Supplementary Figure Legends

Figure S1
Administration of TSA after TAC surgery attenuated the expression of hypertrophy associated gene expression in mice LV. *$p < 0.002$; **$p < 0.01$. n = 5

Figure S2
H3K9m3 histone enrichment at the intergenic bdP was examined from left ventricles of Sham, TAC and TSA by ChIP and assessed by qPCR.

Figure S3
Expression of *Ezh2* and *Hdac2* mRNA in Sham, TAC and TSA animals as determined by qRT-PCR.

Figure S4
RNA-ChIP using histone H3 antibody in left ventricles of control (Sham) animals show specific enrichment for *AS β-MHC* transcript in chromatin purified RNA samples.

Figure S5
shRNA-mediated silencing of Ezh2 enzyme is confirmed by immunoblot.
nt=non-target control, Ezh2KD=Ezh2 knockdown cells.

Figure S6
HDAC inhibition by TSA is associated with increased H3K9/14ac enrichment at the intergenic bdP in Ezh2-KD cells. *$p < 0.01$. n = 4

Figure S7
TSA stimulation in Ezh2-KD cells increased H3K4m3 methylation at the intergenic bdP.
*$p < 0.01$; **$p < 0.02$. n = 4

Figure S8
Loss of *AS β-MHC* transcript did not alter the chromatin binding of Ezh2 at the intergenic bdP.
*$p < 0.007$. n = 3

Figure S9
Enrichment of H3K27m3 marks at the intergenic bdP remains unaffected in *AS β-MHC* deficient cells.

Figure S10
The stable chromatin association of *pri-miR-208b* transcript in *AS β-MHC* deficient cells was reduced when stimulated with TSA

Figure S11
Nuclear snoRNA is nearly depleted in cytosolic fraction serving as control. *$p < 0.0007$. n = 3

Figure S12
18S rRNA expression is predominant to cytoplasmic fraction isolated from Sca1+ cells.
*$p < 0.0007$. n = 3

Figure S13
Immunoblotting for nuclear Brm, Mecp2 proteins and cytosolic Gapdh serves as controls for nuclear and cytosolic fractionation

Figure S14
Gene expression profiles of Sca1+ vascular progenitor cells compared to mouse neonatal ventricular cardiomyocytes (NVCM) after TSA treatment. Relative mRNA levels quantified by qRT-PCR.
*$p < 0.03$. n = 3

Oligonucleotide Sequences

Amplimer sets used for mRNA gene expression

Anp	ACAGCCAAGGAGGAAAAGGC	*GAPDH*	TGAAGCAGGCATCTGAGGG
	CCACAGTGGCAATGTGACCA		CGAAGGTGGAAGAGTGGGAG
Bnp	TCCAGAGCAATTCAAGATGCA	*18S rRNA*	TCGGAACTGAGGCCATGATT
	CTTTTGTGAGGCCTTGGTCC		CTTTCGCTCTGGTCCGTCTT
Serca2a	CCCCCTGGGAGAATATCTGG	*Med13*	ATCCATCAAGTGCCTGCTTC
	GATCTGGAAAATGAGCGGCA		GTGCGGACTGAGGATCAACT
EZH2	CTAATTGGTACTTACTACGATAACTTT	*Oct4*	CTCCCGAGGAGTCCCAGGACAT
	ACTCTAAACTCATACACCTGTCTACAT		GATGGTGGTCTGGCTGAACACCT
α-MHC	CCACCTGGGCAAGTCTAACAA	*Sca1*	TGCAGAAAGAGCTCAGGGACTGG
	TGTAGTCCACGGTGCCAGC		TCCATCAGGGTAGGGGCAGGT
β-MHC	GATGTTTTTGTGCCCGATGA	*Sox2*	AAGGAGAGAAGTTTGGAGCC
	ACCGTCTTGCCATTCTCCG		TCTGGCGGAGAATAGTTGG
Tgfb3	CCCAACCCCAGCTCCAAGCG	*Six*	TTAAGAACCGGAGGCAAAGA
	CCTCAACAGCCACTCGCGCA		GGGGGTGAGAACTCCTCTTC
Spp1	GCCTGTTTGGCATTGCCTCCTC		
	CACAGCATTCTGTGGCGCAAGG		
Sln	GAGGTGGAGAGACTGAGGTCCTTGG		
	GAAGCTCGGGGCACACAGCAG		
Nanog	CAAGGGTCTGCTACTGAGATGCTCTG		
	TTTTGTTTGGGACTGGTAGAAGAATCAG		

Amplimer sets used for ChIP

Primer A (-3.3 kb α-MHC)	CAAGAGAAAGCAGACAACAG
	CGGACTCACTCACTCTTTTT
Primer B (-2.7 kb α-MHC)	AGGGAGGATCACACTGGATG
	TGAGGCTCTACCACCAGTCC
Primer C (-2.2 kb α-MHC)	ATGGTCCTTCTCACCTGTGG
	GGTTTGCCCTCTTCTTCCTT
Primer D (-1.7 kb α-MHC)	GAGCCTCAAGTGACCTCCAG
	CTCCAAGGGACCTGATTCAA
Primer E (-1.2 kb α-MHC)	TCAGTCTGCAGAGCCCCTAT
	GGCTGAGGGAGAAAGGGTAT
Primer F (-0.8 kb α-MHC)	GCTGTGCAGCTGTTCAGTTC
	CAGGCCATCATCCAATCTCT
Primer G (-0.3 kb α-MHC)	TATTAAGCCTGGAAGAGAAG
	GCAGATAGAGGAGAGACAGG
Primer H (+0.7 kb α-MHC)	CAATCTTCCAGTGAGCCA CA
	CTGGACGGAGAGAGGAACAG
Antisense 3' end 1 (AS 3' end 1)	GCAACCACAATGGACTTTCC
	ACGATGGCGATGTTCTCTTT
Antisense 3' end 2 (AS 3' end 2)	GCATGCATTGGTTCAGAATG
	AGCCGCAGTAGGTTCTTCCT
Anp (+41 to +142)	GTGGGCAGAGACAGCAAACA
	AAGCCAAAAGGCCAAGACG
Bnp (-6 to +155)	AGCTCAGCCGGCAGGAAT
	CGTGTTCTCCCTTGTCTCGC

Supplementary Figures *S1-S8*

Figure S1

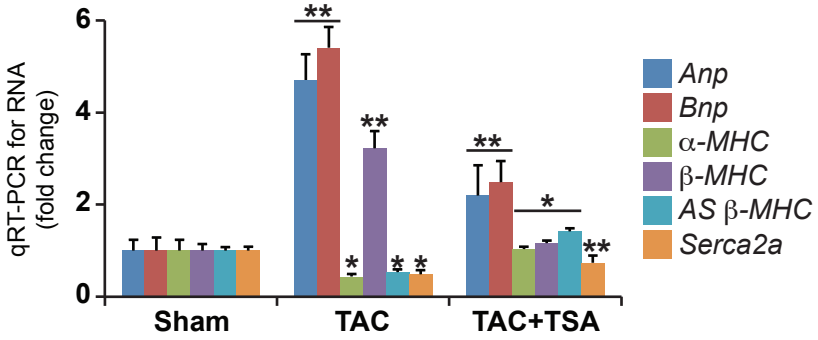


Figure S2

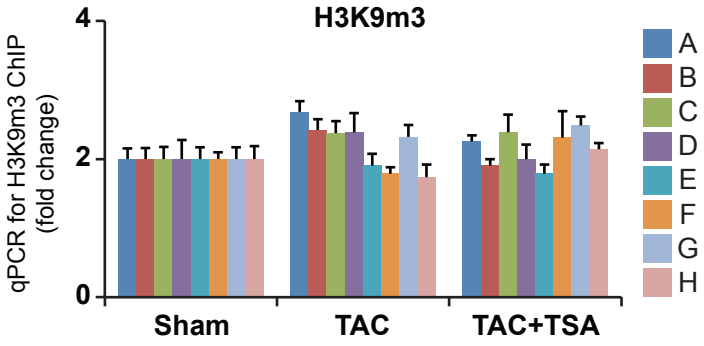


Figure S3

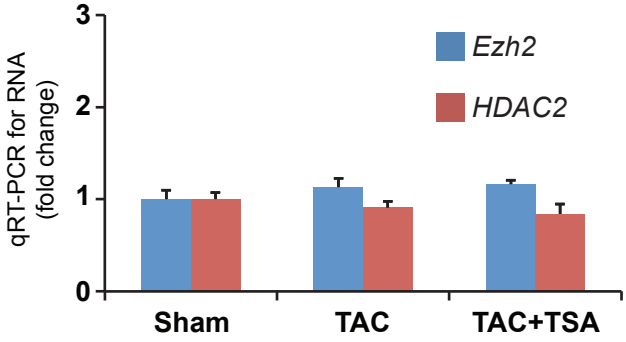


Figure S4

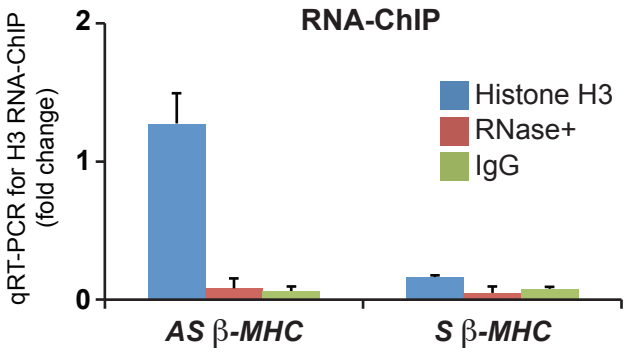


Figure S5

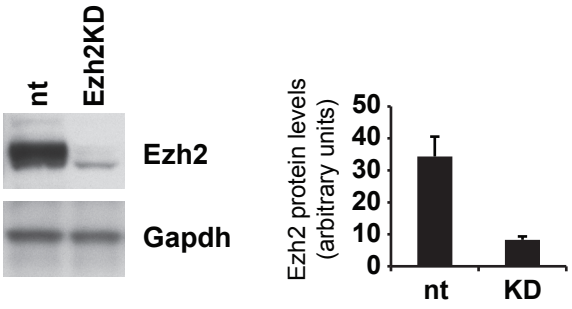


Figure S6

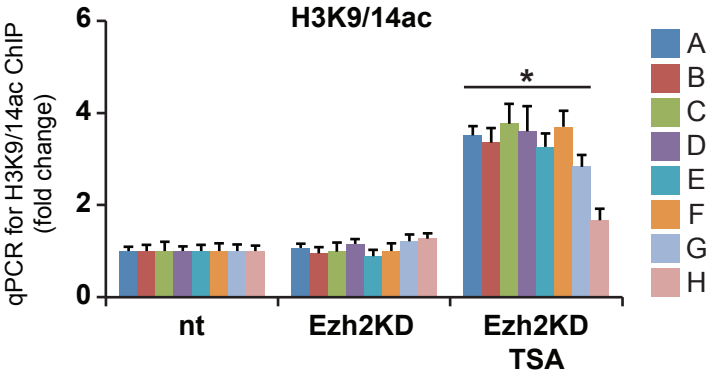


Figure S7

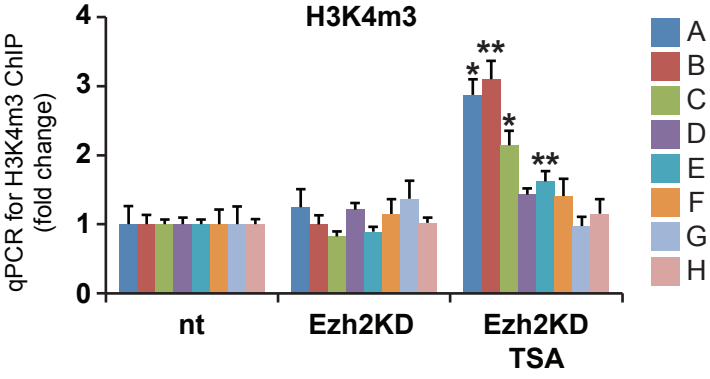
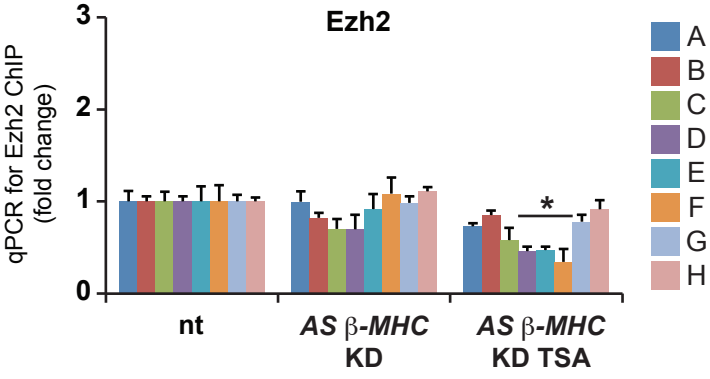


Figure S8



Supplementary Figures *S9-S14*

Figure S9

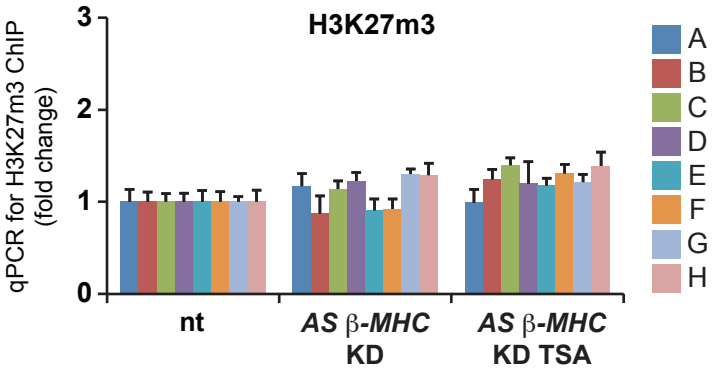


Figure S11

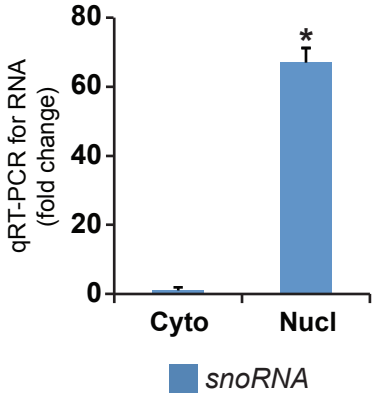


Figure S12

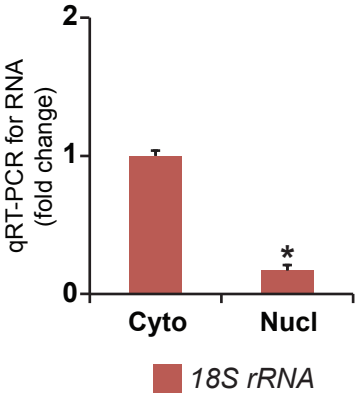


Figure S10

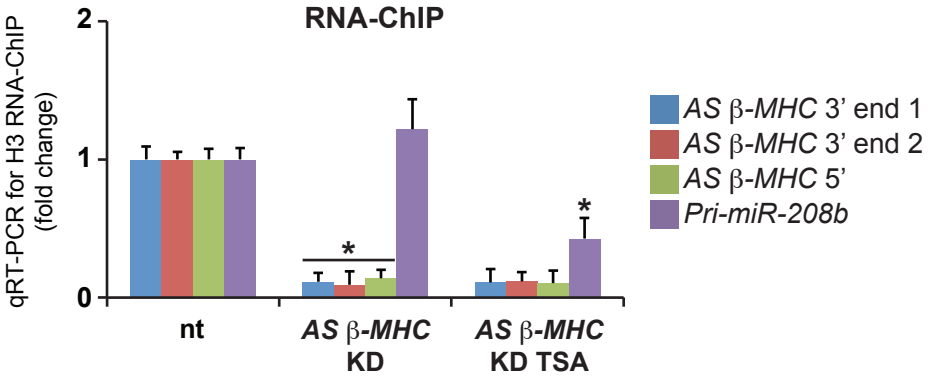


Figure S13

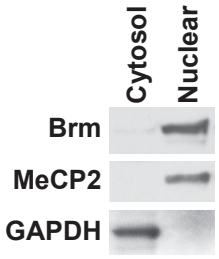


Figure S14