Supplemental material

Table of Contents

Table S1 : Differentially up- or downregulated proteins in IS exposed calcified versus vehicle exposed non-calcified aortic samples.

Protein Description	Gene Symbol	Log_2 iTRAQ Ratio
Globin a1	LOC103694855	1.537854946
Sideroflexin-3	Sfxn3	1.532657025
Epsilon 1 globin	Hbe1	1.510884441
WD repeat-containing protein 5B	Wdr5b	1.489274026
Unc-93 homolog B1 (C. elegans)	Unc93b1	1.451848419
TGF-beta activated kinase 1 (MAP3K7) binding protein 1	Tab1	1.372491732
FAT atypical cadherin 4	Fat4	1.32132827
Globin c2	Hba-a2	1.291530096
Globin a4	Hbb	1.277356791
Myelin protein P0	Mpz	1.212255504
WD repeat and HMG-box DNA binding protein 1 (Predicted)	Wdhd1	1.073430575
Anion exchange protein	Slc4a1	1.030158921
Haptoglobin	Hp	1.005444277
Neurofilament medium polypeptide	Nefm	0.994342922
Alpha globin	Hba-a3	0.978506139
Actinin alpha 3	Actn3	0.973132227
Neurofilament light polypeptide	Nefl	0.972158491
Annexin A8	Anxa8	0.965831739
Solute carrier family 43 member 1	Slc43a1	0.947746593
Ring finger protein 219	Rnf219	0.942127968
Serine protease HTRA1	Htra1	0.90886013
Platelet factor 4	Pf4	0.905152246
Ig gamma-2A chain C region	Igg-2a	0.898287479
RCG59107, isoform CRA_a	Wdr17	0.893374883
40S ribosomal protein S15	Rps15	0.892775815
Carbonic anhydrase 1	Ca1	0.892030196
Fibrinogen gamma chain	Fgg	0.891299291
RNA pseudouridylate synthase domain containing 2 (Predicted)	LOC100911166	0.891252577
Centrosomal protein 112	Cep112	0.888177744
Ubiquitin-conjugating enzyme E2, J1	Ube2j1	0.864271425
RNA terminal phosphate cyclase domain 1	Rtcd1	0.86054284
UDP-N-acetylglucosamine pyrophosphorylase 1	Uap1	0.860388383
ADP-ribosylation factor-like protein 8B	Arl8b	0.85939809
Exdl2 protein	Exd2	0.856582852
Solute carrier family 2, facilitated glucose transporter member 4	Slc2a4	0.849902548
Lysyl oxidase-like 3	Loxl3	0.835129742
Heme oxygenase 2	Hmox2	0.831619366
C-reactive protein	Crp	0.823525007
Carboxylesterase 1C	Ces1c	0.798655384

Vitronectin	Vtn	0.796801623
Cartilage oligomeric matrix protein	Comp	0.793706665
Inositol-trisphosphate 3-kinase B	Itpkb	0.791242098
Alpha-2-HS-glycoprotein	Ahsg	0.781002744
Integral membrane protein 2B	Itm2b	0.780612605
Hyaluronan and proteoglycan link protein 4	Hapln4	0.77443381
60S ribosomal protein L32	Rpl32	0.768843487
Tubulin beta-3 chain	Tubb3	0.758806118
Galectin-5	Lgals5	0.753996614
Serotransferrin	Tf	0.751218273
cAMP-dependent protein kinase catalytic subunit beta	Prkacb	0.749542931
Protein S100-B	S100b	0.737079153
Carboxylic ester hydrolase	Bche	0.734896155
Alpha-2-HS-glycoprotein	Ahsg	0.7321129
Sodium channel protein	Scn7a	0.7321129
Apolipoprotein A-I	Apoa1	0.730685808
Peripherin	Prph	0.729896164
Ac1873	Fga	0.725024593
Tenascin C	Tnc	0.721861402
40S ribosomal protein S24	LOC100363469	0.720099153
Fibronectin	Fn1	0.717136996
Collagen alpha-1(XII) chain	Col12a1	0.711071749
Collagen type XVIII alpha 1 chain	Col18a1	0.705171148
Actin-related protein 2/3 complex subunit 1B	Arpc1b	0.705148812
RCG27247	Zc3h8	0.704970316
Gamma-aminobutyric acid type B receptor subunit 1	Gabbr1	0.694597078
Serine protease inhibitor A3L	Serpina3l	0.69395455
Collagen alpha-1(II) chain	Col2a1	0.693297047
Osteopontin	Spp1	0.693297047
Similar to RIKEN cDNA 9030624J02	LOC361635	0.687987827
Calcium/calmodulin-dependent protein kinase type II subunit delta	Camk2d	0.68663013
Embigin	Emb	0.68458094
Complement C1s subcomponent	C1s	0.681486827
Complement C1q tumor necrosis factor-related protein 5	C1qtnf5	0.681324406
Matrix Gla protein	Mgp	0.677271809
Ig gamma-2B chain C region	Igh-1a	0.677157058
Sad1 and UNC84 domain-containing 1	Sun1	0.676993688
Fibrinogen beta chain	Fgb	0.675575489
Nuclear cap-binding protein subunit 1	Ncbp1	0.66965013
MON2 homolog, regulator of endosome-to-Golgi-trafficking	Mon2	0.664506827
C-type lectin domain family 3, member B	Clec3b	0.663177059
Tenascin N	Tnn	0.663177059
Fetub protein	Fetub	0.661362894
Aquaporin-1	Aqp1	0.660681224
Ankyrin 1	Ank1	0.659942635

Collagen type IV alpha 2 chain	Col4a2	0.65707686
Prostacyclin synthase	Ptgis	0.650950757
RCG20461	Stum	0.650950757
Carbonic anhydrase 2	Ca2	0.650329931
Progressive ankylosis protein homolog	Ankh	0.650235893
Family with sequence similarity 49, member A	Fam49a	0.650235893
Serine protease inhibitor A3K	Serpina3k	0.647910783
Alpha-1-macroglobulin	A1m	0.640697559
Aggrecan core protein	Acan	0.637027501
Neuroplastin	Nptn	0.636095657
Lipopolysaccharide binding protein	Lbp	0.627980951
EGF-containing fibulin-like extracellular matrix protein 2	Efemp2	0.626182852
Laminin subunit beta 1	Lamb1	0.626182852
Schlafen family member 5	Slfn5	0.618293001
Prothrombin	F2	0.612863351
Retinol-binding protein 4	Rbp4	0.612126788
RNA-binding protein with multiple-splicing	Rbpms	0.607486246
Alpha-1-antiproteinase	Serpina1	0.607486246
Collagen alpha-1(I) chain	Col1a1	0.607323824
Transporter	Slc6a2	0.607323824
Protein VAC14 homolog	Vac14	0.60205236
Amine oxidase	Aoc3	0.598742243
Laminin subunit gamma 1	Lamc1	0.594612773
Pre-mRNA processing factor 8, isoform CRA_a	Prpf8	0.594612773
Complement C3	C3	0.591371639
Elongator complex protein 5	Elp5	0.5911228
Small nuclear ribonucleoprotein U1 subunit 70	Snrnp70	0.5911228
Beta-hexosaminidase subunit alpha	Hexa	0.585626812
Histone H1.4	Hist1h1e	0.57961793
ATP synthase mitochondrial F1 complex assembly factor 2	Atpaf2	0.574571623
HEAT repeat-containing 5B	Heatr5b	0.574571623
V-type proton ATPase 16 kDa proteolipid subunit	Atp6v0c	0.568646812
Translocon-associated protein subunit delta	Ssr4	0.568646812
Collagen alpha-1(XXIII) chain	Col23a1	0.563129807
Eukaryotic translation initiation factor 3 subunit M	Eif3m	0.563129807
Wolfram syndrome 1 homolog (Human)	Wfs1	0.557591623
Mast cell carboxypeptidase A (Fragment)	Cpa3	0.552032098
Uncharacterized protein	Pkn3	-0.557885594
SLAIN motif family, member 2	Slain2	-0.557885594
ATP synthase mitochondrial F1 complex assembly factor 2	Atpaf2	-0.557885594
Trafficking protein particle complex 6B	Trappc6b	-0.569958426
Myl9 protein	Myl9	-0.57743147
PDZ and LIM domain protein 5	Pdlim5	-0.57743147
Histone H2A	H2afx	-0.58213314
Neurabin-2	Ppp1r9b	-0.58213314

Tropomyosin 1, alpha, isoform CRA_p	Tpm1	-0.589815195
Dimethylaniline monooxygenase [N-oxide-forming] 1	Fmo1	-0.59441147
Adenylate kinase 2, mitochondrial	Ak2	-0.59620957
10 kDa heat shock protein, mitochondrial	Hspe1	-0.59620957
RCG34610, isoform CRA_c	Srsf1	-0.59620957
Serine/arginine-rich splicing factor 2	Srsf2	-0.598640754
Adenosylhomocysteinase 2	Ahcyl1	-0.602306139
Coiled-coil domain-containing 88C	Ccdc88c	-0.606795195
Syntaxin 16	Stx16	-0.606795195
Propionyl coenzyme A carboxylase, beta polypeptide	Pccb	-0.60952907
RNA-binding protein 3	Rbm3	-0.60952907
SP100 nuclear antigen	Sp100	-0.60952907
Alpha-1B-glycoprotein	A1bg	-0.610856346
Uncharacterized protein	Cep192	-0.610856346
60S ribosomal protein L3	Rpl3	-0.610856346
40S ribosomal protein S9	Rps9	-0.610856346
Alpha-crystallin B chain	Cryab	-0.614906176
Glutathione S-transferase Mu 2	Gstm2	-0.614906176
PDZ and LIM domain 3, isoform CRA_a	Pdlim3	-0.614906176
Xin actin-binding repeat-containing 1	Xirp1	-0.616255564
Four and a half LIM domains protein 2	Fhl2	-0.619286139
Ectonucleotide pyrophosphatase/phosphodiesterase family member 3	Enpp3	-0.620500188
Protein tyrosine kinase 9-like (A6-related protein) (Predicted), isoform CRA_b	Twf2	-0.620500188
Charged multivesicular body protein 1A	Chmp1a	-0.624985169
Eukaryotic translation initiation factor 5	Eif5	-0.62506638
Long-chain-fatty-acid--CoA ligase 1	Acsl1	-0.625653348
2,4-dienoyl CoA reductase 1, mitochondrial, isoform CRA_a	Decr1	-0.625653348
Golgi associated, gamma adaptin ear containing, ARF binding protein 1	Gga1	-0.625653348
Perilipin	Plin1	-0.625653348
Peptidyl-prolyl cis-trans isomerase	Fkbp4	-0.627617227
Methionine sulfoxide reductase B3	Msrb3	-0.627617227
Synaptopodin 2	Synpo2	-0.627617227
Transforming growth factor beta-1-induced transcript 1 protein	Tgfb1i1	-0.627617227
Transformer-2 protein homolog beta	Tra2b	-0.631555377
Thymosin beta-4	Tmsb4x	-0.635308379
Sushi domain containing 5 (Predicted)	Susd5	-0.638579175
Aminoacylase-1A	Acy1a	-0.640441268
Purkinje cell protein 4-like 1	Pcp4l1	-0.640441268
RCG35999, isoform CRA_a	Smtn	-0.640441268
Carnitine O-palmitoyltransferase 2, mitochondrial	Cpt2	-0.640603689
AIP1, isoform CRA_a	Dpy30	-0.640603689
Cytochrome b-c1 complex subunit 6, mitochondrial	Uqcrh	-0.640603689
Histone cluster 1 H1 family member c	Hist1h1c	-0.641663904
Serine and arginine-rich-splicing factor 4	Srsf4	-0.642695934
Synaptopodin 2-like	Synpo2l	-0.65392319

Methylthioribose-1-phosphate isomerase	Mri1	-0.655583621
Histone H3	Hist2h3c2	-0.655710581
Creatine kinase S-type, mitochondrial	Ckmt2	-0.657421268
Glutathione S-transferase alpha-3	Gsta3	-0.657421268
High mobility group nucleosomal binding domain 2	LOC100360316	-0.657421268
40S ribosomal protein S5	Rps5	-0.657421268
Calreticulin	Calr	-0.664371297
Zyxin	Zyx	-0.667802311
Asporin	Aspn	-0.670360323
Complement factor D	Cfd	-0.670977338
Protein phosphatase 1, regulatory subunit 12C	Ppp1r12c	-0.671539871
Myosin regulatory light chain RLC-A	Rlc-a	-0.674355805
Heme oxygenase 1	Hmox1	-0.676643266
Protein S100-A6	S100a6	-0.676643266
RCSD domain containing 1 (Predicted), isoform CRA_a	Rcsd1	-0.679073595
Crk-like protein	Crkl	-0.679611865
Putative uncharacterized protein	Srsf3	-0.684099269
LIM and cysteine-rich domains 1	Lmcd1	-0.688138905
Plectin	Plec	-0.696591865
Heterogeneous nuclear ribonucleoprotein U-like 1	Hnrnpul1	-0.699726879
Calumenin	Calu	-0.699726879
ABRA C-terminal-like	Abracl	-0.702004234
Protein AMBP	Ambp	-0.702004234
CD163 antigen (Predicted)	Cd163	-0.702004234
Isocitrate dehydrogenase [NAD] subunit, mitochondrial	Idh3a	-0.702004234
Tropomyosin beta chain	Tpm2	-0.705096969
Cysteine-rich protein 1	Crip1	-0.709888688
Myelin protein P0	Mpz	-0.709888688
Protocadherin 7	Pcdh7	-0.711408684
Calponin-3	Cnn3	-0.712330232
60S acidic ribosomal protein P1	Rplp1	-0.712595043
60S ribosomal protein L7	Rpl7	-0.71777155
Filamin binding LIM protein 1, isoform CRA_a	Fblim1	-0.719875735
Maleylacetoacetate isomerase	Gstz1	-0.719875735
LIM and senescent cell antigen-like-containing domain protein	Lims2	-0.719875735
Serine/arginine-rich splicing factor 5	Srsf5	-0.724661259
GM2 ganglioside activator	Gm2a	-0.733713093
Heat shock 27kDa protein 1	Hspb1	-0.734191768
Calponin-1	Cnn1	-0.743504768
SH3 domain-containing 19	Sh3d19	-0.747032594
Atypical kinase COQ8A, mitochondrial	Coq8a	-0.749832759
Cytoglobin	Cygb	-0.749832759
D-dopachrome decarboxylase	Ddt	-0.749832759
Nuclear ubiquitous casein and cyclin-dependent kinase substrate 1	Nucks1	-0.750024484
Cysteine and glycine-rich protein 2	Csrp2	-0.759318306

Long-chain specific acyl-CoA dehydrogenase, mitochondrial	Acadl	-0.766134571
Glycerol-3-phosphate dehydrogenase [NAD(+)]	Gpd1l	-0.766134571
Uncharacterized protein	LOC679794	-0.766134571
Serum deprivation-response protein	Sdpr	-0.766134571
Eukaryotic translation initiation factor 4E binding protein 2	Eif4ebp2	-0.77128014
Destrin	Dstn	-0.771589542
Ring finger protein 219	Rnf219	-0.778275663
Death-associated protein 1	Dap	-0.78355847
Pleckstrin homology domain containing, family B (Evectins) member 2 (Predicted), isoform CRA_b	Plekhb2	-0.78355847
Ab2-292	Sec62	-0.78355847
Nucleolin	Ncl	-0.785748098
Hypothetical LOC289568	RGD1311575	-0.795942195
Mast cell protease 1	Mcpt1	-0.799301435
Alkaline phosphatase, tissue-nonspecific isozyme	Alpl	-0.807190882
SH3 domain-binding glutamic acid-rich-like protein	Sh3bgrl	-0.808727661
Hydroxyacyl-coenzyme A dehydrogenase, mitochondrial	Hadh	-0.816175254
Superoxide dismutase [Cu-Zn]	Sod1	-0.816175254
Polymerase I and transcript release factor	Ptrf	-0.82092
Prothymosin alpha	Ptma	-0.82313189
Glutamine synthetase	Glul	-0.833248767
Cysteine desulfurase, mitochondrial	Nfs1	-0.833744227
Non-muscle caldesmon	Cald1	-0.847883348
Transforming growth factor beta-3	Tgfb3	-0.859507323
Vacuolar protein sorting-associated protein 29	Vps29	-0.859507323
Electron transfer flavoprotein subunit alpha, mitochondrial	Etfa	-0.868014185
Legumain	Lgmn	-0.868014185
3-ketoacyl-CoA thiolase, mitochondrial	Acaa2	-0.885716187
Spliceosome-associated protein CWC15 homolog	Cwc15	-0.889202222
Transgelin	Tagln	-0.89484366
Electron transfer flavoprotein subunit beta	Etfb	-0.921785442
Microsomal glutathione S-transferase 1	Mgst1	-0.921785442
Insulin-like growth factor binding protein 7, isoform CRA_b	Igfbp7	-0.94000155
Serotransferrin	Tf	-0.941214234
Cysteine and glycine-rich protein 1	Csrp1	-0.942486761
Serum albumin	Alb	-0.95698155
Mitochondrial brown fat uncoupling protein 1	Ucp1	-0.958779649
RCG61762, isoform CRA_d	Srsf7	-0.959419288
Deoxyribonuclease	Dnase1l1	-0.967422663
Four and a half LIM domains 1	Fhl1	-0.973767085
IQ motif-containing with AAA domain 1	Iqca1	-0.993852838
Thyroid hormone receptor-associated protein 3	Thrap3	-0.994629097
Aconitate hydratase, mitochondrial	Aco2	-0.996747499
Carbonic anhydrase 3	Ca3	-1.021832694
Solute carrier family 43, member 3	Slc43a3	-1.035741631

Glycerol-3-phosphate dehydrogenase [NAD(+)], cytoplasmic	Gpd1	-1.07581907
Nuclear ubiquitous casein and cyclin-dependent kinase substrate 1	Nucks1	-1.089736758
Fatty acid-binding protein, adipocyte	Fabp4	-1.096283173
Selenoprotein P	Selenop	-1.096283173
Parathymosin	Ptms	-1.103691924
Prostaglandin E synthase 3	Ptges3	-1.177369449
Disks large homolog 1	Dlg1	-1.181009649
LRRN4 C-terminal-like	Lrrn4cl	-1.278883758
T-kininogen 1	Map1	-1.392676176
Zinc finger, DBF-type-containing 2	Zdbf2	-1.657421268
Family with sequence similarity 175, member B	Fam175b	-2.016932542

Table S2 : Differentially up- or downregulated proteins in PCS exposed calcified versus vehicle exposed non-calcified aortic samples.

Proein Description	Gene Symbol	Log_2 iTRAQ Ratio
Epsilon 1 globin	Hbe1	1.826868402
Globin a1	LOC103694855	1.770184922
WD repeat-containing protein 5B	Wdr5b	1.754727328
WD repeat and HMG-box DNA binding protein 1 (Predicted)	Wdhd1	1.482202653
Unc-93 homolog B1 (C. elegans)	Unc93b1	1.472397598
TGF-beta activated kinase 1 (MAP3K7) binding protein 1	Tab1	1.396056038
Globin c2	Hba-a2	1.354759037
FAT atypical cadherin 4	Fat4	1.344333844
Sideroflexin-3	Sfxn3	1.328169025
Globin a4	Hbb	1.323959262
Hyaluronan and proteoglycan link protein 4	Hapln4	1.187410688
Fibronectin	Fn1	1.114977322
RT1 class Ia, locus A1	RT1-A1	1.113881653
Uncharacterized protein	Ighm	1.103722815
C-reactive protein	Crp	1.102959719
Anion exchange protein	Slc4a1	1.096718183
C-reactive protein	Crp	1.087760847
Alpha-2-HS-glycoprotein	Ahsg	1.083981341
Ring finger protein 219	Rnf219	1.080277036
Protein FAM65B	Fam65b	1.076305577
Gamma-aminobutyric acid type B receptor subunit 1	Gabbr1	1.071985663
Haptoglobin	Hp	1.069142996
Cartilage oligomeric matrix protein	Comp	1.054320087
ADP-ribosylation factor-like protein 8B	Arl8b	1.042584746
Dipeptidyl peptidase 1	Ctsc	1.038335273
Alpha globin	Hba-a3	1.032695832
Fibrinogen gamma chain	Fgg	1.026418812
Platelet factor 4	Pf4	1.010303619
Solute carrier family 43 member 1	Slc43a1	0.995137584
Collagen alpha-1(XII) chain	Col12a1	0.985776827
Tenascin C	Tnc	0.979793046
Ferritin heavy chain	Fth1	0.973090159
Ig gamma-2A chain C region	Igg-2a	0.973043813
Collagen type VIII alpha 1 chain	Col8a1	0.954735429
Carbonic anhydrase 1	Ca1	0.946076766
Centrosomal protein 112	Cep112	0.940714414
Ubiquitin-conjugating enzyme E2, J1	Ube2j1	0.938520799
UDP-N-acetylglucosamine pyrophosphorylase 1	Uap1	0.936974558
Transthyretin	Ttr	0.923556312
Lysyl oxidase-like 3	Loxl3	0.90634236
Apolipoprotein C-I	Apoc1	0.899980226

Serum amyloid P-component	Apcs	0.897627847
RNA pseudouridylate synthase domain containing 2 (Predicted)	LOC100911166	0.896026746
Annexin A8	Anxa8	0.895288656
Carboxylesterase 1C	Ces1c	0.883746358
C4b-binding protein alpha chain	C4bpa	0.878817998
Aggrecan core protein	Acan	0.874073054
Vitronectin	Vtn	0.873302098
Serine protease HTRA1	Htra1	0.867721066
Platelet factor 4	Pf4	0.866813487
GMP synthase [glutamine-hydrolyzing]	Gmps	0.855917596
CDP-diacylglycerol--inositol 3-phosphatidyltransferase	Cdipt	0.84820263
Immunity-related GTPase family M protein	Irgm	0.845178497
Ac1873	Fga	0.833773734
Alpha-1-inhibitor 3	A1i3	0.832647816
Fibrinogen beta chain	Fgb	0.822278095
Inositol-trisphosphate 3-kinase B	Itpkb	0.816495742
NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 11	Ndufa11	0.81296545
40S ribosomal protein S15	Rps15	0.812716424
Exdl2 protein	Exd2	0.810690121
Tenascin N	Tnn	0.809746555
Serine protease inhibitor A3K	Serpina3k	0.805016697
Embigin	Emb	0.803118812
V-type proton ATPase 16 kDa proteolipid subunit	Atp6v0c	0.799084558
Transporter	Slc6a2	0.799008316
RNA terminal phosphate cyclase domain 1	Rtcd1	0.798100737
Fatty acid synthase	Fasn	0.797023907
Alpha-1-macroglobulin	A1m	0.793010844
Apolipoprotein A-II	Apoa2	0.793010844
Apolipoprotein A-I	Apoa1	0.784951074
C-type lectin domain family 3, member B	Clec3b	0.781306314
Complement component C9	C9	0.777852053
Dehydrogenase/reductase SDR family member 4	Dhrs4	0.777852053
Complement C3	C3	0.776846025
Transportin 3	Tnpo3	0.77607458
Matrix Gla protein	Mgp	0.775357047
RCG27247	Zc3h8	0.773735599
Heme oxygenase 2	Hmox2	0.771049505
Cyclin-dependent-like kinase 5	Cdk5	0.762090351
Aquaporin-1	Aqp1	0.761941218
Osteopontin	Spp1	0.757398656
Calcium/calmodulin-dependent protein kinase type II subunit delta	Camk2d	0.757315122
Complement C1q tumor necrosis factor-related protein 5	C1qtnf5	0.751311574
Thrombospondin 1	Thbs1	0.747969243
Sodium channel protein	Scn7a	0.746935976
Protein S100-B	S100b	0.736481619

Alanyl (Membrane) aminopeptidase	Anpep	0.735623362
Retinol-binding protein 4	Rbp4	0.728693258
Actinin alpha 3	Actn3	0.723023325
Family with sequence similarity 49, member A	Fam49a	0.720656651
Ig gamma-2B chain C region	Igh-1a	0.720656651
Progressive ankylosis protein homolog	Ankh	0.718839134
Serine protease inhibitor A3L	Serpina3l	0.71684439
Galectin-5	Lgals5	0.715342852
E3 ubiquitin-protein ligase	Itch	0.714474805
Lipopolysaccharide binding protein	Lbp	0.714247361
Prothrombin	F2	0.710312273
Integrin subunit alpha 2b	Itga2b	0.710009407
Uridine kinase	Uck1	0.709622931
Integral membrane protein 2B	Itm2b	0.708570766
ATP synthase mitochondrial F1 complex assembly factor 2	Atpaf2	0.706344241
Ankyrin 1	Ank1	0.704656173
Alpha-1-antiproteinase	Serpina1	0.702101008
Translocon-associated protein subunit delta	Ssr4	0.699874954
Small nuclear ribonucleoprotein U1 subunit 70	Snrnp70	0.693889742
cAMP-dependent protein kinase catalytic subunit beta	Prkacb	0.690060665
Nuclear cap-binding protein subunit 1	Ncbp1	0.685128369
Acetyl-coenzyme A transporter 1	Slc33a1	0.685128369
Guanine nucleotide-binding protein subunit gamma	Gng2	0.68304236
Myosin-9	Myh9	0.680179153
Ectonucleotide pyrophosphatase/phosphodiesterase family member 1	Enpp1	0.670275001
Fetub protein	Fetub	0.661099807
Elongator complex protein 5	Elp5	0.661099807
RCG43880	Tktl1	0.637853524
Collagen type IV alpha 2 chain	Col4a2	0.63128087
Thioredoxin domain containing 13	Tmx4	0.63128087
Thrombospondin 2	Thbs2	0.63128087
GM2 ganglioside activator	Gm2a	-0.63571155
Glutathione S-transferase alpha-3	Gsta3	-0.63571155
Mitochondrial pyruvate carrier 2	Mpc2	-0.63571155
Complement factor D	Cfd	-0.651653093
Carnitine O-palmitoyltransferase 2, mitochondrial	Cpt2	-0.651653093
2,4-dienoyl CoA reductase 1, mitochondrial, isoform CRA_a	Decr1	-0.651653093
AIP1, isoform CRA_a	Dpy30	-0.651653093
10 kDa heat shock protein, mitochondrial	Hspe1	-0.651653093
Transketolase	Tkt	-0.651653093
Glutathione S-transferase Mu 2	Gstm2	-0.651653093
60S ribosomal protein L3	Rpl3	-0.651653093
Adenosylhomocysteinase 2	Ahcyl1	-0.652560672
Vinculin	Vcl	-0.652560672
ATP synthase subunit epsilon, mitochondrial	Atp5e	-0.666366472

Cysteine-rich protein 2	Crip2	-0.666366472
Crk-like protein	Crkl	-0.666366472
ABRA C-terminal-like	Abracl	-0.667772759
Histone H1.4	Hist1h1e	-0.667772759
Phosphoglucomutase 5	Pgm5	-0.680305663
Alpha-1B-glycoprotein	A1bg	-0.684074571
Atypical kinase COQ8A, mitochondrial	Coq8a	-0.684074571
Thymosin beta-4	Tmsb4x	-0.684074571
Myosin light polypeptide 6	Myl6	-0.691957869
Peptidyl-prolyl cis-trans isomerase	Fkbp4	-0.694380848
Purkinje cell protein 4-like 1	Pcp4l1	-0.694380848
cGMP-inhibited 3',5'-cyclic phosphodiesterase A	Pde3a	-0.694380848
PDZ and LIM domain 3, isoform CRA_a	Pdlim3	-0.694380848
Profilin-1	Pfn1	-0.694380848
Testin	Tes	-0.694380848
Plectin	Plec	-0.697341268
Protein AMBP	Ambp	-0.700562694
Perilipin	Plin1	-0.700562694
Aminoacylase-1A	Acy1a	-0.70187472
Uncharacterized protein C11orf96 homolog	Ag2	-0.709340578
Decorin	Dcn	-0.710280323
cAMP-dependent protein kinase type II-alpha regulatory subunit	Prkar2a	-0.710280323
ATP-binding cassette sub-family B member 7, mitochondrial	Abcb7	-0.717549266
Alpha-crystallin B chain	Cryab	-0.72295
Methionine sulfoxide reductase B3	Msrb3	-0.72295
PDZ and LIM domain protein 7	Pdlim7	-0.72295
Polymerase I and transcript release factor	Ptrf	-0.72295
Calnexin	Canx	-0.729044905
Charged multivesicular body protein 1A	Chmp1a	-0.729044905
Protocadherin 7	Pcdh7	-0.729044905
Zyxin	Zyx	-0.73179144
CD163 antigen (Predicted)	Cd163	-0.734115254
Mast cell carboxypeptidase A (Fragment)	Cpa3	-0.734115254
D-dopachrome decarboxylase	Ddt	-0.734115254
Eukaryotic translation initiation factor 5	Eif5	-0.734115254
Glycerol-3-phosphate dehydrogenase [NAD(+)]	Gpd1l	-0.734115254
Serum albumin	Alb	-0.736511865
Transforming growth factor beta-1-induced transcript 1 protein	Tgfb1i1	-0.73744957
Actin-related protein 2/3 complex subunit 5-like protein	Arpc5l	-0.740632879
Clathrin light chain B	Cltb	-0.740632879
Creatine kinase S-type, mitochondrial	Ckmt2	-0.749808688
Death-associated protein 1	Dap	-0.749808688
Cysteine-rich protein 1	Crip1	-0.751188767
Synaptopodin 2	Synpo2	-0.752096346
Putative uncharacterized protein	Srsf3	-0.760390424

Carbonic anhydrase 3	Ca3	-0.763229203
Ab2-292	Sec62	-0.764091852
Isocitrate dehydrogenase [NAD] subunit, mitochondrial	Idh3a	-0.768466758
Myosin light chain kinase	Mylk	-0.781843689
Filamin binding LIM protein 1, isoform CRA_a	Fblim1	-0.781843689
Profilin	Pfn2	-0.784515538
Glutamine synthetase	Glul	-0.785954185
Uncharacterized protein	LOC679794	-0.785954185
Eukaryotic translation initiation factor 1A	Eif1a	-0.787938594
Myosin regulatory light chain RLC-A	Rlc-a	-0.790359493
Histone H2A	H2afx	-0.790450672
Propionyl coenzyme A carboxylase, beta polypeptide	Pccb	-0.792243947
Tropomyosin 1, alpha, isoform CRA_p	Tpm1	-0.796950581
Nucleosome assembly protein 1-like 1	Nap1l1	-0.800011426
Cytochrome b-c1 complex subunit 6, mitochondrial	Uqcrh	-0.803656187
Coiled-coil domain-containing 88C	Ccdc88c	-0.804256472
Similar to RPE-spondin (Predicted)	Sbspon	-0.804256472
High mobility group nucleosomal binding domain 2	LOC100360316	-0.81218614
Transforming growth factor beta-3	Tgfb3	-0.81218614
Spliceosome-associated protein CWC15 homolog	Cwc15	-0.812217338
Myl9 protein	Myl9	-0.812217338
Protein phosphatase 1, regulatory subunit 12C	Ppp1r12c	-0.812217338
RCG35999, isoform CRA_a	Smtn	-0.815591414
Calreticulin	Calr	-0.821578095
Vacuolar protein sorting-associated protein 29	Vps29	-0.82446447
Serine/arginine-rich splicing factor 5	Srsf5	-0.832782911
Calumenin	Calu	-0.836848195
Electron transfer flavoprotein subunit alpha, mitochondrial	Etfa	-0.839725442
Hydroxyacyl-coenzyme A dehydrogenase, mitochondrial	Hadh	-0.839725442
IQ motif-containing with AAA domain 1	Iqca1	-0.839725442
Legumain	Lgmn	-0.839725442
Serum deprivation-response protein	Sdpr	-0.839725442
Superoxide dismutase [Cu-Zn]	Sod1	-0.839725442
LIM and senescent cell antigen-like-containing domain protein	Lims2	-0.843244234
RCSD domain containing 1 (Predicted), isoform CRA_a	Rcsd1	-0.857768614
Pleckstrin homology domain containing, family B (Evectins) member 2 (Predicted), isoform CRA_b	Plekhb2	-0.861939176
SP100 nuclear antigen	Sp100	-0.861939176
Calponin-3	Cnn3	-0.87373851
Long-chain specific acyl-CoA dehydrogenase, mitochondrial	Acadl	-0.876719649
Microsomal glutathione S-transferase 1	Mgst1	-0.876719649
60S ribosomal protein L7	Rpl7	-0.876719649
LIM and cysteine-rich domains 1	Lmcd1	-0.887474268
Alcohol dehydrogenase 1	Adh1	-0.889986346
RCSD domain containing 1 (Predicted), isoform CRA_a	Rcsd1	-0.891072759
3-ketoacyl-CoA thiolase, mitochondrial	Acaa2	-0.895578676

Electron transfer flavoprotein subunit beta	Etfb	-0.895578676
Mast cell protease 1	Mcpt1	-0.895578676
Protein S100-A6	S100a6	-0.900413323
Cysteine desulfurase, mitochondrial	Nfs1	-0.913469476
Serine and arginine-rich-splicing factor 4	Srsf4	-0.913469476
Histone H3	Hist2h3c2	-0.914687499
Nucleolin	Ncl	-0.920666182
Trafficking protein particle complex 6B	Trappc6b	-0.934840581
60S acidic ribosomal protein P1	Rplp1	-0.947360839
LRRN4 C-terminal-like	Lrrn4cl	-0.953362203
Hypothetical LOC289568	RGD1311575	-0.956738303
Insulin-like growth factor binding protein 7, isoform CRA_b	Igfbp7	-0.957415254
SH3 domain-binding glutamic acid-rich-like protein	Sh3bgrl	-0.967691299
Nuclear ubiquitous casein and cyclin-dependent kinase substrate 1	Nucks1	-0.969205415
Calponin-1	Cnn1	-0.974488767
Prothymosin alpha	Ptma	-0.974488767
Fatty acid-binding protein, adipocyte	Fabp4	-0.99375907
Asporin	Aspn	-1.012843093
Heat shock 27kDa protein 1	Hspb1	-1.026956187
Aconitate hydratase, mitochondrial	Aco2	-1.034981733
Cysteine and glycine-rich protein 2	Csrp2	-1.050816724
Tropomyosin beta chain	Tpm2	-1.065079573
Histone cluster 1 H1 family member c	Hist1h1c	-1.09911207
Cysteine and glycine-rich protein 1	Csrp1	-1.10126382
Transgelin	Tagln	-1.107348295
RCG61762, isoform CRA_d	Srsf7	-1.118878676
Mitochondrial brown fat uncoupling protein 1	Ucp1	-1.121138377
Non-muscle caldesmon	Cald1	-1.137987499
Alkaline phosphatase, tissue-nonspecific isozyme	Alpl	-1.140240338
Carnitine O-palmitoyltransferase 1, muscle isoform	Cpt1b	-1.166226266
Thyroid hormone receptor-associated protein 3	Thrap3	-1.166226266
Destrin	Dstn	-1.176275783
Maleylacetoacetate isomerase	Gstz1	-1.176981631
Solute carrier family 43, member 3	Slc43a3	-1.189309879
Disks large homolog 1	Dlg1	-1.196881188
Selenoprotein P	Selenop	-1.212768852
Four and a half LIM domains 1	Fhl1	-1.32241207
Prostaglandin E synthase 3	Ptges3	-1.32241207
Parathymosin	Ptms	-1.344438377
Deoxyribonuclease	Dnase1l1	-1.346019017
T-kininogen 1	Map1	-1.362146476
Zinc finger, DBF-type-containing 2	Zdbf2	-1.438606999
Myelin basic protein	Mbp	-1.776775735
Family with sequence similarity 175, member B	Fam175b	-2.258687266

Table S3: The top 10 upregulated or downregulated proteins common to both IS and PCS exposed rat aortic samples.

Protein Description	Gene Symbol	IS	PCS	MEAN
Upregulated proteins				
hemoglobin subunit epsilon 1	Hbe1	1.510884	1.826868	1.668876
hemoglobin subunit beta-2-like	LOC103694855	1.537855	1.770185	1.65402
WD repeat domain 5B	Wdr5b	1.489274	1.754727	1.622001
unc-93 homolog B1 (C. elegans)	Unc93b1	1.451848	1.472398	1.462123
sideroflexin 3	Sfxn3	1.532657	1.328169	1.430413
TGF-beta activated kinase 1 (MAP3K7) binding protein 1	Tab1	1.372492	1.396056	1.384274
FAT atypical cadherin 4	Fat4	1.321328	1.344334	1.332831
hemoglobin subunit alpha 2	Hba-a2	1.29153	1.354759	1.323145
hemoglobin subunit beta	Hbb	1.277357	1.323959	1.300658
WD repeat and HMG-box DNA binding protein 1	Wdhd1	1.073431	1.482203	1.277817
Downregulated proteins				
abraxas 2, BRISC complex subunit	Fam175b	-2.01693	-2.25869	-2.13781
zinc finger DBF-type containing 2	Zdbf2	-1.65742	-1.43861	-1.54801
mannosidase processing 1	Map1	-1.39268	-1.36215	-1.37741
prostaglandin E synthase 3	Ptges3	-1.17737	-1.32241	-1.24989
parathymosin	Ptms	-1.10369	-1.34444	-1.22407
discs large MAGUK scaffold protein 1	Dlg1	-1.18101	-1.19688	-1.18895
deoxyribonuclease 1 like 1	Dnase1l1	-0.96742	-1.34602	-1.15672
selenoprotein P	Selenop	-1.09628	-1.21277	-1.15453
four and a half LIM domains 1	Fhl1	-0.97377	-1.32241	-1.14809
LRRN4 C-terminal like	Lrrn4cl	-1.27888	-0.95336	-1.11612

For each protein significantly ($p<0.05$) and differentially expressed in aortic samples of IS/PCS versus vehicle exposed CKD rats, the protein description, official gene symbol and the Log2 transformed iTRAQ expression ratio is depicted. The mean Log2 iTRAQ expression ratio value for IS and PCS exposure is also indicated.

Table S4: The top 25 of most significantly altered canonical signaling pathways in the common IS and PCS aortic proteome.

Canonical Pathways	-log(p-value)	Upregulated	Downregulated	#Modulated*P	Proteins
Acute Phase Response Signaling	12.5	14	2	200	FN1,AMBP,AHSG,SERPINA3,F2,FGG,HMOX2,ALB,HP,APOA1,CRP,FGB,LBP,FGA,TAB1,RBP4
LXR/RXR Activation	7.26	6	4	72.6	ALB,APOA1,VTN,AMBP,AHSG,LBP,FGA,A1BG,HADH,RBP4
FXR/RXR Activation	5.95	6	3	53.55	ALB,APOA1,VTN,AMBP,AHSG,FETUB,FGA,A1BG,RBP4
Extrinsic Prothrombin Activation Pathway	5.03	4	0	20.12	FGB,FGA,FGG,F2
Aryl Hydrocarbon Receptor Signaling	3.04	0	6	18.24	GSTA3,GSTM1,MGST1,TGFB3,PTGES3,HSPB1
Intrinsic Prothrombin Activation Pathway	4.11	4	0	16.44	FGB,FGA,FGG,F2
Coagulation System	3.84	4	0	15.36	FGB,FGA,FGG,F2
Calcium Signaling	2.5	2	4	15	PRKACB,MYL9,CALR,CAMK2D,Tpm1,Tpm2
Hepatic Fibrosis / Hepatic Stellate Cell Activation	2.49	4	2	14.94	MYL9,FN1,COL12A1,TGFB3,LBP,COL4A2
Glucocorticoid Receptor Signaling	2.12	3	4	14.84	PRKACB,FKBP4,TGFB3,CD163,FGG,TAB1,PTGES3
Glutathione-mediated Detoxification	3.57	0	4	14.28	GSTA3,GSTZ1,GSTM1,MGST1
ILK Signaling	2.37	2	4	14.22	MYL9,TGFB1I1,FBLIM1,FN1,LIMS2,Actn3
LPS/IL-1 Mediated Inhibition of RXR Function	2.09	1	5	12.54	GSTA3,GSTM1,MGST1,CPT2,FABP4,LBP
Actin Cytoskeleton Signaling	2.04	4	2	12.24	MYL9,FN1,CRKL,Actn3,LBP,F2
Glutathione Redox Reactions I	2.77	0	3	8.31	GSTZ1,GSTM1,MGST1
Role of Tissue Factor in Cancer	1.82	4	0	7.28	FGB,FGA,FGG,F2
TCA Cycle II (Eukaryotic)	2.42	1	2	7.26	ACO2,IDH3A,NAD+
IL-6 Signaling	1.78	3	1	7.12	CRP,LBP,TAB1,HSPB1
Cardiac Hypertrophy Signaling	1.4	2	3	7	PRKACB,MYL9,TGFB3,TAB1,HSPB1
Fatty Acid β-oxidation I	2.31	1	2	6.93	HADH,ACAA2,NAD+
IL-12 Signaling and Production in Macrophages	1.55	2	2	6.2	ALB,APOA1,TGFB3,RBP4
Superpathway of Methionine Degradation	1.85	1	2	5.55	AHCYL1,PCCB,NAD+
TR/RXR Activation	1.33	2	1	3.99	HP,UCP1,FGA
Neuroprotective Role of THOP1 in Alzheimer's Disease	1.32	2	0	2.64	PRKACB,SERPINA3
iNOS Signaling	1.3	2	0	2.6	LBP,TAB1

For each signaling pathway the significance level (-log(p-value) – generated using Fisher's Exact T-test), the amount of significantly upregulated or downregulated proteins, the amount of modulated proteins (#Modulated*P) and the protein IDs that populate each pathway is depicted.

Table S5: Differentially up- or downregulated proteins in IS exposed non-calcified versus vehicle exposed non-calcified aortic samples.

Protein Description	Gene Symbol	Log_2 iTRAQ ratio
seminal vesicle secretory protein 6	Svs6	2.081
seminal vesicle secretory protein 3A	Svs3b	1.843
ring finger protein 219	Rnf219	1.803
ubiquinol-cytochrome c reductase, complex III subunit X	Uqcr10	1.781
seminal vesicle secretory protein 4	Svs4	1.747
seminal vesicle secretory protein 5	Svs5	1.642
potassium channel tetramerisation domain containing 12b	LOC681355	1.594
creatine kinase, M-type	Ckm	1.568
albumin	Alb	1.453
creatine kinase, M-type	Ckm	1.444
ubiquinol-cytochrome c reductase, complex III subunit X	Uqcr10	1.413
haptoglobin	Hp	1.354
ARP1 actin-related protein 1 homolog A, centractin alpha	Actr1a	1.26
F-box protein 6	Fbxo6	1.212
taste receptor, type 2, member 110	Tas2r110	1.168
fetuin B	Fetub	1.166
myelin protein zero	Mpz	1.113
beta-2-microglobulin	B2m	1.11
phosphoenolpyruvate carboxykinase 1	Pck1	1.109
bridging integrator 1	Bin1	1.102
ribosomal protein L27a	Rpl27a	1.093
ethylmalonyl-CoA decarboxylase 1	Echdc1	1.081
toll interacting protein	Tollip	1.067
uncoupling protein 1	Ucp1	1.059
3-hydroxyisobutyrate dehydrogenase	Hibadh	1.057
fatty acid binding protein 4	Fabp4	1.055
cysteine rich protein 2	Crip2	1.038
transferrin	Tf	1.035
tubulin polymerization promoting protein family member 3	Tppp3	1.034
apolipoprotein N	Apon	1.033
PBX homeobox interacting protein 1	Pbxip1	1.018
serpin family A member 1	Serpina1	1.018
glyceraldehyde-3-phosphate dehydrogenase	Gapdh	1.013
C-reactive protein	Crp	0.991
diazepam binding inhibitor, acyl-CoA binding protein	Dbi	0.991
orosomucoid 1	Orm1	0.988
myosin heavy chain 4	Myh4	0.982
RAB8A, member RAS oncogene family	Rab8a	0.971
quiescin sulfhydryl oxidase 1	Qsox1	0.97
alcohol dehydrogenase 1C (class I), gamma polypeptide	Adh1	0.957
myelin basic protein	Mbp	0.937
eukaryotic translation initiation factor 3 subunit M	Eif3m	0.935
glycerol-3-phosphate dehydrogenase 1	Gpd1	0.933
myosin light chain, phosphorylatable, fast skeletal muscle	Mylpf	0.921
germ cell-less homolog 1 (Drosophila)-like	LOC302576	0.92

phosphofructokinase, liver type	Pfkl	0.918
Sjogren syndrome antigen B	Ssb	0.913
hemoglobin subunit beta	Hbb	0.904
protein kinase cAMP-dependent type II regulatory subunit alpha	Prkar2a	0.903
hemopexin	Hpx	0.888
MAP7 domain containing 1	Map7d1	0.887
mast cell protease 1	Mcpt1	0.884
hydroxyacyl-CoA dehydrogenase	Hadh	0.876
RIKEN cDNA 9530003J23 gene	RGD1306474	0.874
malic enzyme 1	Me1	0.874
guanylate cyclase 1 soluble subunit beta	Gucy1b3	0.872
alpha 2-HS glycoprotein	Ahsg	0.87
selenoprotein P	Selenop	0.865
enolase 3	Eno3	0.857
synuclein gamma	Sncg	0.855
kininogen 2	Kng1	0.849
acetyl-CoA carboxylase alpha	Acaca	0.84
peripherin	Prph	0.837
arrestin domain containing 2	Arrdc2	0.836
exocyst complex component 1	Exoc1	0.836
transthyretin	Ttr	0.836
nicalin	Ncln	0.825
carnitine palmitoyltransferase 1B	Cpt1b	0.816
glutamic--pyruvic transaminase	Gpt	0.816
ADP ribosylation factor 3	Arf3	0.807
myosin light chain 1	Myl1	0.807
EWS RNA-binding protein 1	Ewsr1	0.806
alpha-2-glycoprotein 1, zinc-binding	Azgp1	0.803
fatty acid synthase	Fasn	0.795
carboxylesterase 1C	Ces1c	0.789
enolase 3	Eno3	0.779
ATP citrate lyase	Acly	0.773
RIKEN cDNA 1300017J02 gene	RGD1310507	0.772
exonuclease 3'-5' domain containing 2	Exd2	0.771
2',3'-cyclic nucleotide 3' phosphodiesterase	Cnp	0.768
acylphosphatase 1	Acyp1	0.766
myoglobin	Mb	0.766
family with sequence similarity 213 member A	Fam213a	0.761
complement C3	C3	0.757
fascin actin-bundling protein 1	Fscn1	0.756
septin 5	Sept5	0.756
hemoglobin subunit beta-2-like	LOC103694855	0.752
neurofilament light	Nefl	0.752
C-type lectin domain family 3 member B	Clec3b	0.748
hydroxysteroid dehydrogenase like 2	Hsdl2	0.727
TGF-beta activated kinase 1 (MAP3K7) binding protein 1	Tab1	0.701
phosphodiesterase 3A	Pde3a	0.691
collagen type II alpha 1 chain	Col2a1	0.682
matrix metallopeptidase 2	Mmp2	0.681
ADP ribosylation factor like GTPase 1	Arl1	0.661
histone cluster 1 H2B family member o	Hist1h2bo	0.656
huntingtin	Htt	0.656

NADH:ubiquinone oxidoreductase subunit B6	Ndufb6	0.651
tubulin beta 2B class IIb	Tubb2b	0.651
aminopeptidase-like 1	Npepl1	0.646
neurofilament, medium polypeptide	Nefm	0.644
arrestin beta 1	Arrb1	0.635
coiled-coil domain containing 6	Ccdc6	0.635
exonuclease 3'-5' domain containing 2	Exd2	0.635
mitochondrial pyruvate carrier 2	Mpc2	0.635
integrin subunit beta 3	Itgb3	0.634
tubulin, alpha 1B	Tuba1b	0.634
seminal vesicle secretory protein 1	Svs1	0.614
protein kinase AMP-activated catalytic subunit alpha 1	Prkaa1	0.609
alpha-1-microglobulin/bikunin precursor	Ambp	-0.602
olfactory receptor family 1 subfamily M member 1	Olr1121	-0.608
ribosomal protein S5	Rps5	-0.608
elongin B	Elob	-0.614
ATPase H+ transporting V1 subunit B2	Atp6v1b2	-0.625
structure specific recognition protein 1	Ssrp1	-0.625
mannose receptor C-type 1	Mrc1	-0.637
UDP glucuronosyltransferase 1 family, polypeptide A7C	Ugt1a7c	-0.637
ADP ribosylation factor interacting protein 1	Arfip1	-0.646
tumor protein D52	Tpd52	-0.658
ATPase inhibitory factor 1	Atpif1	-0.681
SWI/SNF related, matrix associated, actin dependent regulator of chromatin, subfamily d, member 2	Smarcd2	-0.686
lysozyme	Lyz2	-0.723
similar to 60S ribosomal protein L29 (P23)	RGD1563300	-0.724
keratin 1	Krt1	-0.728
myosin light chain 6	Myl6	-0.729
fibrinogen like 2	Fgl2	-0.733
tumor protein D52 like 2	Tpd52l2	-0.736
chromosome 14 open reading frame 93	RGD1565222	-0.746
G protein-coupled receptor 4	Gpr4	-0.751
eukaryotic translation elongation factor 1 delta	Eef1d	-0.755
matrix Gla protein	Mgp	-0.755
S100 calcium binding protein A6	S100a6	-0.755
serine/arginine-rich splicing factor 5	Srsf5	-0.755
microtubule associated protein 1A	Map1a	-0.762
kelch repeat and BTB domain containing 3	Kbtbd3	-0.764
tropomyosin 4	Tpm4	-0.765
cytidine monophosphate N-acetylneuraminic acid synthetase	Cmas	-0.767
mitochondrial carrier 1	Mtch1	-0.775
caldesmon 1	Cald1	-0.778
kininogen 2	Kng2	-0.779
FK506 binding protein 9	Fkbp9	-0.78
desmin	Des	-0.787
acyl-CoA thioesterase 13	Acot13	-0.788
ezrin	Ezr	-0.793
heat shock protein family B (small) member 1	Hspb1	-0.801
xin actin binding repeat containing 1	Xirp1	-0.801
caldesmon 1	Cald1	-0.804
tropomyosin 2, beta	Tpm2	-0.814

diaphanous related formin 1	Diaph1	-0.815
microfibril-associated glycoprotein 4-like	LOC102553715	-0.829
scavenger receptor class A member 5	Scara5	-0.832
histone cluster 2 H2A family member c	Hist2h2ac	-0.835
secreted phosphoprotein 2	Spp2	-0.836
tropomyosin 1, alpha	Tpm1	-0.837
fibronectin 1	Fn1	-0.843
small nuclear ribonucleoprotein D3 polypeptide	Snrpd3	-0.843
serine/threonine kinase 24	Stk24	-0.843
procollagen C-endopeptidase enhancer	Pcolce	-0.845
ferritin heavy chain 1	Fth1	-0.846
milk fat globule-EGF factor 8 protein	Mfge8	-0.857
translocase of outer mitochondrial membrane 22	Tomm22	-0.872
ARP1 actin-related protein 1 homolog B, centractin beta	Actr1b	-0.884
lysyl oxidase	Lox	-0.887
ribosomal protein lateral stalk subunit P1	Rplp1	-0.893
PCI domain containing 2	Pcid2	-0.898
CD38 molecule	Cd38	-0.926
EGF containing fibulin like extracellular matrix protein 1	Efemp1	-0.934
charged multivesicular body protein 5	Chmp5	-0.935
CD163 molecule	Cd163	-0.941
alkaline phosphatase, liver/bone/kidney	Alpl	-0.962
transmembrane p24 trafficking protein 5	Tmed5	-1
CDC42 effector protein 1	Cdc42ep1	-1.018
periostin	Postn	-1.02
signal sequence receptor subunit 2	Ssr2	-1.03
cytochrome P450 family 4 subfamily B member 1	Cyp4b1	-1.113
platelet and endothelial cell adhesion molecule 1	Pecam1	-1.113
keratin 5	Krt5	-1.174
keratin 10	Krt10	-1.32
glial fibrillary acidic protein	Gfap	-1.35
alpha-N-acetylgalactosaminidase	Naga	-1.363
charged multivesicular body protein 3	Chmp3	-1.473
LUC7 like 2, pre-mRNA splicing factor	Luc7l2	-1.543

Table S6: Differentially up- or downregulated proteins in PCS exposed non-calcified versus vehicle exposed non-calcified aortic samples.

Protein Description	Gene Symbol	Log2 iTRAQ ratio
taste receptor, type 2, member 110	Tas2r110	1.871
ribosomal protein L27a	Rpl27a	1.723
ubiquinol-cytochrome c reductase, complex III subunit X	Uqcr10	1.628
propionyl-CoA carboxylase beta subunit	Pccb	1.612
F-box protein 6	Fbxo6	1.465
alpha-N-acetylgalactosaminidase	Naga	1.329
3-hydroxyisobutyrate dehydrogenase	Hibadh	1.325
potassium channel tetramerisation domain containing 12b	LOC681355	1.255
cytochrome P450 family 4 subfamily B member 1	Cyp4b1	1.177
phosphoenolpyruvate carboxykinase 1	Pck1	1.173
KH-type splicing regulatory protein	Khsrp	1.066
bridging integrator 1	Bin1	1.053
apolipoprotein N	Apon	1.045
potassium channel tetramerisation domain containing 12b	LOC681355	1.036
fibrinogen gamma chain	Fgg	0.991
fetuin B	Fetub	0.978
ethylmalonyl-CoA decarboxylase 1	Echdc1	0.969
fatty acid binding protein 4	Fabp4	0.968
hemoglobin subunit beta	Hbb	0.96
carnitine palmitoyltransferase 1B	Cpt1b	0.938
dipeptidase 1 (renal)	Dpep1	0.919
fibrinogen alpha chain	Fga	0.911
alpha-2-macroglobulin	A2m	0.908
fascin actin-bundling protein 1	Fscn1	0.907
albumin	Alb	0.904
ubiquinol-cytochrome c reductase, complex III subunit X	Uqcr10	0.893
ethylmalonyl-CoA decarboxylase 1	Echdc1	0.891
MAP7 domain containing 1	Map7d1	0.88
RAB8A, member RAS oncogene family	Rab8a	0.869
carbonyl reductase 1	LOC102556347	0.867
dipeptidase 1 (renal)	Dpep1	0.86
histone cluster 1 H3 family member g	Hist2h3c2	0.86
C-reactive protein	Crp	0.844
hydroxyacyl-CoA dehydrogenase	Hadh	0.839
histone cluster 1 H1 family member c	Hist1h1c	0.837
cathepsin S	Ctss	0.836
ADP ribosylation factor 3	Arf3	0.824
alpha-1-microglobulin/bikunin precursor	Ambp	0.823
retinol binding protein 4	Rbp4	0.823
diazepam binding inhibitor, acyl-CoA binding protein	Dbi	0.82
aldehyde dehydrogenase 3 family member A2	Aldh3a2	0.819
glycerol-3-phosphate dehydrogenase 1	Gpd1	0.815
family with sequence similarity 213 member A	Fam213a	0.812
hydroxysteroid dehydrogenase like 2	Hsdl2	0.81
chromosome 14 open reading frame 93	RGD1565222	0.797
hemoglobin subunit beta	Hbb	0.789

hemoglobin subunit beta-2-like	LOC103694855	0.789
glutamic--pyruvic transaminase	Gpt	0.786
glyceraldehyde-3-phosphate dehydrogenase	Gapdh	0.782
RNA exonuclease 2	Rexo2	0.771
ribosomal protein L34	Rpl34	0.771
perilipin 1	Plin1	0.767
periostin	Postn	0.762
eukaryotic translation initiation factor 3 subunit M	Eif3m	0.759
electron transfer flavoprotein beta subunit	Etfb	0.759
malate dehydrogenase 1	Mdh1	0.749
similar to 60S ribosomal protein L29 (P23)	RGD1563300	0.749
serpin family A member 1	Serpina1	0.749
ATP binding cassette subfamily E member 1	Abce1	0.748
acyl-CoA synthetase long-chain family member 1	Acsl1	0.742
microtubule associated protein 6	Map6	0.74
fibrinogen beta chain	Fgb	0.739
germ cell-less homolog 1 (Drosophila)-like	LOC302576	0.739
SH3 domain containing GRB2 like, endophilin B1	Sh3glb1	0.733
phosphodiesterase 3A	Pde3a	0.731
apolipoprotein A1	Apoa1	0.729
apolipoprotein A2	Apoa2	0.725
2,4-dienoyl-CoA reductase 1	Decr1	0.725
carboxylesterase 1	Ces1d	0.72
NADH:ubiquinone oxidoreductase subunit B6	Ndufb6	0.72
platelet and endothelial cell adhesion molecule 1	Pecam1	0.72
acetyl-CoA acyltransferase 2	Acaa2	0.716
microsomal glutathione S-transferase 1	Mgst1	0.712
adenylate kinase 2	Ak2	0.71
TGF-beta activated kinase 1 (MAP3K7) binding protein 1	Tab1	0.71
D-dopachrome tautomerase	Ddt	0.708
histone cluster 1 H2B family member o	Hist1h2bo	0.705
ribosomal protein L19	Rpl19	0.705
ribosomal protein L37a	Rpl37a	0.705
ubiquinol-cytochrome c reductase complex assembly factor 1	Uqcc1	0.703
von Willebrand factor A domain containing 5A	Vwa5a	0.695
phosphofructokinase, liver type	Pfkl	0.694
aconitase 2	Aco2	0.692
dual specificity tyrosine phosphorylation regulated kinase 4	Dyrk4	0.692
succinate dehydrogenase complex subunit C	Sdhc	0.692
enoyl-CoA delta isomerase 1	Eci1	0.689
high mobility group nucleosome binding domain 1	LOC100911295	0.678
similar to Histone H1.2 (H1 VAR.1) (H1c)	LOC684828	0.678
protein kinase cAMP-dependent type II regulatory subunit alpha	Prkar2a	0.675
neurolysin	Nln	0.674
aldo-keto reductase family 1, member C-like	Akr1cl	0.671
cysteine rich protein 2	Crip2	0.671
ribosomal protein S6	Rps6	0.664
calcium/calmodulin dependent protein kinase II gamma	Camk2g	0.66
electron transfer flavoprotein alpha subunit	Etfa	0.66
oxoglutarate dehydrogenase	Ogdh	0.66
apolipoprotein M	Apom	0.657
carnitine palmitoyltransferase 2	Cpt2	0.657

orosomucoid 1	Orm1	0.657
succinate-CoA ligase ADP-forming beta subunit	Sucla2	0.657
NADH:ubiquinone oxidoreductase subunit B10	Ndufb10	0.653
6-phosphogluconolactonase	Pgls	0.65
Parkinsonism associated deglycase	Park7	0.647
ABRA C-terminal like	Abracl	0.645
Sjogren syndrome antigen B	Ssb	0.643
NADH:ubiquinone oxidoreductase core subunit S8	Ndufs8	0.641
charged multivesicular body protein 5	Chmp5	0.639
enoyl-CoA hydratase 1	Ech1	0.638
histone cluster 1 H4 family member j	Hist1h4b	0.638
inositol polyphosphate-1-phosphatase	Inpp1	0.638
fat storage inducing transmembrane protein 2	Fitm2	0.63
glutathione S-transferase alpha 3	Gsta3	0.626
ribosomal protein S24-like	LOC100363469	0.614
FAU, ubiquitin like and ribosomal protein S30 fusion	LOC100360647	0.606
coenzyme Q8A	Coq8a	0.602
fibronectin 1	Fn1	0.589
collagen type XVIII alpha 1 chain	Col18a1	0.583
signal sequence receptor subunit 4	Ssr4	0.583
actinin alpha 3	Actn3	0.579
mitochondrial pyruvate carrier 2	Mpc2	0.579
G protein subunit alpha 13	Gna13	0.575
microtubule associated protein RP/EB family member 1	Mapre1	0.572
collagen type IV alpha 2 chain	Col4a2	0.564
HtrA serine peptidase 1	Htra1	0.564
ribosomal protein L39	Rpl39	0.563
milk fat globule-EGF factor 8 protein	Mfge8	0.545
collagen type XV alpha 1 chain	Col15a1	0.537
phosphotriesterase related	Pter	0.537
D-dopachrome tautomerase	Ddt	0.518
collagen type XII alpha 1 chain	Col12a1	0.506
ryanodine receptor 2	Ryr2	0.506
farnesyl diphosphate synthase	Fdps	0.494
carboxypeptidase A3	Cpa3	-0.494
ezrin	Ezr	-0.494
myosin VI	Myo6	-0.502
UDP glucuronosyltransferase 1 family, polypeptide A7C	Ugt1a7c	-0.502
drebrin 1	Dbn1	-0.51
serine and arginine rich splicing factor 3	Srsf3	-0.519
ubiquitin specific peptidase 9, X-linked	Usp9x	-0.519
DnaJ heat shock protein family (Hsp40) member B11	Dnajb11	-0.535
BCL2 associated athanogene 3	Bag3	-0.543
cell growth regulator with EF-hand domain 1	Cgref1	-0.543
ectonucleoside triphosphate diphosphohydrolase 2	Entpd2	-0.543
histidine-rich glycoprotein	Hrg	-0.543
sphingomyelin phosphodiesterase acid like 3B	Smpdl3b	-0.543
CSK, non-receptor tyrosine kinase	Csk	-0.56
protein O-glucosyltransferase 1	Poglut1	-0.56
collagen, type I, alpha 2	NEWGENE_621351	-0.564
fibrillin 1	Fbn1	-0.573
mannose receptor C type 2	Mrc2	-0.576

cell adhesion molecule 3	Cadm3	-0.582
galactokinase 1	Galk1	-0.593
enabled homolog (Drosophila)	Enah	-0.596
tubulin beta 3 class III	Tubb3	-0.602
kelch repeat and BTB domain containing 3	Kbtbd3	-0.609
proline and arginine rich end leucine rich repeat protein	Prelp	-0.609
galectin 1	Lgals1	-0.619
ezrin	Ezr	-0.62
fibromodulin	Fmod	-0.629
oxysterol binding protein	Osbp	-0.637
cysteine and glycine rich protein 2	Csrp2	-0.638
fibulin 5	Fbln5	-0.638
translocase of outer mitochondrial membrane 22	Tomm22	-0.638
ATP synthase, H+ transporting, mitochondrial Fo complex subunit F6	Atp5j	-0.646
histone cluster 1 H2A family member b	Hist1h2ak	-0.646
myelin basic protein	Mbp	-0.646
hippocalcin like 4	Hpcal4	-0.654
cutA divalent cation tolerance homolog	Cuta	-0.656
nephroblastoma overexpressed	Nov	-0.656
sulfatase 1	Sulf1	-0.656
olfactory receptor family 1 subfamily M member 1	Olr1121	-0.665
solute carrier family 20 member 2	Slc20a2	-0.666
GATA binding protein 3	Gata3	-0.674
EWS RNA-binding protein 1	Ewsr1	-0.683
signal recognition particle 68	Srp68	-0.688
gamma-butyrobetaine hydroxylase 1	Bbox1	-0.692
fibrinogen like 2	Fgl2	-0.692
ATPase inhibitory factor 1	Atpif1	-0.696
myosin light chain 9	Myl9	-0.699
RuvB like AAA ATPase 1	Ruvbl1	-0.702
keratin 1	Krt1	-0.703
G protein-coupled receptor 4	Gpr4	-0.707
brain abundant, membrane attached signal protein 1	Basp1	-0.709
myosin light chain 6	Myl6	-0.71
pro-apoptotic WT1 regulator	Pawr	-0.712
glutathione peroxidase 3	Gpx3	-0.714
PYD and CARD domain containing	Pycard	-0.718
CD34 molecule	Cd34	-0.723
dermatopontin	Dpt	-0.725
CD163 molecule	Cd163	-0.727
CD38 molecule	Cd38	-0.727
hydroxysteroid 17-beta dehydrogenase 11	Hsd17b11	-0.728
matrix Gla protein	Mgp	-0.728
desmin	Des	-0.742
caldesmon 1	Cald1	-0.743
eukaryotic translation initiation factor 2 subunit beta	Eif2s2	-0.746
elongin B	Elob	-0.76
osteoglycin	Ogn	-0.766
lumican	Lum	-0.77
signal sequence receptor subunit 2	Ssr2	-0.778
heat shock protein family B (small) member 1	Hspb1	-0.783

SWI/SNF related, matrix associated, actin dependent regulator of chromatin, subfamily d, member 2	Smarcd2	-0.804
keratin 5	Krt5	-0.805
tropomyosin 2, beta	Tpm2	-0.808
CDC42 effector protein 1	Cdc42ep1	-0.809
collagen type I alpha 1 chain	Col1a1	-0.813
hyaluronan and proteoglycan link protein 1	Hapln1	-0.813
mitochondrial carrier 1	Mtch1	-0.814
EGF containing fibulin like extracellular matrix protein 1	Efemp1	-0.821
ARP1 actin-related protein 1 homolog B, centractin beta	Actr1b	-0.834
asporin	Aspn	-0.836
lysyl oxidase	Lox	-0.853
tropomyosin 1, alpha	Tpm1	-0.856
purine rich element binding protein B	Purb	-0.857
G protein pathway suppressor 1	Gps1	-0.862
ferritin heavy chain 1	Fth1	-0.873
decorin	Dcn	-0.88
microtubule associated protein 1A	Map1a	-0.886
microfibril-associated glycoprotein 4-like	LOC102553715	-0.888
procollagen C-endopeptidase enhancer	Pcolce	-0.923
diaphanous related formin 1	Diaph1	-0.937
glial fibrillary acidic protein	Gfap	-0.939
alkaline phosphatase, liver/bone/kidney	Alpl	-0.946
interleukin enhancer binding factor 2	Ilf2	-0.994
charged multivesicular body protein 3	Chmp3	-1.026
mast cell protease 1	Mcpt1	-1.044
PCI domain containing 2	Pcid2	-1.052
keratin 10	Krt10	-1.077
secreted phosphoprotein 2	Spp2	-1.078
tumor protein D52 like 2	Tpd52l2	-1.143
myelin protein zero	Mpz	-1.47
LUC7 like 2, pre-mRNA splicing factor	Luc7l2	-1.613

Table S7: Biochemical parameters of CKD rats exposed to vehicle, indoxyl sulfate or p-cresyl sulfate for 4 days.

Biochemical parameter		Day 0	Day 4
Serum creatinine (mg/dl)	Vehicle	0.32 ± 0.02	1.46 ± 0.24
	IS	0.31 ± 0.03	1.51 ± 0.21
	PCS	0.31 ± 0.01	1.56 ± 0.01
Serum IS (µM)	Vehicle	4.67 ± 0.54	35.98 ± 9.32
	IS	2.59 ± 0.72	316.84 ± 132.80 [a]
	PCS	2.84 ± 0.64	65.16 ± 31.99
Serum PCS (µM)	Vehicle	0.09 ± 0.04	12.66 ± 6.61
	IS	0.10 ± 0.04	15.44 ± 9.34
	PCS	0.06 ± 0.02	205.12 ± 74.75 [a]

Data are presented as mean ± SEM. [a] $P<0.05$ versus vehicle.