

## SUPPLEMENTARY TABLES

**Supplementary Table 1. The association between potential confounders and viral diversity.**

Spearman correlation analyses								
	Shannon index		Pielou evenness		Chao1 richness		Simpson index	
	Correlation	<i>p</i> value	Correlation	<i>p</i> value	Correlation	<i>p</i> value	Correlation	<i>p</i> value
AF	0.499	<0.001	0.522	<0.001	0.168	0.095	0.567	<0.001
Age	0.337	0.001	0.348	<0.001	0.131	0.195	0.374	<0.001
Gender	0.004	0.972	0.036	0.726	-0.153	0.130	0.040	0.691
BMI	0.048	0.638	0.032	0.752	0.053	0.605	0.032	0.751
TC	-0.215	0.032	-0.229	0.022	-0.107	0.289	-0.248	0.013
T2DM	0.035	0.728	0.058	0.569	-0.102	0.311	0.091	0.370
HTN	0.018	0.858	0.024	0.810	-0.041	0.683	0.006	0.956
Statin	-0.034	0.740	-0.035	0.727	-0.042	0.675	0.018	0.861
Metformin	0.089	0.379	0.124	0.219	-0.086	0.395	0.140	0.165
RASI	0.312	0.002	0.304	0.002	0.145	0.150	0.296	0.003
Amiodarone	0.382	<0.001	0.359	<0.001	0.379	<0.001	0.358	<0.001

  

Multivariate Linear Regression								
	Shannon index		Chao richness		Pielou evenness		Simpson	
	<i>Beta</i>	<i>p</i> value	<i>Beta</i>	<i>p</i> value	<i>Beta</i>	<i>p</i> value	<i>Beta</i>	<i>p</i> value
AF	0.386	0.003	0.064	0.631	0.419	0.001	0.380	0.004
Age	0.111	0.324	0.112	0.353	0.108	0.339	0.175	0.131
Gender	-0.092	0.333	-0.171	0.094	-0.074	0.432	-0.088	0.363
BMI	-0.051	0.587	0.053	0.600	-0.067	0.476	-0.090	0.351
TC	-0.064	0.532	-0.126	0.252	-0.049	0.632	0.009	0.931
T2DM	-0.170	0.192	-0.100	0.473	-0.171	0.187	-0.095	0.473
HTN	-0.078	0.443	-0.168	0.124	-0.058	0.566	-0.185	0.078
RASI	0.125	0.267	0.007	0.951	0.136	0.223	0.133	0.246
Statin	-0.149	0.121	-0.114	0.266	-0.147	0.126	-0.067	0.492
Amiodarone	0.199	0.050	0.377	0.001	0.153	0.127	0.091	0.378
Metformin	0.103	0.423	-0.068	0.621	0.127	0.321	0.095	0.469

Abbreviations: AF: atrial fibrillation; BMI: body mass index; HTN: hypertension; DM: diabetes mellitus; TC: total cholesterol; HTN: hypertension; RASI: renin-angiotensin system inhibitor.

**Supplementary Table 5. Viral, bacterial, and CAAP-AF score for each sample.**

<b>ID</b>	<b>Viral score</b>	<b>Bacteria score</b>	<b>CAAP-AF score</b>
no_reAF1	-1.643436274	-0.438057175	8
no_reAF2	-0.572739537	-0.559589758	4
no_reAF3	-1.112909752	-0.41292474	5
no_reAF4	-1.720926254	-0.480547348	4
no_reAF5	-1.663225355	-0.629424774	3
no_reAF6	-1.207326045	-0.457982056	2
no_reAF7	-0.794490746	-0.403373535	7
no_reAF8	-1.449086837	-0.924431659	4
no_reAF9	-0.690488681	-0.372348362	3
no_reAF10	-1.590535439	-0.83456788	5
no_reAF11	-1.454642971	-1.018637523	1
no_reAF12	-1.38143236	-0.522411896	3
no_reAF13	-1.17920171	-0.784698581	6
no_reAF14	-0.745314246	-0.941740217	7
no_reAF15	-1.446141423	-0.846711054	3
no_reAF16	-2.376555056	-0.406248875	4
no_reAF17	-1.028053231	-0.121126375	0
no_reAF18	-0.853312857	-1.094805179	2
no_reAF19	-1.086303952	-0.405425016	1
no_reAF20	-1.390471095	-0.474613524	1
no_reAF21	-1.001423967	-0.838099047	4
no_reAF22	-1.534434775	-0.913203781	3
no_reAF23	-0.39917529	-0.515052	1
reAF1	0.857412367	0.130452354	5
reAF2	0.662074237	-0.114841987	2
reAF3	0.788297736	-0.430826956	4
reAF4	0.808764009	-0.072169315	1
reAF5	0.089692379	0.094527915	4
reAF6	1.711957888	0.744633894	8
reAF7	1.333083101	-0.166743886	7
reAF8	0.539843254	-0.285436126	7
reAF9	0.67832355	0.1271324	2
reAF10	1.638005186	0.942875207	4
reAF11	1.182311213	-0.386605779	4
reAF12	0.194674374	-0.160757943	4

reAF13	1.581301599	-0.215528759	6
reAF14	0.785256346	0.821312269	5
reAF15	0.2598357	0.680733825	6
reAF16	0.638192391	-0.413989751	7
reAF17	0.067054588	0.611781801	8

Abbreviations: viral score = (-0.4191 \*(Intercept)) + (-151.9898 \*Lepidopteran hudovirus) + (-824.8187 \*Acanthocystis turfacea chlorella virus 1) + (-32.1303 \*Synechococcus phage S-RIM8) + (-36.6109660550033 \*Agrotis segetum nucleopolyhedrovirus B) + (-1001.4687 \*Mokola lyssavirus) + (1046.1101 \*Rhodococcus phage REQ1) + (564.2624 \*Chicken anemia virus) + (1061.2306 \*Escherichia virus HX01) + (1216.3961 \*Guajara orthobunyavirus) + (-879.1352 \*Escherichia virus ADB2) + (-80.5973 \*Azospirillum phage Cd) + (-3751.0734 \*Helicoverpa armigera granulovirus) + (1722.6372 \*Salmonella phage SPN3UB) + (73.0350 \*Listeria virus P100) + (112.2706 \*Beihai zhaovirus-like virus 1) + (9441.7402 \*Maize rayado fino virus) + (34369.6655 \*Ribgrass mosaic virus) + (568.4422 \*Wuhan millipede virus 3) + (2657.2776 \*Wuhan insect virus 14) + (3857.4019 \*Narcissus mosaic virus) + (1303.9541 \*Paracoccus phage vB\_PmaS-R3).