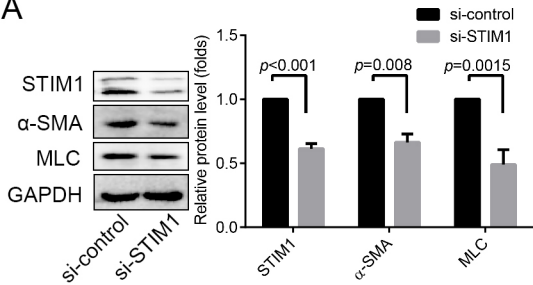
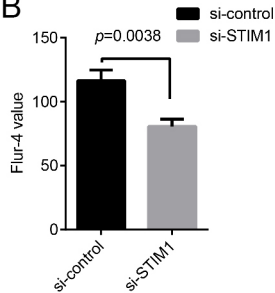


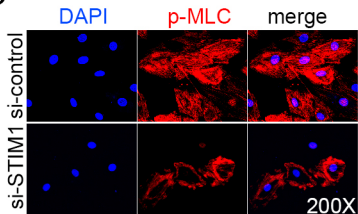
A

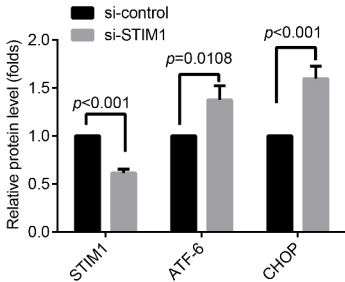
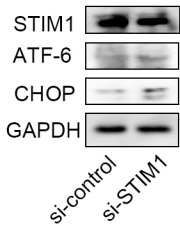


B



C





1. Clinical samples.

This study protocol was approved by the Clinical Research Ethics Committees of Renmin Hospital of Wuhan University of China, and informed written consent was obtained from each subject. Aortic specimens were collected from acute type A thoracic aortic dissection (TAD) patients (n=28), who underwent emergence aortic replacement surgery between, and donors of brain death patients (n=14). The clinical characters of these patients were recorded in detail and summarized (Table S1). Note: the samples and the summary of these patients were shared with another paper that under submitting.

Table S1. The clinical characters of the patients that contributed the sample in this study

	AD group(n=28)	Donor group(n=14)	P value
Male	19/28	13/14	<0.05
Age(mean±SD)	51.46±11.72	40.71±10.64	<0.05
Hypertension	21/28	6/14	0.403
Type 2 diabetes	1/28	2/14	0.240
Liver	10/28	7/14	0.370
Complications			
Renal	11/28	4/14	0.384
Complication			

2. siRNA transfection

H-ASMCs were plated in 6-wells plate. Transfection was performed with lipofectamine 2000 reagent (Invitrogen, CA, USA) according to the manufacturer's instructions when the culture cells reached 60% confluence. The cells were harvested 48h after transfection with STIM1-siRNA (sense, 5'-GGCUCUGGAUACAGUGCUCdTdT-3') or scrambled-siRNA, which were chemically synthesized (Ribobio company, Guangzhou, China).

3. The antibodies that used in this study were summarized and shown in Table S2

.

Table S2. The detail of antibodies used in this study

Antibody (target)	Company and catalog	Dilution		
		Western blotting	IHC	IF
GAPDH	Proteintech, 60004-1-Ig	1:2000	-	-
STIM1	Boster, PB0461	1:200	1:50	1:50
ACTA2(α -SMA)	Proteintech ,14395-1-AP	1:800	-	1:200
ACTA2(α -SMA)	Boster, A01072	-	-	1:100
MLC	Proteintech, 10906-1-AP	1:500	-	-
p-MLC	CST, #3675	1:800	-	1:100
F-actin	Sangon biotech, E607503	-	-	1:1000
p-Smad2/3	CST, #8828	1:1000	-	-
Smad2/3	CST, #8685	1:1000	-	1:200
ATF-6	Proteintech, 24169-1-AP	1:500	-	-
CHOP	Proteintech, 15204-1-AP	1:1000	-	-
CY3 label goat anti-rabbit IgG(H+L)	Servicebio,CAT:G B21301	-	-	1:200
FITC label goat anti-rabbit IgG(H+L)	Servicebio,CAT:G B22303	-	-	1:100
CY3 label goat anti-mouse IgG(H+L)	Servicebio,CAT:G B21303	-	-	1:200
Anti-mouse IgG (H+L) (DyLight™800	CST, #5257	1:20000	-	-

4X PEG Conjugate)				
Anti-rabbit IgG (H+L) (DyLight™800 4X PEG Conjugate)	CST, #5151	1:20000	-	-

3. Re-analyzed the GEO data set.

In this study, we re-analyzed two micro-array data set of the clinical samples (*GEO:GSE52093*; *GEO: GSE57691*), and a set of establish aortic dissection model(*GEO: GSE107479*). The data obtained by using GEO2R.