

Table S1. Common genes between TCDD and cardiovascular diseases via MyVenn CTD tools.

<p>Common 1,438 genes between TCDD and cardiovascular diseases</p>	<p>ABCA1, ABCA3, ABCB1, ABCB1A, ABCC1, ABCC2, ABCC6, ABCC9, ABCG2, ABCG5, ABCG8, ABL1, ABO, ABRA, ACAA1B, ACACA, ACAD9, ACADS, ACE, ACRYL, ACOT2, ACTA1, ACTA2, ACTB, ACTC1, ACTG1, ACTN2, ACVR2B, ACVRL1, ADA, ADAM17, ADAMTS2, ADAMTS7, ADCY3, ADCY5, ADCY8, ADCY-API, ADD1, ADD3, ADH1B, ADIPOQ, ADORA1, ADORA2A, ADORA2B, ADORA3, ADRA1B, ADRA1D, ADRA2A, ADRA2C, ADRB2, ADRB3, ADTRP, AFF4, AGER, AGK, AGT, AGTR1, AGTR1A, AGTR1B, AGTR2, AHR, AHR2, AIF1, AK1, AKAP5, AKAP6, AKAP9, AKIP1, AKT1, AKT1S1, ALAD, ALB, ALDH1A7, ALDH2, ALDH6A1, ALDOA, ALG10B, ALKBH5, ALMS1, ALOX15, ALOX5, ALOX5AP, ANGPTL4, ANK2, ANKRD23, ANKS6, ANXA1, AOC1, AOC3, AOPEP, APCS, APEX1, APLN, APLP2, APOA1, APOA4, APOA5, APOB, APOC1, APOC3, APOE, APP, AQP1, AQP2, AR, AREG, ARG2, ARHGAP10, ARHGAP9, ARHGDI, ARMH3, ARNT2, ASAH1, ASIC1, ASS1, ATF3, ATM, ATOX1, ATP1A1, ATP1A2, ATP1A3, ATP1B1, ATP2A1, ATP2A2, ATP2B1, ATP2B3, ATP5ME, ATP5PF, ATP7A, ATXN1, AVP, AXIN2, B2M, B3GALT6, B3GAT3, B4GALT7, BAD, BAG3, BAK1, BAMBI, BAX, BAZ1B, BBC3, BCHE, BCL2, BCL2L1, BCL3, BCOR, BDKRB1, BDKRB2, BDNF, BECN1, BEST3, BGLAP, BGN, BHLHE40, BLK, BMAL1, BMP10, BMP2, BMP8A, BMPR2, BNIP3, BRAF, BRAP, BRD4, BSN, BTG1, C1QB, C1R, C1S, C3, C6, CA9, CABIN1, CACNA1C, CACNA1D, CACNA2D1, CACNB2, CALCA, CALM1, CALM2, CALR, CALU, CALY, CAMK2D, CAND2, CANX, CAPN2, CAPZB, CARE, CASP1, CASP12, CASP3, CASP7, CASP8, CASP9, CASQ2, CAST, CAT, CAV1, CAV2, CAV3, CBF, CBL, CBLN2, CBRI, CBS, CBX7, CCDC103, CCDC22, CCDC40, CCDC92, CCL1, CCL11, CCL12, CCL2, CCL3, CCL4, CCL6, CCL7, CCL9, CCM2, CCN2, CCND1, CCND2, CCR1, CCR4, CD163, CD2, CD27, CD36, CD38, CD40, CD40LG, CD70, CD86, CDC25B, CDH2, CDK13, CDK6, CDKN1A, CDKN2A, CDKN2B, CEBPB, CEBPD, CELA2A, CELSR2, CEP68, CES3, CFP53, CFC1, CFD, CFL2, CGA, CHAT, CHDH, CHRM2, CHST14, CHST3, CIDEA, CIRBP, CITED2, CKB, CKM, CLCNKA, CLEC10A, CLEC11A, CMA1, CNNM2, CNR1, CNR2, CNTF, COA5, COA6, COBL1, COL18A1, COL1A1, COL1A2, COL3A1, COL4A1, COL4A2, COL5A1, COL6A1, COL8A1, COLEC10, COLEC11, COMT, COX1, COX15, COX2, COX3, COX5B, CPT1B, CRB1, CRBN, CREB1, CREB5, CREG1, CRELD1, CREM, CRH, CRHR2, CRK, CRKL, CRP, CRYAB, CRYM, CS, CSF1, CSF2, CSF3, CSRN1, CSRNP3, CST3, CTC1, CTF1, CTNNA3, CTNNA1, CTSC, CTTNBP2, CUL4A, CX3CL1, CX3CR1, CXCL1, CXCL10, CXCL12, CXCL2, CXCL3, CXCL8, CXCL9, CXCR2, CXCR3, CYBA, CYBB, CYCS, CYP17A1, CYP11A1, CYP11B1, CYP27A1, CYP2C11, CYP2C19, CYP2C9, CYP2E1, CYP2U1, CYP3A4, CYP3A5, CYP3A6, CYP3A9, CYP4A10, CYP4A3, CYP4F2, CYRIB, CYTB, CYTH1, DAB2IP, DCAF17, DCHS1, DCN, DDAH2, DDIT3, DES, DGCR2, DGCR6, DGCR8, DGKB, DGKZ, DIABLO, DLAT, DLG4, DMD, DNAAF4, DNAH11, DNAH5, DNAIL1, DNAIL2, DNAJC19, DNML1, DPF3, DPT, DRC1, DRD1, DRD2, DSC2, DSE, DSG2, DSP, DSTN, DTNA, DUSP1, DUSP5, DUSP6, DYNLL1, ECE1, EDN1, EDN3, EDNRA, EDNRB, EFNA5, EFN2, EGF, EGFR, EGR1, EGR2, EHMT1, EIF2A, EIF2AK3, EIF2AK4, ELK3, ELMO2, ELN, ELOVL6, ENG, ENO1, ENSA, EPHA2, EPHA3, EPHB4, EPHX1, EPHX2, EPN3, ERAP1, ERBB4, ESR1, ESR2, ESS2, ETS1, EYA4, F10, F11, F12, F13A1, F13B, F2, F2RL1, F2RL3, F3, F5, F7, F8, FABP5, FADD, FANCB, FAS, FASL, FASLG, FASN, FBLN5, FBN1, FBRSL1, FBXO32, FCGR1A, FCGR2A, FCGR3A, FES, FEV, FEZ2, FFR2, FGA, FGD1, FGF1, FGF2, FGF21, FGF5, FGF7, FGF8, FGFRL1, FGFRL3, FHL1, FHL2, FIBIN, FIP1L1, FKBP14, FKTN, FLNA, FLNC, FLT1, FLT3, FLT4, FN1, FNDC5, FOLR1, FOS, FOXC1, FOXC2, FOXE3, FOXF2, FOXH1, FOXO1, FRMD4B, FSHB, FSTL1, FURIN, FUT4, FXYD2, FXYD3, GAA, GABRA6, GAD1, GAD2, GAL, GAPDH, GAS5, GAS6, GATA2, GATA4, GATA6, GATAD1, GATM, GBA1, GBP2, GCH1, GCLC, GCLM, GCOM1, GDF1, GDF15, GDF2, GDF3, GFOD1, GGCX, GGT1, GH1, GHR, GHRL, GJA1, GJA4, GJB1, GJC1, GK, GLA, GLP1R, GLRX3, GNA11, GNA12, GNAI2, GNAQ, GNAS, GNB3, GNB4, GNB5, GNRH1, GOPC, GOSR2, GP1BB, GPC3, GPC4, GPRI7, GPT, GPX1, GPX4, GRIA1, GRIN2B, GRK2, GRK5, GSK3B, GSN, GSTA1, GSTA4, GSTA5, GSTM1, GSTM2, GSTP1, GSTT1, GSTT2, GTF2I, GTF2IRD1, GUCY1A1, GYG1, H19, H2-T23, HADHA, HADHB, HAMP, HAND2, HBA1, HBEGF, HCAR3, HCN4, HCP5, HDAC1, HDAC2, HDAC3, HDAC6, HDAC9, HECTD4, HERC1, HEY2, HGF, HHIPL1, HIF1A, HIP1R, HIVEP2, HK1, HK2, HLA-A, HLA-B, HLA-DPB1, HLA-DRB1, HMGB1, HMGCS2, HMOX1, HMOX2, HNF1A, HOXA1, HOXA3, HOXD13, HP, HPX, HRAS, HRC, HRH1, HRH2, HRH3, HSD11B1, HSD11B2, HSF2, HSPA1A, HSPA1B, HSPA2, HSPA5, HSPA8, HSPA9, HSPB1, HSPB6, HSPD1, HSPE1, HSPG2, HTR1B, HTR2B, HTR4, HTRA1, HTRA2, ICA1L, ICAM1, ID1, ID3, IDH2, IER3, IFIH1, IFIT3, IFNA2, IFNG, IFNGR1, IFT122, IGF1, IGF1R, IGF2, IGF2R, IGFBP3, IKBKB, IL10, IL10RB, IL11, IL12A, IL12RB1, IL17A, IL17RA, IL18, IL1A,</p>
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**Common 1,438
genes between
TCDD and
cardiovascular
diseases**

IL1B, IL1RN, IL2, IL22, IL4, IL6, IL6RA, IL6ST, ILK, INPP5D, INPPL1, INS, INS1, IRAK3, IRAK4, IRF1, IRF2BPL, IRF4, IRS1, IRX5, ITGA2, ITGA2B, ITGA5, ITGAL, ITGAM, ITGAV, ITGB1, ITGB2, ITGB3, ITM2B, ITPKC, ITPR2, JAG1, JAK2, JCAD, JPH2, JUN, JUNB, JUP, KANK2, KAT6A, KAT6B, KAT8, KCNA5, KCND3, KCNE1, KCNE2, KCNE3, KCNH2, KCNJ1, KCNJ2, KCNJ5, KCNJ8, KCNK3, KCNN2, KCNN3, KCNQ1, KDM1B, KDR, KIF3C, KIF6, KITLG, KL, KLF13, KLF15, KLF4, KLF9, KLK1, KLKB1, KNG1, KRAS, KRIT1, LAMA4, LAMC1, LAMP2, LBR, LCN2, LDB3, LDHA, LDHB, LDLR, LEFTY2, LEMD2, LEP, LEPR, LGALS2, LGALS3, LHB, LHX3, LIF, LIG4, LIPA, LIPC, LMCD1, LMNA, LMOD1, LOX, LPL, LRCH1, LRIG1, LRP6, LRP8, LSP1, LTA, LTA4H, LTBP3, LTF, LY86, LZTR1, MACO1, MAOA, MAOB, MAP2K1, MAP2K2, MAP2K7, MAP3K5, MAP3K7, MAP3K8, MAPK1, MAPK11, MAPK14, MAPK3, MAPK8, MAPK9, MAPRE1, MAPT, MAS1, MASP1, MAT2A, MBD5, MBP, MC2R, MCL1, MDH1, MED12, MED13L, MEF2A, MEIS2, MEOX2, MERTK, METTL3, MEX3C, MFAP5, MFF, MFN2, MGP, MIA3, MIB1, MIR106B, MIR126, MIR140, MIR144, MIR15A, MIR15B, MIR17, MIR188, MIR18A, MIR191, MIR193A, MIR193B, MIR19A, MIR20A, MIR20B, MIR23B, MIR27A, MIR27B, MIR301A, MIR301B, MIR330, MIR335, MIR337, MIR34A, MIR34C, MIR362, MIR369, MIR374A, MIR411, MIR542, MIR590, MIR98, MIRLET7G, MKKS, MLXIPL, MMP1, MMP12, MMP14, MMP2, MMP3, MMP9, MOCOS, MPO, MRAS, MRLC2, MRPS6, MS4A6A, MSN, MSTN, MT1, MT2, MT2A, MTHFD2, MTHFR, MTOR, MUC1, MX1, MYC, MYD88, MYH11, MYH6, MYH7, MYH8, MYH9, MYL2, MYL3, MYL4, MYL7, MYL9, MYLK, MYLK2, MYO18B, MYO1C, MYO6, MYOCD, MYOT, MYOZ1, MYOZ2, MYPN, NACA, NAT2, NAV2, NBEAL1, NCF1, NCF4, NCL, ND1, ND5, ND6, NDRG2, NDUFB11, NDUFS1, NDUFS2, NDUFV2, NEBL, NECTIN2, NEDD4, NEDD4L, NEURL1, NEXN, NF1, NFATC2, NFE2L2, NFKB1, NFKBIA, NGF, NHERF2, NIPBL, NISCH, NKX2-5, NKX2-6, NME1, NOS2, NOS3, NOTCH1, NOTCH2, NOTCH3, NOX4, NPC1, NPPA, NPPB, NPR1, NPTN, NPY, NQO1, NR1H4, NR2F2, NR3C1, NR3C2, NR4A1, NRAS, NRG1, NRIP1, NT5E, NTN1, NTS, NUA1, NUCKS1, NUP155, NUPR1, OCLN, OGDHL, OGG1, OLR1, OPRK1, OPR1, OPRM1, ORAI1, OXSR1, P2RY1, P2RY12, P4HB, PAK2, PAMR1, PAOX, PAPP, PARP1, PCDHA13, PCDHA9, PCK1, PCNA, PCSK5, PCSK9, PDE3A, PDE4B, PDGFD, PDGFRA, PDHA1, PDIA3, PDK2, PDK4, PDLIM5, PDPK1, PDYN, PEBP1, PECAM1, PF4, PFKFB3, PFKM, PGM1, PHLDA1, PHLDA3, PHLDB2, PIGL, PIGM, PIK3CA, PIK3CG, PIK3IP1, PINK1, PITX2, PKD1L1, PKD2, PKP2, PLA2G2A, PLA2G7, PLAT, PLAU, PLD1, PLD2, PLG, PLN, PLOD1, PLPP3, PLXND1, PNOC, PNPLA2, PNPO, PODXL, POLE, POMC, PON1, PON2, POR, POU5F1, PPA2, PPARA, PPARC, PPARG, PPARGC1A, PPAT, PPBP, PPFIA4, PPM1B, PPM1K, PPP1R1A, PPP2CA, PPP2R3A, PPP3CA, PPP3R1, PQBP1, PRAME, PRDM16, PRDM6, PRDX6, PRG4, PRKAA2, PRKAG2, PRKARIA, PRKAR2B, PRKCA, PRKCB, PRKCD, PRKCE, PRKCH, PRKCZ, PRKD1, PRKG1, PRL, PRMT5, PROC, PROCR, PROS1, PRPF8, PRRX1, PRTN3, PSEN1, PSEN2, PSMA2, PSMA6, PSMB1, PSMB5, PSMB7, PSORS1C2, PSRC1, PTEN, PTGER3, PTGIR, PTGIS, PTGS1, PTGS2, PTH, PTK2, PTP4A2, PTPN1, PTPN11, PTPN3, PTPN6, PTPRA, PTPRF, PUS1, PYCARD, PYGB, RAB12, RAB1B, RAB5A, RAB7A, RAB7B, RAC1, RAC2, RAF1, RALBP1, RARG, RASA1, RASSF1, RB1, RBCK1, RBM10, RBM20, RBP4, RCAN1, RECQL4, REEP1, REEP3, REG3G, RELA, REN, RENBP, RERE, RETN, RETNLA, RETSAT, RGCC, RGS2, RGS5, RGS7, RHOC, RHOJ, RIPK3, RIT1, RNF10, RNF213, ROBO4, ROCK2, RPL17, RPS2, RPS6KB1, RRAD, RSAD2, RT1-N3, RTN1, RXRG, RYR2, S100A1, S100A4, S100A5, S100A6, S100B, S1PR1, S1PR2, SALL4, SAP130, SARS1, SARS2, SCD1, SCM1, SCN10A, SCN1B, SCN3B, SCN4B, SCN5A, SCN9A, SCNN1A, SCO1, SCO2, SCT, SELE, SELL, SELP, SEMA3C, SENP1, SERPINA1, SERPINA10, SERPINA3K, SERPINC1, SERPIND1, SERPINE1, SERPINF1, SERPING1, SERPINH1, SFRP1, SGCA, SGCB, SGCD, SGCG, SGO1, SH2B3, SH3PXD2A, SH3PXD2B, SHBG, SHC1, SHOC2, SIK1, SIPA1L1, SIRT1, SIRT4, SIRT6, SIRT7, SKI, SLC12A2, SLC12A3, SLC20A1, SLC22A3, SLC22A4, SLC22A5, SLC23A1, SLC25A4, SLC27A6, SLC29A3, SLC2A10, SLC2A4, SLC31A1, SLC35F1, SLC39A13, SLC4A3, SLC5A3, SLC6A2, SLC6A4, SLC6A6, SLC8A1, SLC9A1, SLC9A3, SLC9B1, SLIT3, SLPI, SMAD3, SMAD4, SMAD6, SMAD7, SMARCA1, SMG9, SMOX, SNAP23, SNCA, SNRNP27, SNTA1, SOCS1, SOCS3, SOD1, SOD2, SOD3, SORD, SORL1, SORT1, SOS1, SOS2, SOX15, SOX18, SOX4, SOX5, SP110, SPARC, SPATS2L, SPHK2, SPN, SPP1, SRC, SRCAP, SSPN, STAMBP, STAT3, STAT4, STAT5A, STIM1, STING1, STK11, STK39, STK4, STRA6, STXBP2, SULT1A1, SULT1E1, SUN1, SYNE2, SYNPO2L, TAB2, TAC1, TACR1, TAFAZZIN, TAP1, TBC1D7, TBCA, TBX1, TBX2, TBX20, TBX3, TBX5, TBXA2R, TCF21, TCF4, TCF7L2, TECRL, TEK, TERT, TFAP2B, TFPI, TFRC, TGFA, TGFB1, TGFB2, TGFB3, TGFB1, TGFB1, TGFB2, TGM2, TGOLN1, TH, THBD, THBS1, THBS2, THOC6, THRB, THY1, TICAM1, TIMP1, TIMP2, TJP1, TLE4,

<p>Common 1,438 genes between TCDD and cardiovascular diseases</p>	<p>TLE5, TLL1, TLR2, TLR4, TM6SF2, TMED2, TMEM43, TMEM70, TMEM71, TMPO, TNC, TNF, TNFAIP3, TNFAIP6, TNFRSF11B, TNFRSF12A, TNFRSF13B, TNFRSF1A, TNFRSF1B, TNFRSF4, TNFRSF8, TNFRSF9, TNFRSF12, TNFSF4, TNFSF8, TNFSF9, TNNC1, TNNI3, TNNT2, TNXB, TP53, TPH1, TPM1, TPM4, TRAF1, TRAF6, TRDN, TREX1, TRH, TRIB1, TRIM28, TRIM63, TRP53, TRPC1, TRPC3, TRPM4, TRPV1, TSPAN2, TTN, TTPA, TUBA1A, TUBA1C, TUBA8, TUBB1, TUBB5, TWIST1, TXN1, TXNL4A, TXNRD1, TXNRD3, TYRO3, UBE4B, UBIAD1, UCN, UCP1, UCP2, UFD1, UGCG, ULK4, UNC45B, UNC5B, UQCRFS1, USP3, USP34, UST, UTS2, VAMP5, VAMP8, VAV3, VCAM1, VCL, VDAC1, VDR, VEGFA, VEGFD, VHL, VIM, VIP, VKORC1, VWE, WDPCP, WDR1, WDR12, WDR45, WIPF1, WNK1, WNK4, WNT2B, WNT3, WNT3A, XDH, XIAP, XPNPEP2, XPO1, XPO7, XYLT1, XYLT2, YARS2, YES1, YTHDF1, YWHAH, YY1, ZC3H12A, ZC3HC1, ZCCHC14, ZEB1, ZEB2, ZFHX3, ZFP36, ZFP532, ZFPM2, ZIC3, ZBPBP2</p>
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Table S2. Top 10 transcription factor (TF) related to the hub genes

Rank	TF	Mean Rank	Overlapping Genes
1	NFKB1	13.0	ACTB, AKT1, EGFR, GAPDH, IL1B, IL6, TNF, TP53
2	ETV3L	28.0	GAPDH, IL1B, IL6, TNF
3	MSC	67.33	ACTB, IL1B, IL6, TNF
4	SNAI1	70.33	IL1B, IL6, TNF
5	NFKB2	73.0	ACTB, EGFR, IL1B, IL6, TNF
6	MTF2	81.0	AKT1, EGFR, TNF
7	ZNF267	85.67	IL1B, IL6, TNF
8	NR4A3	97.0	IL1B, IL6, TNF
9	NFE2L2	105.0	ACTB, EGFR, GAPDH, IL1B, TNF
10	ZNF813	108.5	AKT1, TP53

Table S3. Top 10 miRNA related to the hub genes

Rank	TF	p-value	FDR	Odd ratio	Overlapping Genes
1	hsa-miR-19a-3p	0.000357	0.0331	0.0948	TNF, AKT1, ACTB, TP53
2	hsa-miR-125b-5p	0.000122	0.0312	0.0717	TP53, AKT1, EGFR, TNF
3	hsa-miR-125a-5p	0.000622	0.0426	0.0597	TP53, EGFR, AKT1
4	hsa-miR-937-5p	0.00131	0.0510	0.0275	TP53, ACTB
5	hsa-miR-644a	0.00164	0.0538	0.0309	GAPDH, ACTB
6	hsa-miR-5702	0.00107	0.0510	0.0249	TP53, ACTB
7	hsa-miR-451a	0.000183	0.0312	0.0103	AKT1, IL6
8	hsa-miR-382-3p	0.00125	0.0510	0.0269	ACTB, AKT1
9	hsa-miR-27a-5p	0.000387	0.0331	0.0149	AKT1, EGFR
10	hsa-miR-133b	0.00134	0.0510	0.0279	EGFR, AKT1