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Supplemental information

Cardiomyocyte-fibroblast interaction regulates

ferroptosis and fibrosis after myocardial injury

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Figure S1. Necroptosis and ferroptosis in cardiomyocytes after MI, related to Figure 1. (A, B) Heart tissue section of wild type mouse stained for pMLKL (Green) and cTnT (grey) at 6 hours after P7 LAD-O. (C, D) Heart tissue section of wild type mouse stained for pMLKL (magenta) and cTnT (green) at 6 hours after P1 LAD-O. (E-I) Sham procedure was performed at either P1 (E, F) or P7 (G, H), heart section were prepared at 1 (E, G) or 3 (F, H) day-post-sham (DPsham) and stained for Ptgs2 (Magenta), cTnT (green) and DAPI (blue), ratio of Ptgs2-positive cardiomyocytes was quantified in (I). (J, K) Mouse heart tissue stained for 4-HNE (magenta) and MF20 (green) at 3 days after P1 (J) or P7 (K) LAD-O. Arrows, cardiomyocytes positive for 4-HNE. (L) Ratio of cardiomyocytes positive for 4-HNE at 1, 3 and 6 days after P1 or P7 LAD-O. DAPI in blue. Arrows, cardiomyocytes positive for pMLKL. All bar graphs represent mean \pm SD. *, p<0.05. NS, not significant. Scale bar, 25 μ m.



Figure S2. Ferroptosis occurs in cardiomyocytes after MI and affects neonatal heart regeneration, related to Figure 1. (A) MDA assay quantified lipid peroxidation level in ventricular myocardium after P1 LAD-O or sham procedure. (B, C) Mouse heart tissue stained for 4-HNE (green) and MF20 (grey) at 21 days after P7 LAD-O. (D) Heart tissue stained for Ptgs2 (green) and MF20 (grey) at 21 days after P7 LAD-O. (E) Schematic plan for F-L. AAV9-gdRNA-Gpx4 vectors were injected into *Myh6Cas9* mice to generate *Gpx4*-CKO hearts. Wild type littermates with AAV9 injection were used as control. (F, G) Western blot of Gpx4 and α -Tubulin in left ventricular tissue of control and *Gpx4*-CKO hearts at 15 DPMI. Band intensity of Gpx4 was quantified in G. (H-J) Trichrome of control and *Gpx4*-CKO hearts at 15 DPMI, with scar area quantified in J. (K, L) Ejection fraction (K) and fractional shortening (L) measured by echocardiography in control and *Gpx4*-CKO hearts at 15 DPMI. (M-O) Western blot of Fth1, Ftl1 and α -Tubulin in left ventricular tissue of P1 and P7 mouse heart. Band intensity of Fth1 and Ftl1 quantified in N and O. LV, left ventricle. DAPI in blue. All bar graphs represent mean ± SD. *, p<0.05. **, p<0.01. NS, not significant. Scale bar, 25 μ m (C, D), 100 μ m (B), 500 μ m (H, I).



Figure S3. Cell density regulates ferroptosis *in vitro* and *in vivo*, related to Figure 2 and Figure 3.

(A) Schematic of cell density assays using 24-well culture plates, see Figure 2 and 3. (B) AC16 cells cultured at low (3×10⁴/well) and high (8×10⁴/well) density and treated with erastin. Dying cells were stained with Sytox (green). (C) Ratio of Sytox-positive AC16 cells. (D) Schematic plan for E-G and Figure 2H-P. (E, F) Heart tissue of controls (*Postn^{MCM/+}*, E) and Postn^{MCM/+};ROSA-DTA (F) mice were stained for Vim (green) and Pdgfra (magenta) at 4 DPMI after P1 LAD-O. (G) Ratio Vim⁺-Pdgfra⁺ cells over total Pdgfra⁺ cells. (H-J) Controls ($Postn^{MCM/+}$, H) and $Postn^{MCM/+}$; ROSA-DTA (I) mice were stained for cTnT (green) and pHH3 (magenta) at 4 DPMI after P1 LAD-O. Arrows, cardiomyocytes positive for pHH3. Number of pHH3-positive cardiomyocytes was quantified in J. (K, L) Controls (Postn^{MCM/+}, K) and Postn^{MCM/+};ROSA-DTA (L) mice were stained for tyrosine hydroxylase (TH, red) at 4 DPMI after P1 LAD-O. Arrows, cells expressing TH. (M-Q) Trichrome of controls (Postn^{MCM/+}, M) and Postn^{MCM/+}; ROSA-DTA (N) at 15 DPMI after P1 LAD-O. Arrows, scar zone. Thickness of left ventricular free wall was measured and quantified in O. Ejection fraction and Fractional shortening were quantified in P and Q. (R) Schematic plan for S-W and Figure 2S-X. (S, T) Picrosirius red staining of adult control (Rosa-DTA, S) and Pdgfr α -CreER⁷²;ROSA-DTA (T) mice. (U) Ejection fraction (E.F.) and fractional shorting (F.S.) of control and Pdgfr α -CreER^{T2};ROSA-DTA mice. (V, W) Adult control (Rosa-DTA, S) and Pdgfr α -CreER^{T2};ROSA-DTA (T) heart section stained for cTnT (green), Pdgfra (grey) and Ptgs2 (red). Nuclei stained with DAPI (blue). TAM, tamoxifen. All bar graphs represent mean ± SD. *, p<0.05. NS, not significant. Scale bar, 25 μm (E, F, H, I, V, W), 75 μm (K, L), 100 μm (B, S, T), 500 μm (M, N).



Figure S4. Cardiac fibroblasts interact with cardiomyocytes to share free iron, related to Figure 5. (A, B) Mouse heart sections stained for Fth1 (green, A) or Ftl (green, B), with Pdgfr α (red) and MF20 (grey) at 6 days after P1 LAD-O. Arrows, Pdgfr α -labeled cells positive for Fth1 (A) or Ftl (B). (C, D) Mouse heart section stained for Cx45 (green, C) or Cx43 (green, D) with Pdgfr α (red) and cTnT (grey) after P1 LAD-O. Arrows, potential locations of gap junctions between cardiomyocytes and fibroblasts. (E) ATAC-Seq shows open chromatin region at loci of *Gja1 (Cx43)* and *Gjc1 (Cx45)* in adult cardiac fibroblasts at 3 days after LAD-O or sham procedure. (F-I') HCF cultured in low or high density and stained for CX43 (green, F-G') and CX45 (green, H-I'). (J-K) Co-cultured iCMs (marked by TITIN-GFP, green) and HCFs stained for CX43 (red, J) or CX45 (red, K), with α SMA (grey). Arrowheads in J, gap junctions between iCMs. Arrows in J and K, gap junctions between iCM and HCF. (L-P) iCMs (L, M) and HCF (N, O) stained for Fe²⁺ (red) after DMSO (L, N) or erastin (M, O) treatment. Fold change of Fe²⁺ fluorescent intensity after erastin treatment in iCM and HCF quantified in P. Nuclei stained with DAPI (blue). All bar graphs represent mean \pm SD. **, p<0.01. Scale bar, 25 μ m (A-D, F', G', H', I', J, K), 100 μ m (F, G, H, I, L-O).



Figure S5. Cardiac fibroblasts increase Ferritin expression to resist ferroptosis, related to Figure 5. (A-C) Western blot of FTH1, FTL and α -TUBULIN in HCFs cultured at low, mid and high density, with DMSO or erastin treatment. Target band signal intensity quantified in B (FTH1) and C (FTL). (D) qPCR shows the knockdown of *FTH1* and *FTL* with siRNA in HCFs. (E, F) Survival rate of HCFs after erastin (30 μ M) treatment, with *FTH1* (E) or *FTL* (F) knockdown compared to scramble siRNA. All bar graphs represent mean ± SD. *, p<0.05. **, p<0.01. NS, not significant.



Figure S6. Pitx2 regulates fibrotic gene expression in injured myocardium, related to Figure 6. (A-D) Mouse heart tissue stained for Vim (red) at 2 or 3 days after P1 (A, B) or P7 (C, D) LAD-O. Asterisk, infarct zone. (E) Western blot of Tsp1 in cardiac ventricles at 6 days after P1 or P7 LAD-O. (F, G) Heatmap of fibrosis-relevant genes in control (*Pitx2^{tif}*) and *Pitx2*-CKO (*MCK^{cre};Pitx2^{ff}*) ventricles at 5 days after P1 apex resection. (H) qPCR validation of genes in F and G, p<0.05 for all targets. (I) ChIP-Seq shows Pitx2-binding region (red bars) at *Thbs1* locus in regenerative neonatal ventricles. (J) Western blot of Tsp1 in control and *Pitx2*-iCKO ventricles at 3 days after P1 LAD-O. (K) Western blot of Tsp1 in control and *Pitx2*-iCKO ventricles. Nuclei stained with DAPI (blue). All bar graphs represent mean ± SD. Scale bar, 75 μ m (A-D).

Table S1. Quantification of common paracrine cytokines and chemokines in the HCF-conditioned medium using cytokine array, related to Figure 4.

Adjonectin 0.85 0 0 1 -2 -3 Value Apolipoprotein A-1 0.15 0 0 0 0 0 0.4226 Angiopoietin-1 0 0 0 0 0 0.4226 Angiopoietin-2 3.35 0 0 0 0 0.9357 BAFF 0 0 0 0 0 0.9357 BAFF 0 0 0 0 0.9357 Complement Component 0 0 0 0 0 0.8646 CO30 3.65 0 0 0 0 0.8455 0.0425 CD40 ligand 0 0 0 0 0.925 0.50 0.8288 CD40 ligand 0 0 0 0 0 0 0 0.4226 Chitinase 3-like 1 0 0 0 0 0 0 0.4226 Chitinase 3-like 1 0 </th <th>Analyte</th> <th>Ctrl-1</th> <th>Ctrl-2</th> <th>Ctrl-3</th> <th>H2O2-</th> <th>H2O2</th> <th>H2O2</th> <th>t test, p</th> <th>p<0.05</th>	Analyte	Ctrl-1	Ctrl-2	Ctrl-3	H2O2-	H2O2	H2O2	t test, p	p<0.05
Autorization 0.3 0	Adipopostin	0.85	0	0	1	- ∠	-3	0 8125	
Application 0.13 0		0.05	0	0	0	1.375	0	0.0123	
Anglugerini 10.95 27.15 27.75 2.523 24.17 1.65 0.1970 Angiopoietin-1 0	Apolipoprotein A-I	0.15	07.15	0	0	0	0	0.4220	
Angiopoletin-1 0 0 0 0 0 0 0,3925 0 0,3937 BAFF 0 0 0 0 0 0,3937 0,8646 Complement Component CS/CSa 1.65 0 0 0 1,175 0 0,8646 CD14 1.1 0 0 0 0,8455 0 0,8455 CD30 3.65 0 0 0 0,925 0,8288 0 CD40 ligand 0 0 0 0 0,925 0 0,8455 Complement Factor D 0 0 0 0 0,8455 0 0,8426 Chitnase 3-like 1 0 0 0 0 0 0,8455 0 0,8426 Cripto-1 0	Anglogenin	10.95	27.15	2.775	2.525	24.17	1.65	0.1970	
Angiopoietin-2 3.35 0 0 0 3.925 0 0.9357 BAFF 0 0 0 0 0 0 0 N/A BDNF 1.65 0 0 0 1.175 0 0.8646 Complement Component 0 0 0 0 1.625 0 0.8455 CD30 3.65 0 0 0 4.925 0.55 0.8288 CD40 ligand 0 0 0 0 0 0 0.4226 Crititrase 3-like 1 0 0 0 0 0 0 0 0.4226 Cripto-1 0 0 0 0 0 0 N/A Creactive Protein 0 0 0 0 0 0 0.4226 Cripto-1 0 0 0 0 0 0 N/A Creactive Protein 0 0 0 0.017 D 0	Angiopoietin-1	0	0	0	0	0	0	N/A	
BAFF 0 0 0 0 0 0 1.65 0 0 0 1.175 0 0.8646 Complement Component CS/C5a 0 0 0 0 0 0 N/A CD14 1.1 0 0 0 4.925 0.55 0.8288 CD40 1.1 0 0 0 4.925 0.55 0.8288 CD40 0 0 0 0 0.4226 0.4226 Chitinase 3-like 1 0 0 0 0 0 0 0.4226 Complement Factor D 0 0 0 0 0 0 0.4226 Cystatin C 8.65 21.8 8.975 0 3.675 0 0.0617 DkK-1 19.5 25.45 11.475 24.875 46.62 28.45 0.0917 DPPIV 0 0 0 0 0 N/A 1.13 17.35 1.2375 </td <td>Angiopoietin-2</td> <td>3.35</td> <td>0</td> <td>0</td> <td>0</td> <td>3.925</td> <td>0</td> <td>0.9357</td> <td></td>	Angiopoietin-2	3.35	0	0	0	3.925	0	0.9357	
BDNF 1.65 0 0 0 1.175 0 0.8646 Complement Component CS/C5a 0 0 0 0 0 N/A CD14 1.1 0 0 0 1.625 0.5 0.8455 CD30 3.65 0 0 0 4.925 0.55 0.8288 CD40 ligand 0 0 0 0 9.925 0 0.4226 Chitinase 3-like 1 0 0 0 0 0 0 0 0.4226 Chitinase 3-like 1 0 0 0 0 0 0 0.4226 Chitinase 3-like 1 0 0 0 0 0 0 0.4226 Cripto-1 0 0 0 0 0 0.01 N/A Cystatin C 8.65 21.8 8.975 0 3.675 0 0.017 DK+1 19.5 25.45 11.475 24.875	BAFF	0	0	0	0	0	0	N/A	
Complement Component CS/C5a 0 0 0 0 0 N/A CD14 1.1 0 0 0 4.925 0.55 0.8288 CD30 3.65 0 0 0 4.925 0.55 0.8288 CD40 ligand 0 0 0 0 0.925 0 0.4226 Chitnase 3-like 1 0 0 0 0 0 N/A Complement Factor D 0 0 0 0 N/A Cripto-1 Cripto-1 0 0 0 0 0 N/A Cripto-1 DKK-1 19.5 25.45 11.475 24.875 46.62 28.45 0.0917 DFPIV 0 0 0 0 0 N/A E EGF 4.48 4.62 3.74 7.343 10.94 3.91 0.2221 EMMPRIN 11.3 17.35 1.925 12.375 30.77 8.8 <t< td=""><td>BDNF</td><td>1.65</td><td>0</td><td>0</td><td>0</td><td>1.175</td><td>0</td><td>0.8646</td><td></td></t<>	BDNF	1.65	0	0	0	1.175	0	0.8646	
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	Complement Component C5/C5a	0	0	0	0	0	0	N/A	
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	CD14	1.1	0	0	0	1.625	0	0.8455	
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	CD30	3.65	0	0	0	4.925	0.55	0.8288	
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	CD40 ligand	0	0	0	0	0.925	0	0.4226	
Complement Factor D 0	Chitinase 3-like 1	0	0	0	0	0	0	N/A	
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	Complement Factor D	0	0	0	0	0	0	N/A	
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	C-Reactive Protein	0	0	0	0	0	0	N/A	
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	Cripto-1	0	0	0	0	0	0	N/A	
Dkk-119.525.4511.47524.87546.6228.450.0917DPPIV000000N/AEGF4.484.623.747.34310.943.910.2221EMMPRIN11.317.351.92512.37530.778.80.1839ENA-7800000N/AEndoglin01.1001.77500.4226Fas Ligand00000N/AFGF-700000N/AFGF-700000N/AFGF-194.158.8504.42513.1210.2716FIt-3 Ligand00000N/A1GDF-1501.0501.97510.3700.3156GM-CSF000000N/A1GGR0a01.400000.4226GR0a0000000.4226GR0a0000000.4226ICAM-10000000.4226IGFBP-320.9534.3522.7753.3256.2750IL-1α22.50000N/AIL-17a000000N/A <td>Cystatin C</td> <td>8.65</td> <td>21.8</td> <td>8.975</td> <td>0</td> <td>3.675</td> <td>0</td> <td>0.0617</td> <td></td>	Cystatin C	8.65	21.8	8.975	0	3.675	0	0.0617	
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	Dkk-1	19.5	25.45	11.475	24.875	46.62 5	28.45	0.0917	
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	DPPIV	0	0	0	0	0	0	N/A	
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	EGF	4.48	4.62	3.74	7.343	10.94 9	3.91	0.2221	
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	EMMPRIN	11.3	17.35	1.925	12.375	30.77 5	8.8	0.1839	
Endoglin01.1001.77500.4226Fas Ligand000000N/AFGF basic000000N/AFGF-7000000N/AFGF-194.158.8504.42513.1210.2716Flt-3 Ligand000000N/AGCSF000000N/AGDF-1501.0501.97510.3700.3156GM-CSF0000000.42261.426GROα01.400000.42261.426Growth Hormone000000.42261.426ICAM-1000000.42261.426IGFBP-216.130.559.075000.42261.426IGFBP-320.9534.3522.7753.3256.27500.0170*IL-1α22.50000N/A1.416IL-17a000000N/A1.416	ENA-78	0	0	0	0	0	0	N/A	
Fas Ligand000000N/AFGF basic0000000N/AFGF-7000000N/AFGF-194.158.8504.42513.1210.2716Flt-3 Ligand000000N/AImage: constraint of the second se	Endoglin	0	1.1	0	0	1.775	0	0.4226	
FGF basic 0 0 0 0 0 0 N/A FGF-7 0 0 0 0 0 0 N/A Image: constraint of the state o	Fas Ligand	0	0	0	0	0	0	N/A	
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	FGF basic	0	0	0	0	0	0	N/A	
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Flt-3 Ligand00000000G-CSF0000000N/AGDF-1501.0501.97510.3700.3156GM-CSF000000.4226GROα01.40000Growth Hormone00000HGF00.70000ICAM-1000000.4226IGFBP-216.130.559.07501.72500.4226IGFBP-320.9534.3522.7753.3256.27500.0170*IL-1α22.50000N/AIIL-1ra00000N/AI	FGF-19	4.15	8.85	0	4.425	13.12 5	1	0.2716	
G-CSF0000000N/AGDF-1501.0501.97510.3700.3156GM-CSF00002.12500.4226GROα01.400000.4226Growth Hormone000000HGF00.70000ICAM-100000N/AIFN-γ00000N/AIGFBP-216.130.559.07501.72500.0895IGFBP-320.9534.3522.7753.3256.27500.0170*IL-1α22.50000N/AIIL-1β000000N/AIL-1ra00000N/A	Flt-3 Ligand	0	0	0	0	0	0	N/A	
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GM-CSF000002.12500.4226GROα01.400000.4226Growth Hormone000000N/AHGF00.700000.4226ICAM-10000000.4226IFN-γ000000N/AIFN-γ00000N/AIGFBP-216.130.559.07501.72500.0895IGFBP-320.9534.3522.7753.3256.27500.0170*IL-1α22.5002.77500.50671IL-1β000000N/A1IL-1ra000000N/A1	GDF-15	0	1.05	0	1.975	10.37 5	0	0.3156	
GROα01.400000.4226Growth Hormone0000000N/AHGF00.7000000.4226ICAM-100000000.4226IFN-γ00000000.4226IGFBP-216.130.559.07501.72500.0895IGFBP-320.9534.3522.7753.3256.27500.0170*IL-1α22.5002.77500.5067IL-1β0000000N/A	GM-CSF	0	0	0	0	2.125	0	0.4226	
Growth Hormone000000N/AHGF00.700000.4226ICAM-1000000N/AIFN-γ00000N/AIGFBP-216.130.559.07501.72500.0895IGFBP-320.9534.3522.7753.3256.27500.0170*IL-1α22.5002.77500.5067IL-1βIL-1β000000N/A	GROα	0	1.4	0	0	0	0	0.4226	
HGF00.700000.4226ICAM-1000000N/AIFN-γ000000N/AIGFBP-216.130.559.07501.72500.0895IGFBP-320.9534.3522.7753.3256.27500.0170*IL-1α22.5002.77500.5067IL-1βIL-1β000000N/A	Growth Hormone	0	0	0	0	0	0	N/A	
ICAM-1000000N/AIFN-γ000000N/AIGFBP-216.130.559.07501.72500.0895IGFBP-320.9534.3522.7753.3256.27500.0170*IL-1α22.5002.77500.5067IL-1β00000N/A	HGF	0	0.7	0	0	0	0	0.4226	
IFN-γ000000N/AIGFBP-216.130.559.07501.72500.0895IGFBP-320.9534.3522.7753.3256.27500.0170*IL-1α22.5002.77500.5067IL-1β00000N/A	ICAM-1	0	0	0	0	0	0	N/A	
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IGFBP-320.9534.3522.7753.3256.27500.0170*IL-1α22.5002.77500.5067IL-1β000000N/AIL-1ra00000N/A	IGFBP-2	16.1	30.55	9.075	0	1.725	0	0.0895	
IL-1α22.5002.77500.5067IL-1β000000N/AIL-1ra00000N/A	IGFBP-3	20.95	34.35	22.775	3.325	6.275	0	0.0170	*
IL-1β 0 0 0 0 0 N/A IL-1ra 0 0 0 0 0 N/A	IL-1α	2	2.5	0	0	2.775	0	0.5067	
IL-1ra 0 0 0 0 0 0 N/A	IL-1β	0	0	0	0	0	0	N/A	
	IL-1ra	0	0	0	0	0	0	N/A	

IL-2	0	0	0	0	0.325	0	0.4226	
IL-3	0	0	0	0	0.925	0	0.4226	
IL-4	0	1.45	0	0	0	0	0.4226	
IL-5	0	0	0	0	0	0	N/A	
IL-6	0	0	0	0	0	0	N/A	
IL-8	11.70	15.957	14.675	37.583	41.01	32.06	0.0138	*
	8	5		5	5	4		
IL-10	0	0	0	0	0	0	N/A	
IL-11	0	0	0	0	0	0	N/A	
IL-12 p70	0	0	0	0	0	0	N/A	
IL-13	0	0	0	0	0	0	N/A	
IL-15	0	0	0	0	0	0	N/A	
IL-16	0	0	0	0	0	0	N/A	
IL-17A	2.7	6.35	0	3.975	10.77 5	0.15	0.2670	
IL-18 Bpa	0	0	0	0	0.525	0	0.4226	
IL-19	0	0	0	0	0	0	N/A	
IL-22	0	3.45	0	0	1.475	0	0.4226	
IL-23	0	0	0	0	0	0	N/A	
IL-24	0	0	0	0	0	0	N/A	
IL-27	0	0	0	0	0	0	N/A	
IL-31	0	0	0	0	0	0	N/A	
IL-32	0	0	0	0	0	0	N/A	
IL-33	0	0	0	0	0	0	N/A	
IL-34	0	0	0	0	0	0	N/A	
IP-10	0	0	0	0	0	0	N/A	
I-TAC	0	0	0	0	0	0	N/A	
Kallikrein 3	4	2.8	0.125	3.425	3.775	1.7	0.4121	
Leptin	0	0.45	0	0	0	0	0.4226	
LIF	0	0	0	0	0	0	N/A	
Lipocalin-2	0	0	0	0	0	0	N/A	
MCP-1	0	5.6	0	0	0.125	0	0.4226	
MCP-3	0	0	0	0	0	0	N/A	
M-CSF	0	0	0	0	0	0	N/A	
MIF	0	3.45	0	0.925	5.025	0	0.2098	
MIG	0	0	0	0	0	0	N/A	
MIP-1α/MIP-1β	0	0	0	0	0	0	N/A	
MIP-3α	0	0	0	0	0	0	N/A	
ΜΙΡ-3β	0	0	0	0	0	0	N/A	
MMP-9	0	1.4	0	1.425	1.025	0	0.5886	
Myeloperoxidase	0	0.9	0	0	0	0	0.4226	
Osteopontin	0	5.2	0	1.075	1.625	0	0.6134	
PDGF-AA	0	0	0	0	0	0	N/A	
PDGF-AB/BB	0	0	0	0	0	0	N/A	
Pentraxin 3	0	6.75	0	1.625	1.625	0	0.6242	
PF4	0	0	0	0	0	0	N/A	
RAGE	0	0	0	0	0	0	N/A	
RANTES	0	0	0	0	0	0	N/A	
RBP-4	0	0	0	0	0	0	N/A	
Relaxin-2	0	0.15	0	 0	0	0	0.4226	

Resistin	0	2.25	0	1.575	0.675	0	1.0000	
SDF-1α	6.15	15.95	7.375	4.025	3.325	0	0.1354	
Serpin E1	64.15	91.5	67.525	69.575	78.67	27.25	0.3541	
					5			
SHBG	0	2.2	0	0	0	0	0.4226	
ST2	0	0	0	0	0	0	N/A	
TARC	0	0	0	0	0	0	N/A	
TFF3	0	0	0	0	0	0	N/A	
TfR	0	0.95	0	0	0	0	0.4226	
TGF-α	0	0	0	0	0	0	N/A	
Thrombospondin-1	0	8.4	1.475	0.175	0.275	0	0.3412	
TNF-α	0	0	0	0	0	0	N/A	
uPAR	0.9	12.1	5.975	6.125	10.52	0	0.8341	
					5			
VEGF	0	1	0.325	0.925	0	0	0.8351	
Vitamin D BP	0	3.15	0	0.825	0	0	0.5878	
CD31	0	2.5	0	0	0	0	0.4226	
TIM-3	0	0	0	0	0	0	N/A	
VCAM-1	0	0.25	0	0	0	0	0.4226	