Supplemental Table S1. Primers developed, validated and used for RT-qPCR.

Kmt5a - mouse	Forward	CAG ACC AAA CTG CAC GAC ATC
	Reverse	CTT GCT TCG GTC CCC ATA GT
Mmset - mouse	Forward	CCC ACT CCT TCA CAA TCA TAC C
	Reverse	TCA AAT ATC CAA GCT CTT TCT GG
Kmt5b - mouse	Forward	AGG TTG TCA CTC AGT AGG TGC
	Reverse	CCG GGA ATG GCG AGT TTC TT
Kmt5c - mouse	Forward	CTT GCG GTC CAA GTC TCC AG
	Reverse	GAG CGA CTC CTA AGG TGC AA
Smyd3 – mouse/rat	Forward	TGA TGA AAG TTG GCA AGC TG
	Reverse	GCC CTT CTG GGG GTC CTT G
Smyd5 – mouse/rat	Forward	CTG ATT CGG AAG GGA GAG AC
	Reverse	TTC TGG TGG AGG TCC TTA CG
Kdm7b - mouse	Forward	GGA CTG GTT TCA CGG CAG TT
	Reverse	GTA AGA CCT CAC AGT TAG GGC A
Kdm9 - mouse	Forward	TCC TGT GTG ACA TAT CCG ATT TCC
	Reverse	ATC CGC TGG TTC CTG AGT GA
Kdm1a - mouse	Forward	GTG GTG TTA TGC TTT GAC CGT
	Reverse	GCT GCC AAA AAT CCC TTT GAGA
Rad23a - mouse	Forward	AGA AGG AGG CTA TAG AAA GGC TGA A
	Reverse	CGC GAA GTA GGC CTG GAT CA
Rad23b - mouse	Forward	CAG CTG ACA GTA CAC CAG GA
	Reverse	GCT CTC AGG GCT GCA ATT AC
Kdm7c - mouse	Forward	CTG CCC TAC GAC GTT ACC C
	Reverse	GCC AAG TCC GCT TTT TCT TGA G
Gapdh – mouse/rat	Forward	CCC ACT AAC ATC AAA TGG GG
	Reverse	CCT TCC ACA ATG CCA AAG TT
Kdm5a – rat	Forward	TAG CGG TAG CTA AGCAAGCC
	Reverse	CTT CGC ACG GGG TAG AAA TCT

Mmset – rat	Forward	TCC ACT CCT TCA CAA TCA TACC
	Reverse	TCA AAT ATC CAA GCT CTT TCT GG
Kmt5b - rat	Forward	AGG TTG TCA CTC AGT AGG TGC
	Reverse	CTT GGG ATG GCG AGT TTC TT
Kmt5c - rat	Forward	CTT GCT GTC CCA GTC TCC AG
	Reverse	GAA CGA CCC CTA AGG TGC AA
Kdm9 - rat	Forward	TCC TGT GTG ATT ATA TCC GAT TTC C
	Reverse	ATC CGC TGG TTC CTG AGT GA
Kdm1a - rat	Forward	AGC GCC ACG GTC TTA TCA ACT TC
	Reverse	ACC CGT CCA CCT ACA CGA T
Rad23a - rat	Forward	AGA AGG AAG CTA TAG AAA GGC TGA A
	Reverse	CGC GAA GTA GGC CTG GAT CA
Rad23b - rat	Forward	CAG CTG ACA GTA CAC CAG GA
	Reverse	GCT CTC AGG GCT GCA ATT AC
Kdm7c - rat	Forward	CTG CCC TAC GAC GTT ACC C
	Reverse	GCC AGG TCC GCT TTT TCT TGA G

Supplemental Table S2. Demographics of healthy donors and patients with ischemic cardiomyopathy used for western blotting for H4K20 methylation. Values reported as Mean ± SEM. BMI - Body Mass Index, LVEF – Left Ventricular Ejection Fraction, LVEDD – Left Ventricular End Diastolic Diameter.

Variable	**Donor n=8**	**ICM n=10**
Age	46 ± 2	62 ± 4
Male sex, n (%)	3 (38)	10 (100)
Height (cm)	167.7 ± 3.7	173.9 ± 1.6
Weight (kg)	73.5 ± 6.9	80.9 ± 4.2
BMI	26.2 ± 2.6	26.8 ± 1.3
LVEF, %	61 ± 3	18 ± 3
LVEDD, cm	3.97 ± 0.12	6.24 ± 0.32

Supplemental Table S3. Clinical characteristics of patients with Ischemic Cardiomyopathy (ICM) used for western blotting for H4K20 methylation. Values reported as Mean ± SEM. DM – Diabetes Mellitus, HTN – Hypertension, NYHA – New York Heart Association, HF – Heart Failure, RHC – Right Heart Catheterization, RA – Mean Right Atrial, PCWP – Pulmonary Capillary Wedge Pressure, CI – Cardiac Index, Na – Sodium, BUN – Blood Urea Nitrogen, AST – Aspartate Transferase, ALT – Alanine Transaminase, BNP – Brain Natriuretic Peptide.

	Variable	**ICM n=10**
Medical History	Smokers	40%
	DM	50%
	Atrial Fibrillation	40%
	HTN	60%
	Previous Thoracotomy	70%
NYHA class	III n (%)	2 (20)
	IV n (%)	8 (80)
	Duration of HF Symptoms (months)	60.1 ± 20.1
	Inotropes Dependent	70%
RHC	RA (mmHg)	11 ± 2
	PCWP (mmHg)	21.6 ± 2.5
	CI ($L \cdot m^{-2} \cdot min^{-1}$)	2.17 ± 0.39
Labs	Na (mmol/L)	135 ± 2
	BUN (mg/dL)	39 ± 5
	Creatinine (mg/dL)	1.43 ± .12
	AST (U/L)	39 ± 7
	ALT (IU/l)	48 ± 14
	BNP (pg/mL)	1982 ± 419

Supplemental Table S4. Clinical characteristics of donor samples used for western blotting for H4K20 methylation. Values reported as Mean ± SEM. ICH Stroke – Intracerebral brain hemorrhage, RHC – Right Heart Catheterization, RAP – Right Atrial Pressure, CI – Cardiac Index, SVV – Subjective Visual Vertical, SV – Stroke Volume, SVI – Stroke Volume Index.

	Variable	**Donor n=8**
Demographics	Race White Not Hispanic/Latino n (%)	7(87.5)
	Race White Hispanic/Latino n (%)	1(12.5)
Cause of Death	Head Trauma n (%)	4(50)
	ICH Stroke	3(37.5)
	Drug Intoxication	1(12.5)
RHC	RAP (mmHg)	12 ± 2
	CI ($L \cdot m^{-2} \cdot min^{-1}$)	3.5 ± 0.3
	SVV (%)	10.1 ± 4.5
	SV (mL/m^2)	73.6 ± 6.8
	SVI (mL/m^2)	41 ± 3