

**Table****Table S1. Reagent**

<b>Reagent name</b>	<b>Reagent supplier</b>	<b>Item Number</b>
$\alpha$ -SMA antibody	proteintech	55135-1-AP
CTR1 antibody (Usage for Immunofluorescence)	Bioss	bs-10773R
CTR1 antibody (Usage for western blot)	Cell Signaling Technology	13086S
ATOX1 antibody	proteintech	22641-1-AP
LOX antibody	proteintech	17958-1-AP
Collagen I antibody	proteintech	14695-1-AP
Collagen III antibody	proteintech	22734-1-AP
COX17 antibody	proteintech	11464-1-AP
CCS antibody	proteintech	68341-1-AP
ATP7A antibody	ABclonal	A8399
ATP7B antibody	proteintech	19786-1-AP
GAPDH antibody	Diagbio	db11729
$\beta$ -actin antibody	ABclonal	AC026
ECL	Sparkjade	ED0016-C
RIPA lysate	Sparkjade	EA0002
BCA protein assay kit	EpiZyme	ZJ102
10% SDS-PAGE gels	EpiZyme	PG212
10% TRICINE gels	EpiZyme	PG310
Transfer buffer	Servicebio	G2154
Blocking buffer	EpiZyme	PS108P
Tissue copper content detection kit	Soleibao	BC5565
Serum copper content detection kit	Soleibao	BC5645
Cell copper content detection kit	Soleibao	BC5755
Rhodamine 6G hydrazide	MedChemExpress	HY-D1599
BNP ELISA kits	JONLNBIO	JL11641
NT-ProBNP ELISA kits	JONLNBIO	JL12884
Mouse LOX ELISA kits	Bioswamp	mu31945
Mouse DPD ELISA kits	Jonln	JL53125
Human LOX ELISA kits	JONLNBIO	JL14911
Human DPD ELISA kits	Bioswamp	HM11023
LOX assay kit	AAT Bioquest	15255
Hydroxyproline assay kit	Nanjing JianCheng	A030-2-1
RT SuperMix	Vazyme	R323
Universal SYBR qPCR Master	Vazyme	Q712

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Mix		
Human cardiac fibroblasts	Priscilla	CP-H078
Human Cardiac Fibroblast Cell Complete Medium	Priscilla	CM-H078

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**Table S2. The primer sequences for qPCR**

<b>Name</b>	<b>Species</b>	<b>Forward primer (5'-3')</b>	<b>Reverse primer (5'-3')</b>
CTR1	Human	CTCACCATCACCCAACCACT	AAACACTGCCACAAAAGCTCC
ATOX1	Human	GACATTGACCTGCCCAACAAG	CTTCAGGGTTGCAAGCAGAGT
LOX	Human	AGATTTCTTACCCAGCCGACC	GCAAATCGCCTGTGGTAGC

**Table S3. Binding energy of AS-IV to CTR1**

mode	Affinity (kcal/mol)	rmsd l.b	rmsd u.b
1	-7.2	0	0
2	-7.2	21.648	25.182
3	-7.1	10.268	15.338
4	-7.1	36.857	42.377
5	-6.9	49.756	56.879
6	-6.9	30.586	33.436
7	-6.8	7.193	13.027
8	-6.8	45.523	51.086
9	-6.8	45.326	49.755

**Table S4. Binding energy of Tan II A to CTR1**

mode	Affinity (kcal/mol)	rmsd l.b	rmsd u.b
1	-8.1	0	0
2	-7.8	43.869	47.165
3	-7.7	14.96	17.43
4	-7.7	23.83	24.921
5	-7.4	15.035	18.84
6	-7.4	24.776	26.165
7	-7.3	24.298	27.585
8	-7.1	15.17	16.734
9	-7.1	35.553	37.808

**Table S5. Binding energy of Cimetidine to CTR1**

mode	Affinity (kcal/mol)	rmsd l.b	rmsd u.b
1	-4.8	0	0
2	-4.7	1.63	2.396
3	-4.6	46.793	47.788
4	-4.6	58.822	60.441
5	-4.5	58.195	59.713
6	-4.4	4.448	5.634
7	-4.3	26.066	28.428
8	-4.3	43.039	44.479
9	-4.3	34.115	35.638

