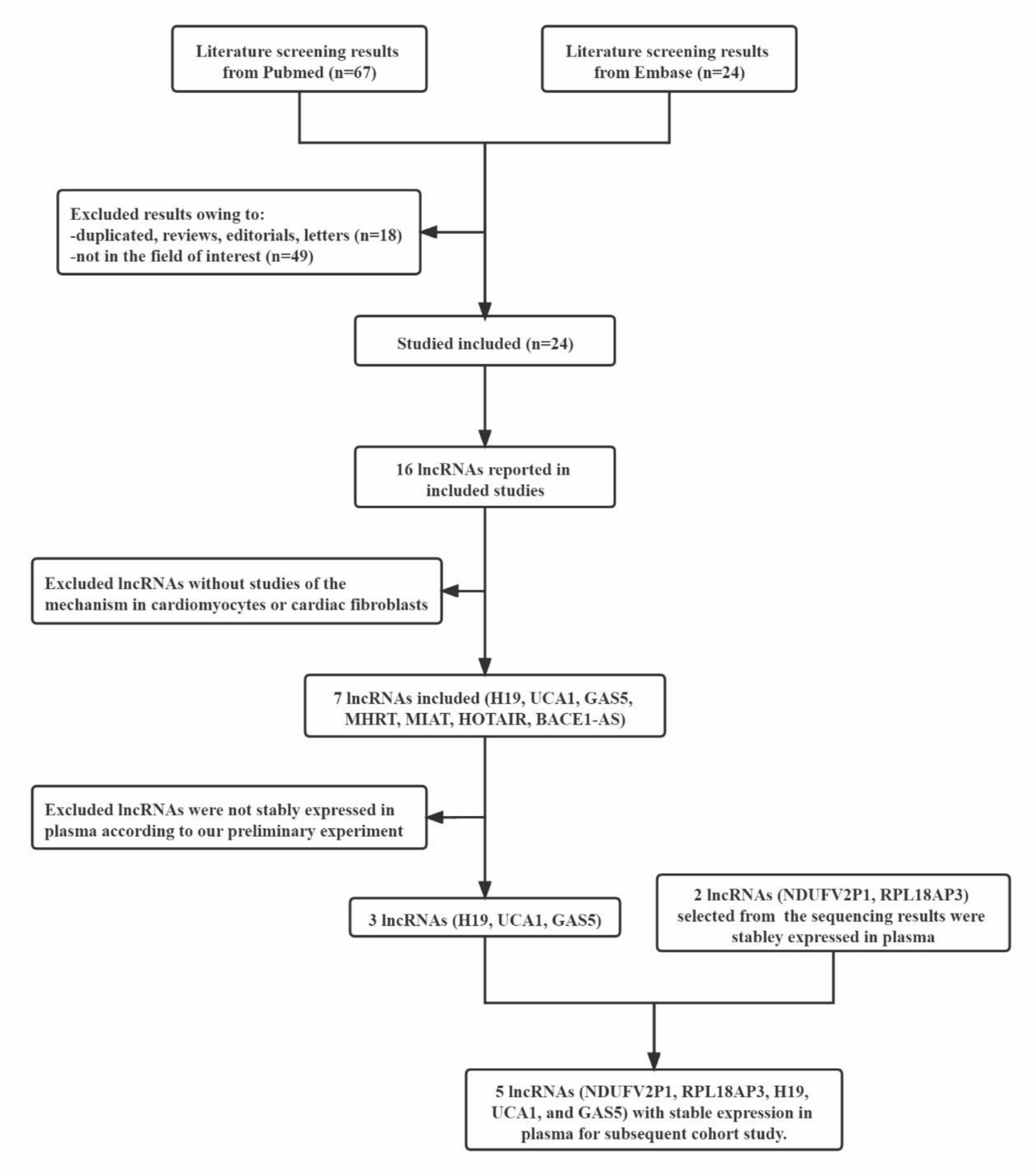
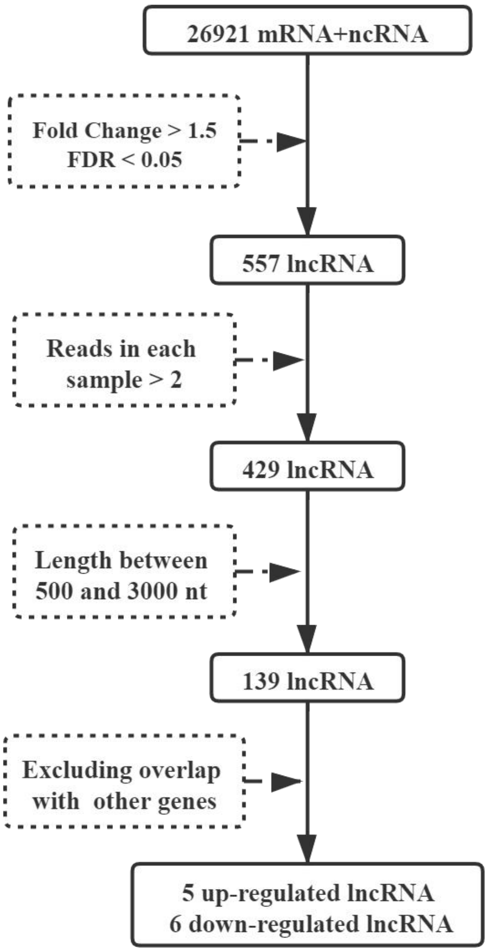


Supplementary Figure 1: A flow diagram demonstrating the lncRNAs selected.

lncRNAs: Long noncoding RNAs.



Supplementary Figure 2: Sequencing results screening flow chart. lncRNA: Long noncoding RNAs; ncRNA: Non-coding RNAs.

Supplementary Table 1: LncRNAs screened based on the RNA sequencing.

ID	AF	Con	Log_2FC	FDR	Style	Location
NDUFV2P1	19.68	8.69	1.18	1.31E−02	Up	chr19:53223908-53224879
RPL6P19	229.50	152.81	0.59	4.76E−04	Up	chr7:137721968-137722886
RPL18AP3	586.73	347.56	0.76	1.75E−02	Up	chr12:104265269-104265892
RPS18P5	79.57	49.57	0.68	4.56E−03	Up	chr3:101576451-101576990
RPL10P9	79.85	50.27	0.67	2.56E−03	Up	chr5:168616329-168617055

THSD4-AS2	19.52	65.12	−1.74	9.60E−04	Down	chr15:71688701-71691539
RPS6P10	14.41	47.78	−1.73	1.04E−03	Down	chr9:19200323-19201055
LOC100421523	16.94	52.13	−1.62	1.89E−08	Down	chr17:47367404-47369308
RHEBP3	8.89	25.74	−1.53	1.64E−02	Down	chr22:18019206-18020604
LOC100422271	7.48	20.62	−1.46	1.85E−02	Down	chr8:84678798-84679842
VDAC2P2	6.34	17.79	−1.49	1.95E−02	Down	chr12:9036324-9037523

AF: Atrial fibrillation group average reads; Con: Control group average reads; FC: Foldchange; FDR: False discovery rate; lncRNAs: Long non-coding RNAs; Style, changes in sequencing reads in the AF group.

Supplementary Table 2: LncRNAs screened from the literature.

ID	Summary	Expression	Reference
H19	H19 directly binds to miR-103/107 and regulates FADD expression and myocardial necrosis.	H9c2 cell line	Wang *et al*[1]
	Knockdown of H19 significantly protects the heart against myocardial I/R injury in a mouse model of myocardial I/R.	Mouse cardiomyocytes	Luo *et al*[2]
	LncRNA H19 contributes to cardiac fibroblast proliferation and fibrosis, which act in part through repression of DUSP5/ERK1/2.	Rat cardiac fibroblasts	Tao et al[3]
	H19-miR-675 axis targeting CaMKIIδ as a negative regulator of cardiac hypertrophy.	Mouse cardiomyocytes	Liu *et al*[4]
	LncRNA H19/miR-675 axis regulates cardiomyocyte apoptosis by targeting VDAC1 in diabetic cardiomyopathy.	Rat cardiomyocytes	Li *et al*[5]
	H19/miR-675 axis is involved in the promotion of cardiomyocyte apoptosis by targeting PA2G4.	Rat cardiomyocytes	Zhang *et al*[6]

	Long noncoding RNA H19 acts as a competing endogenous RNA to mediate CTGF expression by sponging miR-455 in cardiac fibrosis.	Mouse cardiac fibroblast	Huang *et al*[7]
	LncRNA H19 regulates cardiomyocyte apoptosis and acute myocardial infarction by targeting miR-29b.	H9c2 cell line	Yu *et al*[8]
UCA1	LncRNA UCA1 modulates cardiomyocyte apoptosis by targeting miR-143 in myocardial ischemia-reperfusion injury.		Yu *et al*[9]
	LncRNA UCA1 promotes cardiomyocyte apoptosis by inhibiting p27 expression.	Cardiomyocytes	Liu *et al*[10]
GAS5	LncRNA GAS5 negatively controls cardiac fibroblast activation and fibrosis by targeting miR-21 via PTEN/MMP-2 signaling pathway.	Rat cardiomyocytes	Tao *et al*[11]
	GAS5 promotes myocardial apoptosis in myocardial ischemia-reperfusion injury by upregulating LAS1 expression via p38/MAPK pathway.	H9c2 cell line	Liu *et al*[12]
	LncRNA GAS5 reduces cardiomyocyte apoptosis induced by myocardial infarction through sema3a.	Mouse cardiomyocytes	Hao *et al*[13]
	Overexpression of GAS5 in CAD rats determines the attenuation of myocardial injury, inhibition of cardiomyocyte apoptosis.	Rat cardiomyocytes	Li *et al*[14]

CAD: Coronary artery disease; lncRNAs: Long non-coding RNAs.

Supplementary Table 3: Primers sequences of lncRNAs.

ID	Forward Primer Sequence (5′to3′)	Reverse Primer Sequence (5′to3′)
NDUFV2P1	TGTCTCCCTTAGTTTTGGGCG	GGCTAAGGCCGTAGTGTCC
RPL6P19	ACGGAGCAGTGCAAGATTGAGC	CAGGTAGCCCTGGAGCTGAGG
RPL18AP3	TCAAGCAGTTCCACGACTCC	GTTTATTTGGGGCACACCCG
RPS18P5	TCGATGGGCAGCGGAAAATAGC	TGAGTTCTCCCGCCCTCTTGG
RPL10P9	CGCTCTTTCCCTTCGGTGTGC	GCGAGACTTTGGGTACGGCTTG
THSD4-AS2	TCAGGGTTGAAGAGGTTGCC	TCTGGAGCAACCTGTTTGGG

RPS6P10	TCCGAATCAGTGGTGGGAAC	CCAGGTGATGAGGCACCATAG
LOC100421523	GGCAGACCCACGGTTCATTGG	CCATCCACTCGGCAAACCACTC
RHEBP3	TGCACTCGTTTGGACAGTCA	CCCAATGAAAATCTTCGTGCTC
LOC100422271	TGCCTTGCTGAAAAATCGTGG	ACATTGTTCACCCTGGAGCAT
VDAC2P2	GCTTGCTGGGTACCAGATGA	TCCGGTAGCCCACTACAGTT
H19	GGACTTGGTGACGCTGTATGCC	CGCCTCGCCTAGTCTGGTCTC
UCA1	GCCGAGAGCCGATCAGACAAAC	GGAACGGATGAAGCCTGCTTGG
GAS5	CCTCCCCTCTCTGCTCTTCCTC	CGCCCTTCCTCGCCATTGTG

lncRNAs: Long non-coding RNAs.

Supplementary Table 4: Baseline demographic and clinical data of the study population.

Characteristics	**Value (*n* = 192)**
Age (years)	68 (62, 75)
<65	66 (34.38)
65–74	75 (39.06)
≥75	51 (26.56)
Gender	
Male	99 (51.56)
Female	93 (48.44)
Education	
Junior middle school or below	159 (82.81)
High school or above	33 (17.19)
Income per person (Chinese yuan/year)	
<25,000	91 (47.40)
≥25,000	101 (52.60)
Smoking	63 (32.81)
Alcohol consumption	160 (83.33)
BMI (kg/m^2)	23.45 (21.60, 25.91)
<18.5	14 (7.29)
18.5–23.9	96 (50.00)
≥24.0	82 (42.71)
AF types	
Paroxysmal AF	60 (31.25)
Chronic AF	132 (68.75)
History of comorbidities	
Hypertension	107 (55.73)
Diabetes mellitus	38 (19.79)

CAD	87 (45.31)
Cardiomyopathy	21 (10.94)
HF	65 (33.85)
TIA or previous stroke	28 (14.58)
Vascular disease	7 (3.65)
Concomitant treatment	
Antiarrhythmic therapy	90 (46.88)
ACE inhibitors	65 (33.85)
Angiotensin–renin blockers	19 (9.90)
Beta-blockers	75 (39.06)
Warfarin	64 (33.33)
Statins	98 (51.04)
Echocardiography parameters	
LA diameter (mm)	44 (40.00, 50.00)
≤37	33 (17.19)
>37	159 (82.81)
LVEF (%)	59.5 (54, 65)
<50	39 (20.31)
≥50	153 (79.69)
CHA_2DS_2–VASc score	3 (2, 4)
≥2	147 (76.56)
Follow-up time (months)	26 (22.25, 30.00)
Person-years of follow-up	
Stroke	387.67
All-cause mortality	417
Events (per 100 person-years)	
Stroke	5.93
All-cause mortality	5.76

Data are shown as median (interquartile range) or n (%). AF: Atrial fibrillation; ACE: Angiotensin-converting enzyme; BMI: Body mass index; CAD: Coronary artery disease; HF: Heart failure; LA: Left atrium; LVEF: Left ventricular ejection fraction; TIA: Transient ischemic attack.

Supplementary Table 5: The cutoff value of lncRNAs for stroke and all-cause mortality.

ID	Cutoff value
Stroke	
H19	1.25
UCA1	0.22
GAS5	0.15
NDUFV2P1	0.16
RPL18AP3	1.20

All-cause mortality	
H19	2.07
UCA1	0.14
GAS5	0.02
NDUFV2P1	0.06
RPL18AP3	1.29

lncRNAs: Long noncoding RNAs.

Supplementary Table 6: Association between clinical variables and outcomes in AF patients.

Variables	**All-cause mortality**			**Stroke**		
	Beta coefficients	**Adjusted HR (95% CI)**	***P*-value**	**Beta coefficients**	**Adjusted HR (95% CI)**	***P*-value**
Age		Reference			Reference	
	0.931	2.538 (1.429, 4.508)	**0.001**	0.375	1.454 (0.849, 2.492)	0.140
Gender		Reference			Reference	
	0.09	1.094 (0.491, 2.436)	0.826	−0.242	0.785 (0.341, 1.806)	0.569
CHA_2DS_2–VASc		Reference			Reference	
	2.018	7.527 (1.016, 55.743)	**0.048**	2.028	7.6 (1.022, 56.517)	**0.048**
Education		Reference			Reference	
	0.281	0.577 (1.429, 4.508)	0.577	0.047	1.048 (0.355, 3.090)	0.932
Income		Reference			Reference	
	0.068	1.07	0.868	0.166	1.181	0.693

		(0.479, 2.390)			(0.517, 2.697)	
Smoking		Reference			Reference	
	−0.019	0.981 (0.419, 2.295)	0.965	−0.354	0.702 (0.276, 1.786)	0.458
Alcohol consumption		Reference			Reference	
	−0.009	0.992 (0.339, 2.901)	0.988	0.232	1.262 (0.373, 4.264)	0.709
BMI		Reference			Reference	
	0.022	1.022 (0.531, 1.967)	0.948	−0.282	0.754 (0.399, 1.426)	0.385
AF types		Reference			Reference	
	0.592	1.808 (0.675, 4.844)	0.239	0.176	1.193 (0.487, 2.917)	0.700
Hypertension		Reference			Reference	
	0.31	1.363 (0.596, 3.116)	0.463	0.074	1.077 (0.471, 2.460)	0.861
Diabetes mellitus		Reference			Reference	
	0.342	1.408 (0.559, 3.548)	0.468	1.257	3.513 (1.539, 8.022)	**0.003**
CAD		Reference			Reference	
	0.181	1.199 (0.538, 2.669)	0.657	−0.143	0.867 (0.376, 1.995)	0.737

Cardiomyopathy		Reference			Reference	
	0.142	1.153 (0.344, 3.867)	0.818	−0.203	0.816 (0.191, 3.492)	0.784
HF		Reference			Reference	
	1.87	6.485 (2.573, 16.344)	**0.000**	0.384	1.469 (0.634, 3.400)	0.370
TIA or previous stroke		Reference			Reference	
	−3.24	0.039 (0.000, 5.750)	0.203	1.593	4.917 (2.092, 11.557)	**0.000**
Vascular disease		Reference			Reference	
	0.964	2.622 (0.616, 11.160)	0.192	1.799	6.044 (1.772, 20.614)	**0.004**
Antiarrhythmic therapy		Reference			Reference	
	−0.054	0.948 (0.424, 2.115)	0.895	0.74	2.096 (0.887, 4.951)	**0.091**
ACE inhibitors		Reference			Reference	
	0.374	1.454 (0.646, 3.274)	0.366	−0.831	0.436 (0.148, 1.282)	0.131
Angiotensin–renin blockers		Reference			Reference	
	−0.318	0.728 (0.170, 3.108)	0.668	0.492	1.636 (0.555, 4.826)	0.372
Beta-blockers		Reference			Reference	

		ce			ce	
	0.27	1.31 (0.587, 2.926)	0.509	0.687	1.987 (0.869, 4.544)	0.104
Warfarin		Reference			Reference	
	0.383	1.467 (0.651, 3.303)	0.355	0.255	1.291 (0.558, 2.984)	0.551
Statins		Reference			Reference	
	−0.036	0.965 (0.433, 2.148)	0.930	−0.119	0.888 (0.391, 2.014)	0.776
LA diameter		Reference			Reference	
	0.854	2.349 (0.552, 9.993)	0.248	1.618	5.045 (0.680, 37.430)	0.113
LVEF		Reference			Reference	
	−0.511	0.6 (0.248, 1.448)	0.255	0.218	1.244 (0.421, 3.677)	0.693

Boldface indicates $P < 0.100$. Univariate Cox proportion hazard models were applied to evaluate the relationship between clinical variables and the efficacy outcomes. AF: Atrial fibrillation; ACE: Angiotensin-converting enzyme; BMI: Body mass index; CI: Confidence interval; CAD: Coronary artery disease; HR: Hazard ratio; HF: Heart failure; LA: Left atrium; LVEF: Left ventricular ejection fraction; TIA: Transient ischemic attack.

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