Table S1: Clinical characteristics of all the patients included in the study

	SR (n = 67)	pAF (n = 38)	cAF (n = 60)	p-value
Age, years	70.2 ± 1.1	69.3 ± 1.5	71.2 ± 1.2	0.416
Male gender, n (%)	49 (73%)	23 (61%)	50 (83%)	0.504
Body mass index, kg/m^2	27.5 ± 1.2	27.3 ± 0.7	26.5 ± 0.8	0.746
Arterial hypertension, n (%)	35 (52%)	14 (37%)	42 (70%)	0.083
Diabetes, n (%)	15 (22%)	16 (42%)	19 (32%)	0.125
Hyperlipidaemia, n (%)	48 (72%)	**16 (42%)**	43 (70%)	**0.008**
LVEF, %	58.7 ± 1.4	55.2 ± 1.7	55.1 ± 1.2	0.098
Indication for surgery				
CABG, n (%)	22 (33%)	13 (34%)	15 (25%)	0.493
AVD, n (%)	8 (12%)	4 (11%)	16 (27%)	0.077
MVD, n (%)	7 (11%)	11 (29%)	13 (22%)	0.053
CABG+ MVD/AVD, n (%)	29 (43%)	10 (26%)	15 (25%)	0.074
Others, n (%)	1 (2%)	0 (0%)	1 (1%)	0.739
Medication				
Digitalis, n (%)	1 (2%)	2 (5%)	**10 (16%)**	**0.008**
Beta-blockers, n (%)	34 (51%)	**29 (76%)**	**46 (77%)**	**0.010**
ACE inhibitors, n (%)	36 (54%)	22 (58%)	28 (47%)	0.418
AT1 blockers, n (%)	10 (15%)	1 (3%)	6 (10%)	0.149
Diuretics, n (%)	10 (15%)	**15 (40%)**	**25 (42%)**	**0.006**
Nitrates, n (%)	6 (9%)	0 (0%)	5 (8%)	0.172
Amiodarone, n (%)	0 (0%)	3 (8%)	**7 (12%)**	**0.021**
Statins, n (%)	19 (28%)	14 (37%)	19 (31%)	0.759

Data presented as numbers (%) or as mean ± SEM; Ctl: control-sinus rhythm, pAF: paroxysmal atrial fibrillation, cAF: persistent (chronic) atrial fibrillation, MVD/AVD, mitral/aortic valve disease, LVEF - left ventricular ejection fraction, CABG: coronary artery bypass graft surgery, ACE - angiotensin-converting enzyme; AT – angiotensin.

Table S2: Clinical characteristics of the patients employed for RT-qPCR experiments

	SR (n = 16)	pAF (n = 8)	cAF (n = 8)	p-value
Age, years	69.7 ± 2.1	76 ± 4.0	76.6 ± 1.8	0.053
Male gender, n (%)	11 (69%)	6 (75%)	7 (87%)	0.378
Body mass index, kg/m^2	27.6 ± 1	29.9 ± 0.7	26.4 ± 0.7	0.097
Arterial hypertension, n (%)	2 (12%)	4 (50%)	4 (50%)	0.079
Diabetes, n (%)	1 (6%)	0 (0%)	0 (0%)	0.607
Hyperlipidaemia, n (%)	0 (0%)	**8 (100%)**	2 (25%)	**0.0001**
LVEF, %	62.1 ± 1.3	58.1 ± 2.3	59.1 ± 2.7	0.246
Indication for surgery				
CABG, n (%)	4 (25%)	**6 (75%)**	1 (12%)	**0.019**
AVD, n (%)	1 (6%)	0 (0%)	2 (25%)	0.201
MVD, n (%)	0 (0%)	0 (0%)	1 (12%)	0.223
CABG+ MVD/AVD, n (%)	11 (69%)	2 (25%)	4 (50%)	0.135
Medication				
Digitalis, n (%)	0 (0%)	1 (12%)	0 (0%)	0.223
Beta-blockers, n (%)	7 (44%)	4 (50%)	6 (75%)	0.356
ACE inhibitors, n (%)	9 (56%)	3 (37%)	2 (25%)	0.331
AT1 blockers, n (%)	0 (0%)	0 (0%)	**2 (25%)**	**0.045**
Diuretics, n (%)	2 (12%)	3 (37%)	**5 (62%)**	**0.045**
Nitrates, n (%)	0 (0%)	0 (0%)	0 (0%)	0.172
Amiodarone, n (%)	0 (0%)	0 (0%)	**2 (25%)**	**0.045**
Statins, n (%)	4 (25%)	3 (37%)	2 (25%)	0.799

Data presented as numbers (%) or as mean ± SEM; Ctl: control-sinus rhythm, pAF: paroxysmal atrial fibrillation, cAF: persistent (chronic) atrial fibrillation, MVD/AVD, mitral/aortic valve disease, LVEF - left ventricular ejection fraction, CABG: coronary artery bypass graft surgery, ACE - angiotensin-converting enzyme; AT – angiotensin.

Table S3: Clinical characteristics of the patients employed to compare control and heart failure in RT-qPCR experiments

	Ctl (n = 8)	HF (n = 8)	p-value
Age, years	44 ± 4.7	43.6 ± 6.3	0.939
Male gender, n (%)	5 (62%)	5 (62%)	0.999
Body mass index, kg/m^2	n.a.	28.1 ± 1.5	-
Arterial hypertension, n (%)	n.a.	6 (75%)	-
Diabetes, n (%)	n.a.	2 (25%)	-
Hyperlipidaemia, n (%)	n.a.	3 (37%)	-
LVEF, %	n.a.	27.6 ± 4.3	-
Indication for surgery			
Transplant, n (%)	0 (0%)	8 (100%)	-
Medication			
Digitalis, n (%)	n.a.	0 (0%)	-
Beta-blockers, n (%)	n.a.	6 (75%)	-
ACE inhibitors, n (%)	n.a.	3 (37%)	-
AT1 blockers, n (%)	n.a.	1 (12%)	**-**
Diuretics, n (%)	n.a.	7 (87%)	**-**
Nitrates, n (%)	n.a.	0 (0%)	-
Amiodarone, n (%)	n.a.	0 (0%)	**-**
Statins, n (%)	n.a.	1 (12%)	-

Data presented as numbers (%) or as mean ± SEM; Ctl: control-sinus rhythm, HF: heart failure, MVD/AVD, mitral/aortic valve disease, LVEF - left ventricular ejection fraction, CABG: coronary artery bypass graft surgery, ACE - angiotensin-converting enzyme; AT – angiotensin; n.a. – not available.

Table S4: Clinical characteristics of the patients employed for western-blotting and co-immunoprecipitation experiments

	SR (n = 28)	pAF (n = 14)	cAF (n = 27)	p-value
Age, years	70.6 ± 1.5	69 ± 1.6	69.8 ± 1.6	0.832
Male gender, n (%)	24 (86%)	10 (71%)	18 (67%)	0.248
Body mass index, kg/m^2	27.1 ± 1.7	27.9 ± 1	26.8 ± 1.4	0.906
Arterial hypertension, n (%)	20 (71%)	7 (50%)	21 (75%)	0.184
Diabetes, n (%)	7 (28%)	9 (64%)	9 (33%)	0.066
Hyperlipidaemia, n (%)	9 (32%)	5 (36%)	6 (22%)	0.598
LVEF, %	57.1 ± 2.5	52.2 ± 3.8	51.5 ± 1.7	0.376
Indication for surgery				
CABG, n (%)	11 (39%)	4 (29%)	8 (30%)	0.689
AVD, n (%)	3 (10%)	1 (7%)	6 (22%)	0.333
MVD, n (%)	4 (14%)	4 (29%)	7 (26%)	0.459
CABG+ MVD/AVD, n (%)	9 (32%)	5 (36%)	6 (22%)	0.598
Others, n (%)	1 (3%)	0 (0%)	0 (0%)	0.331
Medication				
Digitalis, n (%)	1 (3%)	1 (7%)	4 (15%)	0.336
Beta-blockers, n (%)	16 (57%)	11 (78%)	21 (78%)	0.184
ACE inhibitors, n (%)	17 (61%)	9 (64%)	17 (63%)	0.972
AT1 blockers, n (%)	3 (10%)	1 (7%)	1 (4%)	0.609
Diuretics, n (%)	4 (14%)	5 (36%)	6 (22%)	0.288
Nitrates, n (%)	4 (14%)	0 (0%)	5 (18%)	0.245
Amiodarone, n (%)	0 (0%)	1 (7%)	2 (7%)	0.348
Statins, n (%)	5 (18%)	6 (43%)	5 (18%)	0.152

Data presented as numbers (%) or as mean ± SEM; Ctl: control-sinus rhythm, pAF: paroxysmal atrial fibrillation, cAF: persistent (chronic) atrial fibrillation, MVD/AVD, mitral/aortic valve disease, LVEF - left ventricular ejection fraction, CABG: coronary artery bypass graft surgery, ACE - angiotensin-converting enzyme; AT – angiotensin.

Table S5: Clinical characteristics of the patients employed for immunostaining experiments

	SR (n = 7)	pAF (n = 5)	cAF (n = 7)	p-value
Age, years	72.1 ± 6.2	72.4 ± 4.9	68.9 ± 6.9	0.574
Male gender, n (%)	4 (57%)	5 (100%)	7 (100%)	0.083
Body mass index, kg/m^2	27.7 ± 1.1	27.5 ± 0.9	27.3 ± 0.8	0.954
Arterial hypertension, n (%)	2 (29%)	1 (20%)	4 (57%)	0.499
Diabetes, n (%)	2 (29%)	3 (60%)	4 (57%)	0.602
Hyperlipidaemia, n (%)	1 (14%)	1 (20%)	3 (43%)	0.558
LVEF, %	59.7 ± 2.7	57.5 ± 2.5	62.6 ± 4.4	0.891
Indication for surgery				
CABG, n (%)	0 (0%)	1 (20%)	0 (0%)	0.263
AVD, n (%)	2 (29%)	0 (0%)	2 (29%)	0.494
MVD, n (%)	2 (29%)	2 (40%)	3 (43%)	0.999
CABG+ MVD/AVD, n (%)	3 (43%)	2 (40%)	2 (29%)	0.999
Medication				
Digitalis, n (%)	0 (0%)	0 (0%)	2 (29%)	0.304
Beta-blockers, n (%)	3 (43%)	5 (100%)	4 (57%)	0.206
ACE inhibitors, n (%)	0 (0%)	**4 (80%)**	4 (57%)	**0.022**
AT1 blockers, n (%)	2 (29%)	0 (0%)	1 (14%)	0.747
Diuretics, n (%)	2 (29%)	3 (60%)	**7 (100%)**	**0.021**
Nitrates, n (%)	0 (0%)	0 (0%)	0 (0%)	-
Amiodarone, n (%)	0 (0%)	0 (0%)	0 (0%)	-
Statins, n (%)	3 (43%)	2 (40%)	5 (71%)	0.602

Data presented as numbers (%) or as mean ± SEM; Ctl: control-sinus rhythm, pAF: paroxysmal atrial fibrillation, cAF: persistent (chronic) atrial fibrillation, MVD/AVD, mitral/aortic valve disease, LVEF - left ventricular ejection fraction, CABG: coronary artery bypass graft surgery, ACE - angiotensin-converting enzyme; AT – angiotensin.

Table S6: Clinical characteristics of the patients employed for FRET experiments to measure cAMP in living myocytes

	SR (n = 6)	pAF (n = 6)	cAF (n = 6)	p-value
Age, years	65.7 ± 2.5	63.5 ± 2.6	71.3 ± 3.9	0.504
Male gender, n (%)	3 (50%)	6 (100%)	6 (100%)	0.074
Body mass index, kg/m^2	27.4 ± 0.9	27.3 ± 0.7	26.8 ± 0.7	0.843
Arterial hypertension, n (%)	5 (83%)	1 (16%)	5 (83%)	0.999
Diabetes, n (%)	0 (0%)	2 (33%)	2 (33%)	0.735
Hyperlipidaemia, n (%)	1 (16%)	1 (16%)	3 (50%)	0.473
LVEF, %	55.3 ± 3.2	55.3 ± 2.1	54.2 ± 2.9	0.554
Indication for surgery				
CABG, n (%)	4 (66%)	2 (33%)	2 (33%)	0.349
AVD, n (%)	1 (16%)	2 (33%)	2 (33%)	0.999
MVD, n (%)	0 (0%)	2 (33%)	0 (0%)	0.294
CABG+ MVD/AVD, n (%)	1 (16%)	1 (16%)	1 (16%)	0.999
Others, n (%)	0 (0%)	0 (0%)	1 (16%)	0.999
Medication				
Digitalis, n (%)	0 (0%)	0 (0%)	1 (16%)	0.999
Beta-blockers, n (%)	4 (66%)	5 (83%)	5 (83%)	0.999
ACE inhibitors, n (%)	5 (83%)	3 (50%)	3 (50%)	0.818
AT1 blockers, n (%)	0 (0%)	0 (0%)	1 (16%)	0.999
Diuretics, n (%)	2 (33%)	2 (33%)	2 (33%)	0.999
Nitrates, n (%)	0 (0%)	0 (0%)	0 (0%)	-
Amiodarone, n (%)	0 (0%)	1 (16%)	1 (16%)	0.999
Statins, n (%)	3 (50%)	1 (16%)	2 (33%)	0.818

Data presented as numbers (%) or as mean ± SEM; Ctl: control-sinus rhythm, pAF: paroxysmal atrial fibrillation, cAF: persistent (chronic) atrial fibrillation, MVD/AVD, mitral/aortic valve disease, LVEF - left ventricular ejection fraction, CABG: coronary artery bypass graft surgery, ACE - angiotensin-converting enzyme; AT – angiotensin.

Table S7: Clinical characteristics of the patients employed for patch-clamp experiments to measure $I_{Ca,L}$

	SR (n = 5)	cAF (n = 5)	p-value
Age, years	68.8 ± 3.7	71.8 ± 2.3	0.444
Male gender, n (%)	4 (80%)	5 (100%)	0.999
Body mass index, kg/m^2	26.8 ± 0.9	26.2 ± 0.7	0.821
Arterial hypertension, n (%)	5 (100%)	4 (80%)	0.999
Diabetes, n (%)	2 (40%)	0 (0%)	0.444
Hyperlipidaemia, n (%)	4 (80%)	1 (20%)	0.999
LVEF, %	60.2 ± 1.7	56.4 ± 2.7	0.429
Indication for surgery			
CABG, n (%)	3 (60%)	1 (20%)	0.524
AVD, n (%)	0 (0%)	2 (40%)	0.444
MVD, n (%)	0 (0%)	1 (20%)	0.999
CABG+ MVD/AVD, n (%)	2 (40%)	1 (20%)	0.999
Medication			
Digitalis, n (%)	0 (0%)	0 (0%)	
Beta-blockers, n (%)	2 (40%)	5 (100%)	0.444
ACE inhibitors, n (%)	2 (40%)	0 (0%)	0.444
AT1 blockers, n (%)	3 (60%)	0 (0%)	0.167
Diuretics, n (%)	0 (0%)	2 (40%)	0.141
Nitrates, n (%)	1 (20%)	0 (0%)	0.999
Amiodarone, n (%)	0 (0%)	2 (40%)	0.444
Statins, n (%)	3 (60%)	2 (40%)	0.999

Data presented as numbers (%) or as mean ± SEM; Ctl: control-sinus rhythm, pAF: paroxysmal atrial fibrillation, cAF: persistent (chronic) atrial fibrillation, MVD/AVD, mitral/aortic valve disease, LVEF - left ventricular ejection fraction, CABG: coronary artery bypass graft surgery, ACE - angiotensin-converting enzyme; AT – angiotensin.

Table S8: Clinical characteristics of the patients employed for sharp electrode experiments to measure actions potentials in atrial tissue

	SR (n = 5)	pAF (n = 5)	cAF (n = 7)	p-value
Age, years	74.2 ± 4.3	**63.4 ± 3.7**	72 ± 2.2	**0.033**
Male gender, n (%)	3 (60%)	3 (60%)	6 (85%)	0.519
Body mass index, kg/m^2	27.5 ± 1.2	27.3 ± 0.7	26.5 ± 0.8	0.955
Arterial hypertension, n (%)	1 (20%)	1 (20%)	4 (57%)	0.378
Diabetes, n (%)	3 (60%)	2 (40%)	4 (57%)	0.999
Hyperlipidaemia, n (%)	1 (20%)	1 (20%)	4 (57%)	0.378
LVEF, %	64.8 ± 2.5	55.3 ± 2.1	61.3 ± 3.7	0.778
Indication for surgery				
CABG, n (%)	0 (0%)	0 (0%)	3 (43%)	0.081
AVD, n (%)	1 (20%)	1 (20%)	2 (29%)	0.999
MVD, n (%)	1 (20%)	3 (60%)	1 (14%)	0.293
CABG+ MVD/AVD, n (%)	3 (60%)	1 (20%)	1 (14%)	0.293
Medication				
Digitalis, n (%)	0 (0%)	0 (0%)	3 (43%)	0.081
Beta-blockers, n (%)	2 (40%)	4 (80%)	6 (85%)	0.293
ACE inhibitors, n (%)	3 (60%)	3 (60%)	2 (29%)	0.568
AT1 blockers, n (%)	2 (40%)	0 (0%)	1 (14%)	0.434
Diuretics, n (%)	2 (40%)	2 (40%)	3 (43%)	0.999
Nitrates, n (%)	1 (20%)	0 (0%)	0 (0%)	0.588
Amiodarone, n (%)	0 (0%)	1 (20%)	0 (0%)	0.588
Statins, n (%)	1 (20%)	2 (40%)	3 (43%)	0.830

Data presented as numbers (%) or as mean ± SEM; Ctl: control-sinus rhythm, pAF: paroxysmal atrial fibrillation, cAF: persistent (chronic) atrial fibrillation, MVD/AVD, mitral/aortic valve disease, LVEF - left ventricular ejection fraction, CABG: coronary artery bypass graft surgery, ACE - angiotensin-converting enzyme; AT – angiotensin.