0.82 to 0.65) | 0.8166 |
| mertk | 0.08 (-0.61 to 0.77) | 0.8169 |
| plc | 0.11 (-0.88 to 1.1) | 0.8275 |
| bp1 | -0.03 (-0.35 to 0.28) | 0.8316 |
| azu1 | 0.04 (-0.35 to 0.43) | 0.8326 |
| lifr | 0.09 (-0.76 to 0.95) | 0.8327 |
| upa | 0.07 (-0.63 to 0.76) | 0.8473 |
| psgl1 | 0.08 (-0.8 to 0.96) | 0.8624 |
| rage | 0.05 (-0.61 to 0.72) | 0.8711 |
| il16 | 0.04 (-0.5 to 0.59) | 0.8802 |
| spon2 | -0.1 (-1.42 to 1.22) | 0.8828 |
| il10ra | 0.03 (-0.41 to 0.47) | 0.8881 |
| il17d | -0.05 (-0.84 to 0.73) | 0.8935 |
| prss27 | -0.04 (-0.58 to 0.5) | 0.8942 |
| gdf15 | -0.03 (-0.45 to 0.39) | 0.8955 |
| mmp12 | -0.02 (-0.39 to 0.35) | 0.8979 |
| adamts13 | 0.07 (-1.04 to 1.19) | 0.8982 |
| ccl28 | -0.05 (-0.81 to 0.71) | 0.8984 |
| ccl25 | -0.03 (-0.55 to 0.49) | 0.8993 |
| cdh5 | -0.04 (-0.73 to 0.65) | 0.9019 |
| ctrc | 0.02 (-0.31 to 0.36) | 0.9035 |
| vsig2 | 0.02 (-0.39 to 0.44) | 0.9079 |
| tnfrsf13b | -0.04 (-0.66 to 0.59) | 0.9116 |
| lpl | -0.02 (-0.56 to 0.51) | 0.9352 |
| tie2 | -0.04 (-0.93 to 0.86) | 0.9356 |
| pecam1 | 0.01 (-0.29 to 0.32) | 0.9384 |
| ceacam8 | -0.01 (-0.44 to 0.42) | 0.9603 |
| hsp27 | 0.01 (-0.53 to 0.55) | 0.9668 |
| ace2 | 0.01 (-0.39 to 0.41) | 0.9694 |
| igfbp2 | 0.01 (-0.46 to 0.48) | 0.9698 |
| ctsl1 | -0.01 (-0.78 to 0.76) | 0.9712 |
| tweak | -0.01 (-0.77 to 0.74) | 0.9744 |
| egfr | 0.02 (-0.99 to 1.02) | 0.9752 |
| il17ra | 0.01 (-0.43 to 0.44) | 0.9775 |
| il2rb | 0.01 (-0.66 to 0.68) | 0.9813 |
| mb | 0.01 (-0.44 to 0.45) | 0.9814 |
| xcl1 | 0 (-0.46 to 0.45) | 0.9838 |
| p3np | 0 (-0.45 to 0.46) | 0.9929 |
| il20ra | 0 (-0.64 to 0.65) | 0.994 |
| il10 | 0 (-0.39 to 0.39) | 0.9984 |
| upar | 0 (-0.7 to 0.7) | 0.9997 |
| il2 | 0 (0 to 0) | 1 |

Supplemental Table 4. Association of circulating proteins with LVEF (ordered logistic regression: per tertile increase) assessed with the Simpson bi-plane method

|  |  |  |
| --- | --- | --- |
| **Protein** | **Coefficient (95%CI)**  **Ordered logistic** | **P-value** |
| bnp | -0.31 (-0.5 to -0.13) | 0.0008 |
| ntprobnp | -0.4 (-0.65 to -0.14) | 0.0023 |
| ccl23 | 0.68 (0.24 to 1.13) | 0.0027 |
| tnfb | 0.65 (0.2 to 1.1) | 0.0046 |
| cd6 | 0.55 (0.16 to 0.93) | 0.0056 |
| il8 | 0.43 (0.12 to 0.75) | 0.0071 |
| tpa | -0.32 (-0.55 to -0.08) | 0.0094 |
| mcp3 | 0.45 (0.11 to 0.78) | 0.0098 |
| ccl3 | 0.35 (0.06 to 0.64) | 0.0194 |
| col1a1 | -0.56 (-1.05 to -0.08) | 0.0229 |
| st1a1 | 0.25 (0.03 to 0.47) | 0.0274 |
| cd5 | 0.55 (0.06 to 1.04) | 0.0278 |
| ren | 0.27 (0.02 to 0.51) | 0.0348 |
| picp | -0.47 (-0.93 to -0.02) | 0.0405 |
| pgf | 0.63 (0.01 to 1.25) | 0.045 |
| par1 | 0.45 (0.01 to 0.88) | 0.0452 |
| tfpi | 0.5 (0 to 1) | 0.0515 |
| laptgfbeta1 | 0.43 (0 to 0.86) | 0.0524 |
| csf1 | 0.79 (-0.01 to 1.6) | 0.0531 |
| csf1 | 0.79 (-0.01 to 1.6) | 0.0531 |
| il18r1 | 0.44 (-0.01 to 0.88) | 0.0534 |
| trail | 0.67 (-0.01 to 1.34) | 0.0536 |
| il1ra | 0.35 (-0.01 to 0.71) | 0.0566 |
| opg | 0.52 (-0.03 to 1.08) | 0.0636 |
| mcp1 | 0.41 (-0.03 to 0.84) | 0.065 |
| enrage | -0.23 (-0.48 to 0.02) | 0.0674 |
| cdcp1 | 0.29 (-0.03 to 0.61) | 0.0772 |
| ccl4 | 0.25 (-0.03 to 0.53) | 0.0777 |
| cxcl16 | 0.65 (-0.08 to 1.38) | 0.0799 |
| tff3 | 0.41 (-0.05 to 0.87) | 0.0815 |
| notch3 | -0.48 (-1.02 to 0.06) | 0.0831 |
| stk4 | 0.13 (-0.02 to 0.29) | 0.0917 |
| alcam | 0.6 (-0.1 to 1.3) | 0.0927 |
| pdl2 | 0.45 (-0.08 to 0.99) | 0.0952 |
| gal3 | -0.42 (-0.91 to 0.08) | 0.0978 |
| trailr2 | 0.45 (-0.09 to 0.99) | 0.1033 |
| il13 | -0.15 (-0.35 to 0.04) | 0.1162 |
| il20 | 0.47 (-0.12 to 1.06) | 0.1212 |
| cx3cl1 | 0.33 (-0.1 to 0.77) | 0.1344 |
| cstb | 0.33 (-0.1 to 0.77) | 0.1365 |
| boc | 0.5 (-0.16 to 1.15) | 0.1379 |
| spon1 | -0.47 (-1.1 to 0.15) | 0.1395 |
| mcp2 | 0.23 (-0.08 to 0.53) | 0.1417 |
| cd40 | 0.34 (-0.11 to 0.79) | 0.1427 |
| ccl17 | 0.14 (-0.05 to 0.32) | 0.1428 |
| il1rt2 | 0.41 (-0.14 to 0.97) | 0.145 |
| dkk1 | 0.2 (-0.07 to 0.48) | 0.1491 |
| mepe | -0.36 (-0.85 to 0.13) | 0.1506 |
| Troponin | -0.21 (-0.5 to 0.08) | 0.1517 |
| cxcl6 | 0.16 (-0.06 to 0.37) | 0.1562 |
| il1rl2 | 0.34 (-0.13 to 0.81) | 0.1569 |
| cxcl1 | 0.11 (-0.04 to 0.25) | 0.1605 |
| opg | 0.41 (-0.17 to 0.99) | 0.1643 |
| tm | 0.42 (-0.18 to 1.02) | 0.1674 |
| cst5 | 0.28 (-0.12 to 0.68) | 0.1725 |
| cxcl9 | 0.2 (-0.09 to 0.49) | 0.1765 |
| bmp6 | 0.28 (-0.13 to 0.68) | 0.1771 |
| tnfrsf11a | 0.33 (-0.15 to 0.81) | 0.1814 |
| parp1 | 0.2 (-0.09 to 0.49) | 0.1838 |
| nrtn | -0.32 (-0.79 to 0.15) | 0.1856 |
| dlk1 | 0.23 (-0.12 to 0.58) | 0.1893 |
| gdf2 | 0.33 (-0.17 to 0.82) | 0.194 |
| cd163 | 0.27 (-0.14 to 0.68) | 0.1945 |
| gdnf | 0.33 (-0.17 to 0.83) | 0.1952 |
| ambp | 0.69 (-0.36 to 1.74) | 0.1962 |
| tnfrsf10a | 0.36 (-0.19 to 0.9) | 0.198 |
| vwf | -0.1 (-0.25 to 0.05) | 0.1998 |
| cd244 | 0.31 (-0.16 to 0.78) | 0.1998 |
| nemo | 0.09 (-0.05 to 0.24) | 0.2019 |
| mcp4 | 0.18 (-0.1 to 0.47) | 0.2023 |
| ca5a | 0.15 (-0.08 to 0.38) | 0.2043 |
| trap | 0.33 (-0.18 to 0.84) | 0.2106 |
| cxcl5 | 0.07 (-0.04 to 0.18) | 0.216 |
| tnfr2 | 0.29 (-0.17 to 0.74) | 0.2171 |
| casp8 | 0.2 (-0.12 to 0.51) | 0.2235 |
| gt | 0.17 (-0.1 to 0.43) | 0.2236 |
| fgf23 | -0.24 (-0.64 to 0.15) | 0.2239 |
| grn | 0.34 (-0.21 to 0.89) | 0.2255 |
| hoscar | -0.46 (-1.21 to 0.28) | 0.2258 |
| tnfrsf14 | 0.27 (-0.17 to 0.7) | 0.2277 |
| fgf5 | 0.78 (-0.49 to 2.04) | 0.2291 |
| vegfa | 0.33 (-0.21 to 0.88) | 0.2299 |
| mmp9 | -0.3 (-0.79 to 0.19) | 0.2349 |
| mcp1 | 0.19 (-0.13 to 0.51) | 0.2351 |
| lif | -0.29 (-0.78 to 0.2) | 0.2407 |
| hbegf | 0.16 (-0.11 to 0.43) | 0.2421 |
| axin1 | 0.08 (-0.06 to 0.22) | 0.243 |
| ang1 | 0.09 (-0.06 to 0.24) | 0.2538 |
| cd40l | 0.08 (-0.06 to 0.21) | 0.2538 |
| marco | 0.49 (-0.36 to 1.35) | 0.2567 |
| lep | 0.15 (-0.11 to 0.41) | 0.2584 |
| tgfalpha | -0.36 (-0.98 to 0.27) | 0.2632 |
| il12b | 0.16 (-0.12 to 0.44) | 0.2712 |
| fabp2 | 0.13 (-0.11 to 0.37) | 0.2739 |
| cxcl10 | 0.14 (-0.11 to 0.39) | 0.2792 |
| il24 | 0.21 (-0.17 to 0.58) | 0.2807 |
| ada | 0.25 (-0.2 to 0.69) | 0.2817 |
| fgf19 | -0.12 (-0.33 to 0.1) | 0.2826 |
| pdl1 | 0.27 (-0.22 to 0.76) | 0.2865 |
| ccl15 | -0.23 (-0.65 to 0.19) | 0.2874 |
| cxcl11 | 0.11 (-0.09 to 0.31) | 0.2895 |
| src | 0.1 (-0.08 to 0.28) | 0.2981 |
| il18bp | 0.29 (-0.25 to 0.83) | 0.2989 |
| shps1 | 0.25 (-0.23 to 0.72) | 0.3026 |
| tr | -0.15 (-0.45 to 0.14) | 0.3036 |
| tnfsf14 | 0.18 (-0.16 to 0.51) | 0.3058 |
| il5 | 0.11 (-0.1 to 0.32) | 0.3172 |
| mmp3 | 0.16 (-0.16 to 0.49) | 0.3174 |
| gh | 0.05 (-0.05 to 0.16) | 0.3183 |
| ifngamma | 0.85 (-0.83 to 2.52) | 0.3204 |
| il17c | -0.15 (-0.45 to 0.15) | 0.3272 |
| pappa | -0.17 (-0.52 to 0.18) | 0.3393 |
| sort1 | 0.31 (-0.32 to 0.93) | 0.3395 |
| fabp4 | 0.16 (-0.17 to 0.5) | 0.3455 |
| itgb1bp2 | 0.07 (-0.07 to 0.2) | 0.3475 |
| tf | 0.29 (-0.31 to 0.88) | 0.3485 |
| cpb1 | -0.13 (-0.41 to 0.15) | 0.3527 |
| citp | -0.18 (-0.58 to 0.21) | 0.3565 |
| fas | 0.24 (-0.27 to 0.75) | 0.3613 |
| cntn1 | -0.25 (-0.79 to 0.29) | 0.3664 |
| prelp | -0.45 (-1.43 to 0.54) | 0.3708 |
| apn | 0.28 (-0.33 to 0.88) | 0.3728 |
| il15ra | 0.33 (-0.39 to 1.04) | 0.3755 |
| il7 | 0.11 (-0.13 to 0.34) | 0.3778 |
| iggfcreceptoriib | 0.1 (-0.13 to 0.34) | 0.3802 |
| il10rb | 0.26 (-0.32 to 0.84) | 0.3824 |
| slamf7 | 0.12 (-0.16 to 0.41) | 0.386 |
| vegfd | 0.22 (-0.27 to 0.7) | 0.386 |
| ctsz | 0.21 (-0.28 to 0.7) | 0.3962 |
| trance | 0.13 (-0.17 to 0.44) | 0.3966 |
| thpo | 0.23 (-0.3 to 0.75) | 0.3988 |
| lifr | 0.26 (-0.35 to 0.87) | 0.4033 |
| stambp | 0.08 (-0.11 to 0.27) | 0.4041 |
| decr1 | 0.05 (-0.07 to 0.18) | 0.4059 |
| glo1 | 0.11 (-0.15 to 0.36) | 0.4069 |
| il2ra | -0.16 (-0.55 to 0.23) | 0.4091 |
| pdgfsubunitb | 0.05 (-0.07 to 0.18) | 0.4182 |
| cd84 | 0.16 (-0.23 to 0.54) | 0.4261 |
| ccl20 | 0.08 (-0.11 to 0.27) | 0.4295 |
| pglyrp1 | -0.15 (-0.53 to 0.23) | 0.431 |
| gal4 | 0.13 (-0.2 to 0.46) | 0.4349 |
| tnfrsf10c | -0.16 (-0.55 to 0.24) | 0.436 |
| rarres2 | 0.25 (-0.38 to 0.88) | 0.437 |
| itgb2 | 0.16 (-0.25 to 0.57) | 0.4377 |
| ccl24 | -0.08 (-0.3 to 0.13) | 0.4426 |
| prss8 | 0.23 (-0.36 to 0.82) | 0.4457 |
| upa | 0.21 (-0.33 to 0.74) | 0.4478 |
| tgm2 | -0.09 (-0.32 to 0.14) | 0.4507 |
| tnfr1 | 0.21 (-0.34 to 0.75) | 0.4582 |
| hgf | 0.17 (-0.27 to 0.61) | 0.4582 |
| cpa1 | -0.1 (-0.36 to 0.16) | 0.4607 |
| fgf23 | -0.15 (-0.54 to 0.24) | 0.4645 |
| il22ra1 | -0.2 (-0.73 to 0.33) | 0.4676 |
| haox1 | 0.06 (-0.1 to 0.21) | 0.4697 |
| osm | -0.08 (-0.3 to 0.14) | 0.4719 |
| tnfrsf9 | 0.16 (-0.29 to 0.6) | 0.4863 |
| adm | 0.2 (-0.37 to 0.77) | 0.4931 |
| jama | 0.06 (-0.11 to 0.23) | 0.4949 |
| idua | 0.15 (-0.28 to 0.58) | 0.4984 |
| pigr | -0.39 (-1.53 to 0.75) | 0.5008 |
| pon3 | 0.12 (-0.22 to 0.46) | 0.5014 |
| opn | -0.14 (-0.54 to 0.27) | 0.5068 |
| sirt2 | 0.05 (-0.09 to 0.19) | 0.5079 |
| scgb3a2 | -0.1 (-0.39 to 0.2) | 0.5193 |
| dner | 0.22 (-0.45 to 0.88) | 0.5195 |
| prtn3 | 0.21 (-0.44 to 0.87) | 0.5258 |
| ccl19 | 0.07 (-0.14 to 0.28) | 0.526 |
| pdgfsubunita | 0.06 (-0.12 to 0.23) | 0.5304 |
| igfbp1 | 0.07 (-0.14 to 0.27) | 0.539 |
| casp3 | 0.04 (-0.09 to 0.17) | 0.5402 |
| mertk | 0.16 (-0.35 to 0.66) | 0.5412 |
| artn | 0.18 (-0.41 to 0.77) | 0.5459 |
| gif | 0.05 (-0.12 to 0.22) | 0.548 |
| fgf21 | 0.05 (-0.1 to 0.2) | 0.5495 |
| mpo | 0.21 (-0.47 to 0.88) | 0.5503 |
| selp | 0.07 (-0.16 to 0.3) | 0.5612 |
| vsig2 | 0.09 (-0.21 to 0.38) | 0.5634 |
| il16 | 0.12 (-0.28 to 0.51) | 0.5634 |
| mmp7 | 0.12 (-0.28 to 0.51) | 0.564 |
| ctsl1 | 0.16 (-0.4 to 0.72) | 0.5741 |
| tslp | -0.2 (-0.91 to 0.5) | 0.5751 |
| blmhydrolase | 0.12 (-0.31 to 0.56) | 0.5776 |
| igfbp7 | 0.16 (-0.42 to 0.75) | 0.589 |
| rage | 0.13 (-0.37 to 0.62) | 0.6155 |
| sele | 0.08 (-0.24 to 0.4) | 0.6196 |
| epcam | -0.05 (-0.25 to 0.15) | 0.6209 |
| il4 | 0.1 (-0.29 to 0.48) | 0.6246 |
| plc | 0.19 (-0.58 to 0.96) | 0.6287 |
| il1alpha | -0.17 (-0.84 to 0.51) | 0.6295 |
| tlt2 | -0.09 (-0.46 to 0.28) | 0.6309 |
| il6 | -0.06 (-0.31 to 0.19) | 0.6311 |
| il18 | -0.08 (-0.43 to 0.27) | 0.657 |
| cd93 | -0.14 (-0.75 to 0.48) | 0.6573 |
| chit1 | -0.03 (-0.19 to 0.12) | 0.6579 |
| upar | 0.12 (-0.41 to 0.65) | 0.6579 |
| ldlreceptor | 0.09 (-0.31 to 0.48) | 0.6684 |
| il33 | 0.41 (-1.45 to 2.26) | 0.6693 |
| il20ra | 0.08 (-0.27 to 0.43) | 0.6697 |
| fs | -0.1 (-0.56 to 0.36) | 0.6709 |
| prss27 | 0.08 (-0.3 to 0.46) | 0.6761 |
| icam2 | -0.09 (-0.53 to 0.34) | 0.6764 |
| scf | -0.11 (-0.65 to 0.43) | 0.6866 |
| ccl11 | -0.09 (-0.51 to 0.34) | 0.688 |
| lox1 | -0.07 (-0.39 to 0.26) | 0.69 |
| il27 | -0.1 (-0.57 to 0.38) | 0.6942 |
| pecam1 | 0.05 (-0.19 to 0.29) | 0.6961 |
| il1rt1 | -0.11 (-0.65 to 0.43) | 0.7003 |
| il18 | -0.07 (-0.42 to 0.28) | 0.7029 |
| nt3 | -0.07 (-0.41 to 0.28) | 0.7035 |
| tweak | 0.11 (-0.45 to 0.66) | 0.7062 |
| betangf | -0.12 (-0.72 to 0.49) | 0.7099 |
| mmp10 | -0.07 (-0.41 to 0.28) | 0.7111 |
| retn | -0.07 (-0.44 to 0.3) | 0.7132 |
| il2 | 14.3 (-63.77 to 92.36) | 0.7196 |
| ctsd | -0.08 (-0.51 to 0.36) | 0.732 |
| gp6 | -0.04 (-0.27 to 0.19) | 0.7341 |
| il10ra | 0.05 (-0.26 to 0.37) | 0.7348 |
| pspd | 0.04 (-0.19 to 0.27) | 0.7375 |
| mmp2 | -0.1 (-0.66 to 0.47) | 0.7413 |
| cdh5 | 0.09 (-0.43 to 0.61) | 0.7414 |
| azu1 | 0.05 (-0.23 to 0.33) | 0.7422 |
| ace2 | 0.05 (-0.27 to 0.38) | 0.7444 |
| ctrc | 0.04 (-0.2 to 0.28) | 0.7457 |
| sod2 | -0.25 (-1.74 to 1.25) | 0.7472 |
| tie2 | 0.11 (-0.56 to 0.78) | 0.7482 |
| il2rb | 0.09 (-0.49 to 0.68) | 0.753 |
| pi3 | 0.06 (-0.3 to 0.41) | 0.7576 |
| dcn | 0.1 (-0.52 to 0.71) | 0.7599 |
| agrp | 0.06 (-0.32 to 0.43) | 0.7601 |
| igfbp2 | 0.05 (-0.3 to 0.41) | 0.7604 |
| lpl | 0.06 (-0.33 to 0.44) | 0.7625 |
| ceacam8 | 0.05 (-0.28 to 0.38) | 0.776 |
| flt3l | 0.06 (-0.38 to 0.5) | 0.7823 |
| il17ra | 0.05 (-0.28 to 0.37) | 0.7866 |
| gdf15 | 0.04 (-0.27 to 0.35) | 0.7879 |
| cd8a | -0.04 (-0.31 to 0.24) | 0.7888 |
| klk6 | 0.06 (-0.39 to 0.51) | 0.7949 |
| serpina12 | -0.04 (-0.3 to 0.23) | 0.7952 |
| scf | -0.07 (-0.59 to 0.46) | 0.8001 |
| il17a | -0.03 (-0.28 to 0.22) | 0.8055 |
| cd4 | -0.08 (-0.75 to 0.59) | 0.808 |
| p3np | 0.04 (-0.31 to 0.4) | 0.817 |
| timp4 | -0.05 (-0.45 to 0.36) | 0.8225 |
| il4ra | -0.06 (-0.63 to 0.5) | 0.8283 |
| psgl1 | 0.07 (-0.57 to 0.7) | 0.841 |
| thbs2 | -0.09 (-0.93 to 0.76) | 0.8411 |
| kim1 | -0.02 (-0.27 to 0.22) | 0.8448 |
| hsp27 | 0.04 (-0.35 to 0.43) | 0.8466 |
| tnfsf13b | -0.05 (-0.52 to 0.43) | 0.851 |
| il10 | 0.02 (-0.24 to 0.29) | 0.855 |
| bp1\_4e | 0.02 (-0.21 to 0.25) | 0.8616 |
| il6ra | -0.04 (-0.51 to 0.43) | 0.8671 |
| gal9 | 0.05 (-0.59 to 0.7) | 0.8678 |
| egfr | 0.06 (-0.71 to 0.84) | 0.8698 |
| mb | 0.03 (-0.31 to 0.36) | 0.8738 |
| axl | 0.04 (-0.49 to 0.57) | 0.8829 |
| pai | -0.01 (-0.21 to 0.18) | 0.8926 |
| mmp1 | 0.01 (-0.17 to 0.19) | 0.9026 |
| chi3l1 | 0.01 (-0.2 to 0.22) | 0.9118 |
| ccl28 | 0.03 (-0.54 to 0.61) | 0.9131 |
| spon2 | 0.06 (-0.96 to 1.08) | 0.9134 |
| ccl16 | 0.02 (-0.27 to 0.3) | 0.9152 |
| pcsk9 | 0.03 (-0.52 to 0.57) | 0.9176 |
| ephb4 | -0.03 (-0.6 to 0.54) | 0.9197 |
| tnfrsf13b | 0.02 (-0.41 to 0.45) | 0.9234 |
| ccl25 | 0.02 (-0.38 to 0.41) | 0.9282 |
| slamf1 | -0.02 (-0.34 to 0.31) | 0.9285 |
| ptx3 | 0.02 (-0.43 to 0.47) | 0.9297 |
| il17d | 0.02 (-0.39 to 0.42) | 0.942 |
| tnf | -0.01 (-0.45 to 0.43) | 0.9543 |
| mmp12 | 0.01 (-0.28 to 0.29) | 0.9553 |
| upa | 0.01 (-0.44 to 0.46) | 0.9634 |
| st2 | -0.01 (-0.39 to 0.38) | 0.9731 |
| xcl1 | 0 (-0.36 to 0.35) | 0.9787 |
| adamts13 | -0.01 (-0.82 to 0.8) | 0.9851 |
| ltbr | 0 (-0.55 to 0.54) | 0.9885 |
| ho1 | 0 (-0.5 to 0.5) | 0.9966 |

Supplemental Table 5. Association of circulating proteins with LVEF (logistic regression: upper vs. lower tertile) assessed with 4 cavities view

|  |  |  |
| --- | --- | --- |
| **Protein** | **Coefficient (95%CI)**  **LVEF: >65% vs. <60%** | **P-value** |
| bnp | -0.32 (-0.55 to -0.1) | 0.0053 |
| ntprobnp | -0.43 (-0.74 to -0.12) | 0.006 |
| ren | 0.38 (0.09 to 0.68) | 0.0098 |
| col1a1 | -0.75 (-1.34 to -0.16) | 0.0133 |
| pappa | -0.54 (-0.99 to -0.1) | 0.0173 |
| picp | -0.64 (-1.17 to -0.1) | 0.0198 |
| notch3 | -0.74 (-1.39 to -0.09) | 0.0255 |
| il17ra | -0.46 (-0.87 to -0.05) | 0.0266 |
| cntn1 | -0.75 (-1.44 to -0.05) | 0.0346 |
| enrage | -0.32 (-0.61 to -0.02) | 0.0378 |
| mepe | -0.62 (-1.25 to 0.01) | 0.0528 |
| stk4 | 0.19 (0 to 0.38) | 0.0536 |
| il5 | 0.23 (-0.01 to 0.47) | 0.0603 |
| iggfcreceptoriib | 0.28 (-0.02 to 0.57) | 0.064 |
| tpa | -0.27 (-0.56 to 0.02) | 0.069 |
| par1 | 0.47 (-0.04 to 0.98) | 0.0699 |
| hoscar | -0.84 (-1.78 to 0.11) | 0.0822 |
| mcp3 | 0.39 (-0.05 to 0.83) | 0.0855 |
| gal4 | 0.35 (-0.05 to 0.76) | 0.0865 |
| tff3 | 0.44 (-0.09 to 0.97) | 0.1029 |
| src | 0.19 (-0.04 to 0.42) | 0.1046 |
| gt | 0.28 (-0.06 to 0.63) | 0.1055 |
| fgf21\_inf | 0.17 (-0.04 to 0.39) | 0.1118 |
| haox1 | 0.15 (-0.04 to 0.34) | 0.1179 |
| cdh5 | -0.53 (-1.19 to 0.14) | 0.1212 |
| fgf21 | 0.15 (-0.04 to 0.34) | 0.1242 |
| tnfb | 0.43 (-0.12 to 0.97) | 0.1265 |
| pspd | 0.22 (-0.07 to 0.51) | 0.1383 |
| TROPONIN | -0.28 (-0.66 to 0.1) | 0.143 |
| vwf | -0.13 (-0.31 to 0.05) | 0.1532 |
| spon1 | -0.51 (-1.23 to 0.2) | 0.1588 |
| il1ra | 0.32 (-0.13 to 0.76) | 0.1604 |
| opg\_inf | 0.46 (-0.18 to 1.11) | 0.1605 |
| ccl17 | 0.16 (-0.07 to 0.38) | 0.1642 |
| opn | -0.34 (-0.83 to 0.14) | 0.1657 |
| gh | -0.09 (-0.23 to 0.04) | 0.1825 |
| il2ra | -0.37 (-0.91 to 0.17) | 0.1835 |
| lep | 0.22 (-0.11 to 0.55) | 0.1854 |
| citp | -0.3 (-0.76 to 0.15) | 0.1913 |
| trailr2 | 0.41 (-0.21 to 1.03) | 0.1936 |
| cxcl16 | 0.55 (-0.28 to 1.39) | 0.1951 |
| gdnf | 0.36 (-0.19 to 0.91) | 0.2031 |
| slamf1 | -0.25 (-0.63 to 0.14) | 0.2057 |
| fabp4 | 0.26 (-0.15 to 0.67) | 0.2119 |
| dlk1 | 0.27 (-0.15 to 0.69) | 0.2137 |
| ambp | 0.74 (-0.45 to 1.93) | 0.225 |
| timp4 | -0.32 (-0.84 to 0.2) | 0.2262 |
| decr1 | 0.1 (-0.06 to 0.25) | 0.2268 |
| cxcl1 | 0.1 (-0.07 to 0.27) | 0.2338 |
| tnfrsf10a | 0.39 (-0.26 to 1.03) | 0.2363 |
| grn | 0.42 (-0.28 to 1.11) | 0.2385 |
| fgf5 | 0.86 (-0.58 to 2.31) | 0.2417 |
| cx3cl1 | 0.32 (-0.22 to 0.86) | 0.2459 |
| tlt2 | -0.28 (-0.76 to 0.2) | 0.2603 |
| tslp | -2.48 (-6.82 to 1.87) | 0.2643 |
| chit1 | -0.11 (-0.3 to 0.09) | 0.2772 |
| nemo | 0.1 (-0.08 to 0.27) | 0.2786 |
| vsig2 | 0.2 (-0.16 to 0.57) | 0.2809 |
| adamts13 | -0.53 (-1.51 to 0.44) | 0.2839 |
| egfr | -0.53 (-1.51 to 0.45) | 0.2886 |
| ccl4 | 0.19 (-0.16 to 0.55) | 0.2894 |
| blmhydrolase | -0.29 (-0.81 to 0.24) | 0.2907 |
| icam2 | -0.29 (-0.83 to 0.25) | 0.2909 |
| ang1 | 0.1 (-0.09 to 0.29) | 0.2924 |
| csf1 | 0.52 (-0.46 to 1.51) | 0.299 |
| csf1 | 0.52 (-0.46 to 1.51) | 0.299 |
| tweak | -0.38 (-1.1 to 0.34) | 0.2996 |
| nt3 | -0.23 (-0.66 to 0.2) | 0.3004 |
| cd4 | -0.44 (-1.26 to 0.39) | 0.3005 |
| cxcl9 | 0.18 (-0.16 to 0.51) | 0.3014 |
| flt3l | 0.26 (-0.24 to 0.76) | 0.3025 |
| prss27 | 0.25 (-0.23 to 0.74) | 0.3035 |
| ccl23 | 0.26 (-0.25 to 0.78) | 0.3164 |
| cxcl1\_inf | 0.09 (-0.09 to 0.26) | 0.3205 |
| thbs2 | -0.48 (-1.43 to 0.47) | 0.3216 |
| cd40l | 0.08 (-0.08 to 0.25) | 0.3221 |
| chi3l1 | -0.13 (-0.4 to 0.13) | 0.3266 |
| mmp2 | -0.33 (-0.99 to 0.33) | 0.3269 |
| apn | -0.35 (-1.06 to 0.36) | 0.3319 |
| mmp12 | -0.17 (-0.52 to 0.18) | 0.3323 |
| sod2 | -0.84 (-2.56 to 0.88) | 0.3365 |
| ca5a | 0.13 (-0.14 to 0.4) | 0.3381 |
| il20ra | -0.32 (-0.96 to 0.33) | 0.339 |
| il1alpha | 1.49 (-1.57 to 4.55) | 0.3391 |
| ptx3 | -0.26 (-0.78 to 0.27) | 0.3414 |
| il2rb | 0.28 (-0.3 to 0.85) | 0.3437 |
| cd93 | -0.37 (-1.13 to 0.39) | 0.3457 |
| il12b | 0.17 (-0.19 to 0.54) | 0.3481 |
| tnfsf13b | -0.29 (-0.89 to 0.31) | 0.3488 |
| mcp1 | 0.25 (-0.27 to 0.77) | 0.3544 |
| fgf19 | -0.13 (-0.39 to 0.14) | 0.3557 |
| il4ra | 0.31 (-0.35 to 0.97) | 0.3587 |
| tnfsf14 | 0.19 (-0.22 to 0.6) | 0.3606 |
| ctsd | -0.24 (-0.75 to 0.27) | 0.3609 |
| cd8a | -0.15 (-0.48 to 0.18) | 0.3648 |
| cd5 | 0.26 (-0.3 to 0.82) | 0.3655 |
| il4 | -0.18 (-0.56 to 0.21) | 0.3692 |
| adm | 0.32 (-0.38 to 1.02) | 0.3701 |
| hsp27 | 0.23 (-0.27 to 0.73) | 0.3741 |
| lpl | -0.2 (-0.65 to 0.25) | 0.3752 |
| tnfrsf11a | 0.25 (-0.31 to 0.82) | 0.38 |
| cpa1 | -0.13 (-0.43 to 0.16) | 0.3802 |
| gdf15 | 0.17 (-0.21 to 0.54) | 0.3816 |
| cst5 | 0.2 (-0.25 to 0.66) | 0.3823 |
| tgm2 | -0.11 (-0.37 to 0.14) | 0.3838 |
| il20 | 0.29 (-0.36 to 0.94) | 0.3843 |
| cxcl5 | 0.06 (-0.07 to 0.19) | 0.3859 |
| klk6 | -0.25 (-0.81 to 0.31) | 0.3868 |
| st1a1 | 0.12 (-0.15 to 0.39) | 0.3877 |
| il17a | -0.13 (-0.43 to 0.17) | 0.3885 |
| opg | 0.3 (-0.38 to 0.99) | 0.3888 |
| idua | 0.23 (-0.3 to 0.76) | 0.3905 |
| pdgfsubunitb | 0.07 (-0.09 to 0.23) | 0.3923 |
| gp6 | -0.12 (-0.41 to 0.16) | 0.3978 |
| mmp9 | -0.26 (-0.86 to 0.35) | 0.4015 |
| fgf23 | -0.17 (-0.58 to 0.24) | 0.4042 |
| mcp4 | 0.15 (-0.21 to 0.51) | 0.4172 |
| il8 | 0.15 (-0.21 to 0.51) | 0.4201 |
| scF | 0.27 (-0.39 to 0.94) | 0.4233 |
| dcn | -0.28 (-0.96 to 0.41) | 0.4291 |
| pdl2 | 0.27 (-0.4 to 0.94) | 0.4305 |
| prelp | -0.45 (-1.57 to 0.68) | 0.4353 |
| itgb1bp2 | 0.07 (-0.1 to 0.24) | 0.4357 |
| il18r1 | 0.21 (-0.33 to 0.75) | 0.4384 |
| plc | -0.35 (-1.25 to 0.54) | 0.4397 |
| lif | -0.57 (-2.01 to 0.88) | 0.4409 |
| pgf | 0.3 (-0.47 to 1.07) | 0.4418 |
| cxcl6 | 0.1 (-0.16 to 0.37) | 0.4458 |
| cdcp1 | 0.15 (-0.23 to 0.53) | 0.4462 |
| fgf23 | -0.16 (-0.58 to 0.26) | 0.4469 |
| tgfalpha | -0.27 (-1 to 0.46) | 0.4659 |
| pigr | -0.49 (-1.8 to 0.83) | 0.4687 |
| il10rb | 0.25 (-0.43 to 0.93) | 0.4691 |
| axin1 | 0.06 (-0.11 to 0.23) | 0.4717 |
| scgb3a2 | -0.12 (-0.46 to 0.21) | 0.4718 |
| trap | 0.22 (-0.39 to 0.83) | 0.475 |
| il15ra | 0.31 (-0.54 to 1.16) | 0.4797 |
| prss8 | 0.26 (-0.46 to 0.97) | 0.4805 |
| igfbp7 | -0.24 (-0.92 to 0.44) | 0.4821 |
| il27 | -0.21 (-0.81 to 0.38) | 0.485 |
| dkk1 | 0.12 (-0.22 to 0.45) | 0.4934 |
| il6\_inf | 0.09 (-0.17 to 0.35) | 0.4945 |
| ceacam8 | -0.13 (-0.52 to 0.25) | 0.4951 |
| mcp2 | 0.13 (-0.25 to 0.51) | 0.4982 |
| ephb4 | -0.25 (-0.97 to 0.48) | 0.5053 |
| ho1 | -0.19 (-0.75 to 0.37) | 0.5086 |
| il6 | 0.09 (-0.17 to 0.35) | 0.5089 |
| upa | -0.18 (-0.72 to 0.36) | 0.5137 |
| pglyrp1 | -0.15 (-0.59 to 0.3) | 0.5158 |
| mmp7 | 0.14 (-0.29 to 0.57) | 0.5252 |
| tnfrsf10c | -0.15 (-0.63 to 0.32) | 0.5255 |
| marco | 0.34 (-0.71 to 1.39) | 0.5299 |
| axl | 0.21 (-0.45 to 0.87) | 0.5323 |
| laptgfbeta1 | 0.16 (-0.35 to 0.68) | 0.533 |
| shps1 | 0.18 (-0.39 to 0.74) | 0.5356 |
| il17d | 0.17 (-0.37 to 0.7) | 0.5415 |
| cd163 | 0.15 (-0.34 to 0.64) | 0.5418 |
| ccl3 | 0.11 (-0.23 to 0.44) | 0.5424 |
| il17c | -0.11 (-0.47 to 0.25) | 0.5471 |
| il1rt1 | -0.2 (-0.85 to 0.46) | 0.5549 |
| il6ra | 0.17 (-0.4 to 0.74) | 0.5572 |
| fabp2 | 0.09 (-0.21 to 0.39) | 0.563 |
| glo1 | 0.09 (-0.21 to 0.39) | 0.5656 |
| epcam | -0.07 (-0.33 to 0.18) | 0.5778 |
| mcp1 | 0.11 (-0.27 to 0.48) | 0.5783 |
| gif | 0.06 (-0.15 to 0.26) | 0.5784 |
| scf | 0.18 (-0.47 to 0.84) | 0.583 |
| tnfr2 | 0.16 (-0.41 to 0.72) | 0.5859 |
| tnf | -0.21 (-0.98 to 0.56) | 0.5907 |
| nrtn | 0.16 (-0.44 to 0.76) | 0.5972 |
| ltbr | -0.18 (-0.87 to 0.5) | 0.5982 |
| igfbp2 | -0.11 (-0.51 to 0.3) | 0.6 |
| xcl1 | 0.11 (-0.31 to 0.52) | 0.6107 |
| hgf | 0.15 (-0.44 to 0.73) | 0.6196 |
| ccl3 | 0.09 (-0.25 to 0.42) | 0.6196 |
| ccl24 | -0.07 (-0.33 to 0.2) | 0.6229 |
| il1rl2 | 0.14 (-0.43 to 0.72) | 0.6242 |
| jama | 0.05 (-0.15 to 0.25) | 0.6391 |
| gal3 | -0.14 (-0.74 to 0.45) | 0.6413 |
| bp1\_4e | -0.07 (-0.34 to 0.21) | 0.6417 |
| casp3 | 0.04 (-0.12 to 0.2) | 0.6434 |
| igfbp1 | 0.06 (-0.19 to 0.3) | 0.6471 |
| mmp1 | 0.05 (-0.16 to 0.26) | 0.6508 |
| cpb1 | -0.07 (-0.39 to 0.24) | 0.6551 |
| alcam | 0.19 (-0.67 to 1.05) | 0.6599 |
| ccl15 | -0.12 (-0.63 to 0.4) | 0.6612 |
| vegfa | 0.15 (-0.51 to 0.8) | 0.6618 |
| il10ra | 0.08 (-0.28 to 0.43) | 0.6675 |
| trail | 0.17 (-0.62 to 0.97) | 0.6688 |
| il33 | 0.56 (-2.02 to 3.13) | 0.6719 |
| cd6 | 0.1 (-0.38 to 0.59) | 0.6753 |
| artn | 0.11 (-0.42 to 0.64) | 0.679 |
| tnfr1 | 0.13 (-0.51 to 0.78) | 0.6818 |
| mertk | 0.13 (-0.48 to 0.73) | 0.6828 |
| ctsl1 | -0.13 (-0.77 to 0.51) | 0.6857 |
| il18 | 0.09 (-0.34 to 0.52) | 0.6863 |
| ada | 0.11 (-0.42 to 0.64) | 0.6898 |
| thpo | 0.13 (-0.5 to 0.75) | 0.6908 |
| agrp | 0.09 (-0.38 to 0.56) | 0.6937 |
| il10 | 0.07 (-0.28 to 0.42) | 0.708 |
| sirt2 | 0.03 (-0.14 to 0.2) | 0.7124 |
| cstb | 0.1 (-0.42 to 0.61) | 0.7125 |
| ifngamma | 2.14 (-9.31 to 13.59) | 0.7137 |
| spon2 | 0.23 (-1.05 to 1.51) | 0.7247 |
| pi3 | -0.07 (-0.48 to 0.33) | 0.7293 |
| tfpi | -0.11 (-0.7 to 0.49) | 0.7303 |
| ctrc | -0.05 (-0.34 to 0.24) | 0.7406 |
| fas | -0.11 (-0.74 to 0.53) | 0.7418 |
| sele | 0.06 (-0.31 to 0.43) | 0.7421 |
| il18 | 0.07 (-0.37 to 0.52) | 0.7461 |
| p3np | -0.07 (-0.47 to 0.34) | 0.7462 |
| ace2 | 0.06 (-0.3 to 0.42) | 0.7492 |
| tnfrsf9 | 0.08 (-0.41 to 0.57) | 0.7504 |
| tr | 0.05 (-0.28 to 0.39) | 0.7518 |
| il16 | -0.07 (-0.53 to 0.39) | 0.759 |
| betangf | -0.11 (-0.79 to 0.58) | 0.7593 |
| il22ra1 | 0.11 (-0.61 to 0.83) | 0.7623 |
| pcsk9 | -0.1 (-0.74 to 0.54) | 0.7632 |
| tm | 0.11 (-0.6 to 0.82) | 0.7633 |
| vegfd | -0.1 (-0.72 to 0.53) | 0.7636 |
| sort1 | -0.12 (-0.89 to 0.66) | 0.7638 |
| gdf2 | 0.09 (-0.51 to 0.68) | 0.771 |
| bmp6 | 0.07 (-0.42 to 0.57) | 0.772 |
| ccl20 | -0.03 (-0.27 to 0.2) | 0.7723 |
| fs | -0.08 (-0.63 to 0.47) | 0.7763 |
| serpina12 | 0.05 (-0.3 to 0.4) | 0.7818 |
| hbegf | 0.05 (-0.28 to 0.37) | 0.7835 |
| casp8 | -0.05 (-0.42 to 0.32) | 0.7958 |
| ccl16 | 0.05 (-0.32 to 0.41) | 0.7963 |
| mmp10 | 0.05 (-0.36 to 0.46) | 0.8005 |
| cd84 | -0.05 (-0.51 to 0.41) | 0.821 |
| pecam1 | -0.03 (-0.32 to 0.26) | 0.8267 |
| itgb2 | -0.06 (-0.58 to 0.46) | 0.8272 |
| rage | -0.06 (-0.64 to 0.52) | 0.8293 |
| azu1 | -0.04 (-0.38 to 0.31) | 0.8316 |
| ccl19 | 0.03 (-0.24 to 0.3) | 0.8399 |
| osm | -0.03 (-0.3 to 0.25) | 0.8425 |
| slamf7 | 0.03 (-0.3 to 0.37) | 0.8426 |
| tnfrsf14 | 0.05 (-0.47 to 0.57) | 0.849 |
| il18bp | 0.06 (-0.59 to 0.72) | 0.8508 |
| st2 | -0.04 (-0.52 to 0.43) | 0.8569 |
| il13 | -0.03 (-0.3 to 0.25) | 0.858 |
| cxcl10 | 0.03 (-0.31 to 0.36) | 0.8681 |
| kim1 | -0.02 (-0.32 to 0.27) | 0.8685 |
| tie2 | -0.07 (-0.86 to 0.73) | 0.8718 |
| prtn3 | -0.07 (-0.89 to 0.76) | 0.8734 |
| lifr | -0.06 (-0.8 to 0.68) | 0.8781 |
| retn | -0.03 (-0.47 to 0.41) | 0.8847 |
| selp | -0.02 (-0.29 to 0.25) | 0.8868 |
| cd40 | 0.04 (-0.47 to 0.55) | 0.8874 |
| dner | -0.06 (-0.87 to 0.75) | 0.8884 |
| pon3 | 0.03 (-0.4 to 0.47) | 0.891 |
| pdgfsubunita | 0.02 (-0.2 to 0.23) | 0.8912 |
| ccl11 | 0.03 (-0.47 to 0.54) | 0.8938 |
| trance | -0.02 (-0.41 to 0.36) | 0.8999 |
| gal9 | 0.05 (-0.79 to 0.89) | 0.9032 |
| psgl1 | -0.05 (-0.87 to 0.77) | 0.9058 |
| rarres2 | 0.04 (-0.69 to 0.78) | 0.9077 |
| cxcl11 | 0.02 (-0.25 to 0.28) | 0.9109 |
| il1rt2 | -0.04 (-0.67 to 0.6) | 0.911 |
| mmp3 | 0.02 (-0.36 to 0.4) | 0.9148 |
| stambp | 0.01 (-0.21 to 0.23) | 0.9179 |
| ldlreceptor | -0.02 (-0.48 to 0.44) | 0.9266 |
| boc | -0.03 (-0.82 to 0.75) | 0.932 |
| pdl1 | 0.02 (-0.53 to 0.58) | 0.9327 |
| upa | -0.03 (-0.66 to 0.6) | 0.9356 |
| pai | -0.01 (-0.24 to 0.23) | 0.9405 |
| ccl28 | 0.02 (-0.66 to 0.71) | 0.944 |
| mpo | -0.03 (-0.9 to 0.84) | 0.9472 |
| mb | -0.01 (-0.43 to 0.4) | 0.9509 |
| lox1 | -0.01 (-0.4 to 0.38) | 0.9537 |
| tf | -0.02 (-0.75 to 0.71) | 0.9642 |
| ccl25 | -0.01 (-0.46 to 0.44) | 0.9653 |
| ctsz | 0.01 (-0.57 to 0.59) | 0.9664 |
| cd244 | -0.01 (-0.53 to 0.51) | 0.9671 |
| upar | 0.01 (-0.62 to 0.65) | 0.9678 |
| il7 | 0.01 (-0.28 to 0.29) | 0.9723 |
| parp1 | 0.01 (-0.31 to 0.32) | 0.9746 |
| il24 | 0 (-0.37 to 0.38) | 0.9846 |
| tnfrsf13b | 0 (-0.46 to 0.46) | 0.9908 |
| il2 | 0 (0 to 0) | 1 |

Supplemental Table 6. Association of circulating proteins with LVEF (ordered logistic regression: per tertile increase) assessed with 4 cavities view

|  |  |  |
| --- | --- | --- |
| **Protein** | **Coefficient (95%CI)**  **Ordered logistic** | **P-value** |
| bnp | -0.21 (-0.37 to -0.05) | 0.012 |
| ren | 0.28 (0.06 to 0.5) | 0.0129 |
| ntprobnp | -0.28 (-0.5 to -0.05) | 0.0165 |
| par1 | 0.46 (0.07 to 0.86) | 0.0206 |
| stk4 | 0.17 (0.03 to 0.31) | 0.0207 |
| mcp3 | 0.34 (0.05 to 0.63) | 0.0215 |
| col1a1 | -0.49 (-0.92 to -0.06) | 0.0271 |
| ccl17 | 0.19 (0.02 to 0.35) | 0.0277 |
| il5 | 0.2 (0.02 to 0.39) | 0.0333 |
| pappa | -0.33 (-0.64 to -0.02) | 0.0355 |
| tff3 | 0.45 (0.03 to 0.87) | 0.0357 |
| gt | 0.25 (0.01 to 0.49) | 0.0392 |
| enrage | -0.23 (-0.46 to -0.01) | 0.0417 |
| il17ra | -0.31 (-0.6 to -0.01) | 0.0436 |
| picp | -0.42 (-0.82 to -0.01) | 0.0438 |
| cxcl1 | 0.12 (0 to 0.25) | 0.0573 |
| gdnf | 0.42 (-0.01 to 0.86) | 0.058 |
| tnfrsf10a | 0.46 (-0.02 to 0.93) | 0.0607 |
| trailr2 | 0.46 (-0.02 to 0.95) | 0.061 |
| fgf21 | 0.15 (-0.01 to 0.31) | 0.063 |
| cntn1 | -0.44 (-0.91 to 0.03) | 0.0692 |
| fgf5 | 0.94 (-0.09 to 1.96) | 0.0725 |
| ang1 | 0.12 (-0.01 to 0.26) | 0.0741 |
| src | 0.15 (-0.02 to 0.31) | 0.0788 |
| opg | 0.43 (-0.05 to 0.91) | 0.0821 |
| notch3 | -0.41 (-0.88 to 0.05) | 0.083 |
| haox1 | 0.12 (-0.02 to 0.26) | 0.084 |
| tpa | -0.19 (-0.4 to 0.03) | 0.0843 |
| iggfcreceptoriib | 0.19 (-0.03 to 0.4) | 0.0862 |
| tnfb | 0.35 (-0.05 to 0.75) | 0.0869 |
| gal4 | 0.26 (-0.04 to 0.56) | 0.0873 |
| cxcl1 | 0.11 (-0.02 to 0.25) | 0.0912 |
| cd40l | 0.11 (-0.02 to 0.23) | 0.0956 |
| vwf | -0.11 (-0.24 to 0.02) | 0.0976 |
| mcp1 | 0.34 (-0.07 to 0.75) | 0.0998 |
| lep | 0.2 (-0.04 to 0.43) | 0.1008 |
| st1a1 | 0.17 (-0.03 to 0.37) | 0.1028 |
| csf1 | 0.59 (-0.14 to 1.32) | 0.1124 |
| csf1 | 0.59 (-0.14 to 1.32) | 0.1124 |
| decr1 | 0.1 (-0.02 to 0.21) | 0.1158 |
| cx3cl1 | 0.32 (-0.08 to 0.71) | 0.117 |
| nemo | 0.1 (-0.03 to 0.24) | 0.1196 |
| cxcl16 | 0.48 (-0.13 to 1.08) | 0.122 |
| pdgfsubunitb | 0.09 (-0.02 to 0.21) | 0.1237 |
| dkk1 | 0.19 (-0.06 to 0.44) | 0.1333 |
| il1ra | 0.23 (-0.07 to 0.54) | 0.1338 |
| ambp | 0.7 (-0.22 to 1.61) | 0.1353 |
| il8 | 0.2 (-0.06 to 0.47) | 0.1386 |
| il20 | 0.44 (-0.14 to 1.03) | 0.1387 |
| cxcl5 | 0.08 (-0.02 to 0.17) | 0.1408 |
| tnfrsf11a | 0.31 (-0.11 to 0.73) | 0.1431 |
| grn | 0.38 (-0.13 to 0.89) | 0.1443 |
| ccl23 | 0.29 (-0.1 to 0.69) | 0.148 |
| itgb1bp2 | 0.09 (-0.03 to 0.22) | 0.151 |
| cxcl6 | 0.14 (-0.05 to 0.34) | 0.151 |
| pspd | 0.15 (-0.06 to 0.36) | 0.1521 |
| cst5 | 0.25 (-0.1 to 0.6) | 0.1538 |
| mepe | -0.31 (-0.74 to 0.12) | 0.1567 |
| laptgfbeta1 | 0.27 (-0.1 to 0.64) | 0.1579 |
| hoscar | -0.48 (-1.16 to 0.19) | 0.1604 |
| tnfsf14 | 0.21 (-0.09 to 0.51) | 0.1618 |
| prss27 | 0.24 (-0.1 to 0.58) | 0.1622 |
| fabp4 | 0.2 (-0.08 to 0.48) | 0.1649 |
| vsig2 | 0.18 (-0.09 to 0.45) | 0.1845 |
| glo1 | 0.15 (-0.07 to 0.38) | 0.1879 |
| mcp4 | 0.17 (-0.08 to 0.43) | 0.188 |
| ccl4 | 0.16 (-0.09 to 0.4) | 0.2036 |
| vegfa | 0.31 (-0.17 to 0.8) | 0.2052 |
| cd5 | 0.27 (-0.15 to 0.69) | 0.2109 |
| gdf15 | 0.18 (-0.11 to 0.47) | 0.2136 |
| il12b | 0.16 (-0.09 to 0.42) | 0.214 |
| il2ra | -0.22 (-0.57 to 0.13) | 0.2196 |
| il15ra | 0.39 (-0.24 to 1.02) | 0.2219 |
| cxcl9 | 0.15 (-0.1 to 0.4) | 0.2313 |
| axin1 | 0.08 (-0.05 to 0.2) | 0.2328 |
| cdh5 | -0.28 (-0.74 to 0.18) | 0.233 |
| il2rb | 0.23 (-0.16 to 0.63) | 0.2382 |
| troponin | -0.15 (-0.41 to 0.1) | 0.2387 |
| adm | 0.31 (-0.21 to 0.83) | 0.2416 |
| mmp1 | 0.09 (-0.07 to 0.25) | 0.2451 |
| flt3l | 0.23 (-0.16 to 0.62) | 0.2463 |
| il17d | 0.26 (-0.18 to 0.7) | 0.2513 |
| idua | 0.22 (-0.16 to 0.6) | 0.2545 |
| il6 | 0.11 (-0.08 to 0.31) | 0.2563 |
| pgf | 0.31 (-0.23 to 0.84) | 0.2579 |
| cdcp1 | 0.16 (-0.12 to 0.44) | 0.2616 |
| ca5a | 0.12 (-0.09 to 0.32) | 0.2664 |
| thpo | 0.27 (-0.21 to 0.75) | 0.2705 |
| pdl2 | 0.26 (-0.21 to 0.73) | 0.2786 |
| trap | 0.25 (-0.21 to 0.7) | 0.2825 |
| il6 | 0.11 (-0.09 to 0.3) | 0.2838 |
| mcp1 | 0.18 (-0.15 to 0.51) | 0.2848 |
| mcp2 | 0.15 (-0.12 to 0.42) | 0.2852 |
| citp | -0.18 (-0.52 to 0.15) | 0.2897 |
| il4ra | 0.26 (-0.22 to 0.75) | 0.2928 |
| hsp27 | 0.19 (-0.16 to 0.54) | 0.2935 |
| adamts13 | -0.38 (-1.1 to 0.34) | 0.2962 |
| hbegf | 0.13 (-0.11 to 0.37) | 0.2966 |
| scf | 0.25 (-0.23 to 0.73) | 0.3016 |
| icam2 | -0.21 (-0.61 to 0.19) | 0.3096 |
| tgm2 | -0.11 (-0.31 to 0.1) | 0.3128 |
| hgf | 0.21 (-0.2 to 0.61) | 0.316 |
| ccl3 | 0.12 (-0.12 to 0.35) | 0.3182 |
| il10rb | 0.26 (-0.26 to 0.78) | 0.3236 |
| opg | 0.25 (-0.25 to 0.76) | 0.3266 |
| il18r1 | 0.2 (-0.2 to 0.59) | 0.3297 |
| il10 | 0.13 (-0.13 to 0.38) | 0.3339 |
| gh | -0.05 (-0.14 to 0.05) | 0.3395 |
| prss8 | 0.25 (-0.27 to 0.77) | 0.3412 |
| casp3 | 0.06 (-0.06 to 0.17) | 0.3465 |
| sirt2 | 0.06 (-0.07 to 0.19) | 0.3507 |
| il4 | -0.16 (-0.5 to 0.18) | 0.3579 |
| nt3 | -0.14 (-0.45 to 0.16) | 0.3585 |
| slamf1 | -0.13 (-0.43 to 0.16) | 0.3638 |
| cstb | 0.17 (-0.2 to 0.54) | 0.3666 |
| il2 | -16.12 (-51.46 to 19.21) | 0.3711 |
| ada | 0.18 (-0.21 to 0.57) | 0.3716 |
| ccl3 | 0.11 (-0.13 to 0.34) | 0.3718 |
| opn | -0.16 (-0.51 to 0.19) | 0.3735 |
| dlk1 | 0.14 (-0.16 to 0.44) | 0.3775 |
| thbs2 | -0.33 (-1.06 to 0.4) | 0.3809 |
| tnfsf13b | -0.19 (-0.61 to 0.24) | 0.3848 |
| jama | 0.06 (-0.08 to 0.21) | 0.3937 |
| agrp | 0.15 (-0.19 to 0.49) | 0.3965 |
| fabp2 | 0.09 (-0.12 to 0.3) | 0.4103 |
| cd40 | 0.16 (-0.23 to 0.55) | 0.4141 |
| tlt2 | -0.14 (-0.47 to 0.19) | 0.4152 |
| il17a | -0.1 (-0.34 to 0.14) | 0.416 |
| fgf19 | -0.08 (-0.27 to 0.11) | 0.4264 |
| cd93 | -0.22 (-0.77 to 0.32) | 0.4273 |
| stambp | 0.07 (-0.1 to 0.23) | 0.4366 |
| mertk | 0.18 (-0.27 to 0.62) | 0.441 |
| bmp6 | 0.13 (-0.21 to 0.47) | 0.4454 |
| shps1 | 0.16 (-0.25 to 0.57) | 0.448 |
| cd6 | 0.13 (-0.2 to 0.46) | 0.4505 |
| ctsd | -0.15 (-0.54 to 0.24) | 0.4516 |
| tm | 0.2 (-0.32 to 0.71) | 0.4563 |
| trail | 0.23 (-0.37 to 0.82) | 0.4571 |
| tnfrsf9 | 0.14 (-0.23 to 0.5) | 0.4628 |
| ccl28 | 0.19 (-0.32 to 0.71) | 0.4629 |
| gif | 0.06 (-0.1 to 0.21) | 0.4642 |
| tslp | -0.18 (-0.67 to 0.3) | 0.4652 |
| scf | 0.18 (-0.31 to 0.68) | 0.4688 |
| pdgfsubunita | 0.06 (-0.1 to 0.21) | 0.4689 |
| il18 | 0.12 (-0.2 to 0.43) | 0.4724 |
| pdl1 | 0.15 (-0.27 to 0.58) | 0.4761 |
| spon1 | -0.19 (-0.72 to 0.34) | 0.478 |
| lif | -0.16 (-0.62 to 0.29) | 0.4834 |
| egfr | -0.24 (-0.93 to 0.44) | 0.4848 |
| tnfr2 | 0.14 (-0.27 to 0.55) | 0.491 |
| cd8a | -0.09 (-0.34 to 0.16) | 0.494 |
| ptx3 | -0.14 (-0.54 to 0.26) | 0.502 |
| ccl11 | 0.14 (-0.26 to 0.53) | 0.5028 |
| ho1 | -0.14 (-0.57 to 0.28) | 0.5047 |
| mmp7 | 0.11 (-0.22 to 0.45) | 0.5057 |
| alcam | 0.21 (-0.41 to 0.83) | 0.5066 |
| il1rl2 | 0.14 (-0.28 to 0.57) | 0.5074 |
| igfbp1 | 0.06 (-0.12 to 0.25) | 0.5119 |
| pglyrp1 | -0.11 (-0.45 to 0.22) | 0.5123 |
| pigr | -0.35 (-1.38 to 0.69) | 0.5127 |
| cpa1 | -0.07 (-0.3 to 0.15) | 0.5155 |
| fgf23 | -0.1 (-0.39 to 0.2) | 0.5253 |
| tnfrsf10c | -0.12 (-0.47 to 0.24) | 0.5253 |
| apn | -0.17 (-0.71 to 0.36) | 0.5272 |
| axl | 0.15 (-0.33 to 0.63) | 0.5395 |
| pon3 | 0.1 (-0.22 to 0.41) | 0.5411 |
| mmp3 | 0.09 (-0.2 to 0.38) | 0.5429 |
| mmp9 | -0.14 (-0.57 to 0.3) | 0.5434 |
| tnfrsf14 | 0.12 (-0.27 to 0.51) | 0.5444 |
| mmp12 | -0.07 (-0.32 to 0.17) | 0.5512 |
| tr | 0.08 (-0.18 to 0.34) | 0.553 |
| ccl19 | 0.06 (-0.14 to 0.26) | 0.5587 |
| ace2 | 0.08 (-0.2 to 0.36) | 0.5605 |
| chit1 | -0.04 (-0.17 to 0.09) | 0.5616 |
| klk6 | -0.12 (-0.52 to 0.28) | 0.562 |
| gal3 | -0.13 (-0.57 to 0.32) | 0.5742 |
| marco | 0.22 (-0.56 to 1) | 0.5769 |
| il18 | 0.09 (-0.23 to 0.41) | 0.5827 |
| boc | 0.16 (-0.42 to 0.75) | 0.5872 |
| cd4 | -0.16 (-0.75 to 0.43) | 0.5928 |
| fgf23 | -0.08 (-0.37 to 0.22) | 0.5955 |
| blmhydrolase | -0.1 (-0.49 to 0.28) | 0.6005 |
| rarres2 | 0.15 (-0.42 to 0.73) | 0.6025 |
| il7 | 0.06 (-0.16 to 0.28) | 0.6041 |
| mmp10 | 0.08 (-0.23 to 0.4) | 0.6042 |
| plc | -0.17 (-0.84 to 0.49) | 0.6052 |
| tnfr1 | 0.13 (-0.36 to 0.62) | 0.6062 |
| il27 | -0.11 (-0.54 to 0.32) | 0.6074 |
| cxcl11 | 0.05 (-0.14 to 0.23) | 0.6078 |
| cd163 | 0.09 (-0.26 to 0.45) | 0.6129 |
| slamf7 | 0.06 (-0.19 to 0.31) | 0.6221 |
| il10ra | 0.07 (-0.2 to 0.33) | 0.6225 |
| ccl24 | -0.05 (-0.24 to 0.14) | 0.6261 |
| upar | 0.11 (-0.35 to 0.57) | 0.6283 |
| artn | 0.1 (-0.33 to 0.53) | 0.6446 |
| sod2 | -0.3 (-1.6 to 0.99) | 0.6462 |
| upa | -0.08 (-0.43 to 0.27) | 0.6463 |
| il6ra | 0.1 (-0.32 to 0.52) | 0.6486 |
| serpina12 | 0.06 (-0.2 to 0.32) | 0.6577 |
| tnf | -0.09 (-0.51 to 0.33) | 0.6622 |
| tnfrsf13b | 0.08 (-0.3 to 0.46) | 0.6752 |
| gdf2 | 0.09 (-0.33 to 0.51) | 0.6774 |
| cd244 | 0.08 (-0.31 to 0.48) | 0.6805 |
| dner | 0.12 (-0.47 to 0.71) | 0.6892 |
| chi3l1 | -0.04 (-0.23 to 0.15) | 0.6936 |
| lox1 | 0.06 (-0.24 to 0.35) | 0.6937 |
| casp8 | 0.06 (-0.23 to 0.34) | 0.7 |
| spon2 | 0.17 (-0.7 to 1.05) | 0.7022 |
| ccl16 | 0.05 (-0.22 to 0.32) | 0.7032 |
| sort1 | 0.11 (-0.45 to 0.67) | 0.7041 |
| timp4 | -0.06 (-0.4 to 0.27) | 0.7042 |
| retn | -0.06 (-0.39 to 0.27) | 0.707 |
| tfpi | 0.08 (-0.36 to 0.52) | 0.7202 |
| pi3 | -0.06 (-0.37 to 0.26) | 0.724 |
| il1rt1 | -0.09 (-0.56 to 0.39) | 0.725 |
| xcl1 | 0.06 (-0.27 to 0.38) | 0.7316 |
| ephb4 | -0.09 (-0.62 to 0.44) | 0.7403 |
| tf | 0.09 (-0.43 to 0.61) | 0.7423 |
| pai | 0.03 (-0.14 to 0.2) | 0.7446 |
| parp1 | 0.04 (-0.19 to 0.27) | 0.747 |
| lifr | 0.09 (-0.45 to 0.62) | 0.7493 |
| mmp2 | -0.08 (-0.58 to 0.42) | 0.7499 |
| scgb3a2 | -0.04 (-0.29 to 0.21) | 0.7511 |
| upa | 0.07 (-0.37 to 0.52) | 0.7552 |
| selp | 0.03 (-0.17 to 0.23) | 0.756 |
| il18bp | 0.08 (-0.41 to 0.56) | 0.7565 |
| trance | 0.04 (-0.23 to 0.32) | 0.762 |
| p3np | -0.05 (-0.35 to 0.26) | 0.7627 |
| vegfd | 0.07 (-0.37 to 0.5) | 0.7642 |
| ifngamma | 0.23 (-1.29 to 1.76) | 0.7649 |
| il33 | 0.28 (-1.58 to 2.14) | 0.7681 |
| il1alpha | 0.08 (-0.48 to 0.64) | 0.7769 |
| gal9 | 0.08 (-0.5 to 0.66) | 0.7839 |
| nrtn | 0.06 (-0.39 to 0.52) | 0.7847 |
| cd84 | 0.05 (-0.29 to 0.39) | 0.7925 |
| il13 | -0.02 (-0.21 to 0.16) | 0.794 |
| st2 | 0.04 (-0.29 to 0.38) | 0.7947 |
| ceacam8 | -0.04 (-0.33 to 0.25) | 0.7975 |
| cxcl10 | 0.03 (-0.2 to 0.26) | 0.7978 |
| mpo | 0.08 (-0.54 to 0.7) | 0.8026 |
| ltbr | -0.06 (-0.56 to 0.43) | 0.803 |
| igfbp2 | -0.04 (-0.35 to 0.27) | 0.8053 |
| fs | -0.05 (-0.47 to 0.36) | 0.8063 |
| gp6 | -0.03 (-0.23 to 0.18) | 0.8101 |
| betangf | 0.07 (-0.52 to 0.66) | 0.8108 |
| epcam | -0.02 (-0.2 to 0.15) | 0.814 |
| kim1 | -0.02 (-0.24 to 0.2) | 0.8278 |
| ctsz | 0.05 (-0.39 to 0.49) | 0.8287 |
| ctsl1 | -0.05 (-0.56 to 0.45) | 0.8307 |
| il17c | -0.03 (-0.3 to 0.24) | 0.8344 |
| lpl | -0.04 (-0.38 to 0.31) | 0.8417 |
| il20ra | -0.03 (-0.35 to 0.28) | 0.8459 |
| il16 | 0.03 (-0.32 to 0.39) | 0.8504 |
| bp1\_4e | 0.02 (-0.18 to 0.22) | 0.8539 |
| tie2 | 0.05 (-0.54 to 0.65) | 0.8587 |
| ccl25 | 0.03 (-0.32 to 0.38) | 0.8606 |
| pecam1 | 0.02 (-0.19 to 0.23) | 0.8648 |
| tweak | -0.04 (-0.52 to 0.44) | 0.869 |
| igfbp7 | -0.04 (-0.54 to 0.46) | 0.8767 |
| fas | 0.04 (-0.42 to 0.49) | 0.8789 |
| pcsk9 | 0.03 (-0.44 to 0.5) | 0.8891 |
| il1rt2 | 0.03 (-0.47 to 0.53) | 0.8946 |
| ccl20 | -0.01 (-0.19 to 0.16) | 0.9 |
| prelp | -0.05 (-0.88 to 0.78) | 0.9064 |
| osm | 0.01 (-0.19 to 0.21) | 0.9102 |
| sele | 0.01 (-0.27 to 0.3) | 0.9197 |
| il24 | 0.02 (-0.33 to 0.36) | 0.9203 |
| cpb1 | -0.01 (-0.25 to 0.23) | 0.9213 |
| ldlreceptor | -0.02 (-0.37 to 0.33) | 0.9222 |
| dcn | -0.02 (-0.53 to 0.5) | 0.9521 |
| mb | 0.01 (-0.28 to 0.29) | 0.9606 |
| prtn3 | 0.02 (-0.62 to 0.65) | 0.9613 |
| psgl1 | 0.01 (-0.57 to 0.59) | 0.9664 |
| ctrc | 0 (-0.21 to 0.22) | 0.9675 |
| ccl15 | -0.01 (-0.37 to 0.36) | 0.975 |
| rage | 0.01 (-0.42 to 0.43) | 0.9767 |
| itgb2 | 0 (-0.38 to 0.37) | 0.9821 |
| tgfalpha | 0.01 (-0.54 to 0.55) | 0.9824 |
| il22ra1 | 0.01 (-0.5 to 0.51) | 0.9832 |
| azu1 | 0 (-0.27 to 0.26) | 0.9897 |

Supplemental Table 7. Mediation analysis of proteins with potential mediator effect of spironolactone on LVEF change from baseline to month 9

|  |  |  |
| --- | --- | --- |
| **Protein** | **Coefficient (95%CI)**  **LVEF change** | **P-value** |
| BNP |  |  |
| Direct effect | 0.19 (-0.38 to 0.76) | 0.51 |
| Indirect effect (spiro. via BNP) | -0.06 (-0.23 to 0.12) | 0.52 |
| COL1A1 |  |  |
| Direct effect | 0.78 (-0.58 to 2.16) | 0.26 |
| Indirect effect (spiro. via COL1A1) | -0.12 (-0.34 to 0.10) | 0.29 |