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## **Supplemental Information**

**Circulating miR-4763-3p Is a Novel Potential**

**Biomarker Candidate for Human Adult**

**Fulminant Myocarditis**

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**Supplementary Table S1. The clinical characteristics of FM patients in miRNA microarray analysis and qPCR analysis.**

<b>Patients</b>	<b>Gender</b>	<b>Age (Year)</b>	<b>BP (mmHg)</b>	<b>HR (time/min)</b>	<b>Symptoms</b>	<b>Dyspnea</b>	<b>Shock</b>
1	Female	27	90/55	143	Chest distress	-	-
2	Male	60	94/51	122	Weak	-	-
3	Female	20	85/59	56	Chest distress	-	+
4	Female	16	100/60	140	Fever	+	-
5	Male	15	98/48	110	Fever, Weak	-	-
6	Male	19	120/62	50	Chest distress	-	-
7	Female	29	76/43	116	Fever, Weak	-	+
8	Female	62	88/62	112	Chest pain	-	+
9	Female	33	60/45	110	Chest distress	+	+
10	Male	20	117/63	70	Chest pain	-	-
11	Male	22	88/60	88	Chest distress	-	+
12	Male	55	78/42	87	Fever	+	+
13	Female	58	98/53	72	Chest distress	-	-
14	Female	65	101/70	88	Stomachache	-	-
15	Female	68	92/67	110	Chest pain	-	-
16	Male	15	85/50	120	Fever, Weak	-	-
17	Male	17	111/57	122	Chest pain	-	-
18	Male	39	130/70	72	Fever	-	-
19	Female	49	97/49	118	Chest pain	-	+
20	Female	42	79/50	125	Fever	-	+

BP, blood pressure; HR, heart rate; “+” means positive; “-” means negative.

**Supplementary Table S2. The laboratory characteristics of FM patients in miRNA microarray analysis and qPCR analysis.**

<b>Patients</b>	<b>Troponin (pg/ml)</b>	<b>BNP (pg/ml)</b>	<b>WBC (10<sup>9</sup>/L)</b>	<b>Neutrophil (10<sup>9</sup>/L)</b>	<b>ALT (U/L)</b>	<b>AST (U/L)</b>
1	39843.5	12600	4.25	3.15	530	430
2	38729.4	30491	14.94	12.96	11	83
3	19159.8	6033	11.36	9.23	162	233
4	3369.3	17426	12.25	7.66	1155	1857
5	50000	11806	16.48	15.01	76	232
6	50000	878	10.78	8.45	33	208
7	21186.5	11715	11.82	8.69	121	174
8	50000	-	31.39	29.76	306	547
9	50000	12289	7.02	6.53	147	589
10	50000	3910	9.38	7.93	69	663
11	50000	3910	10.5	10.1	49	262
12	50000	43482	14.2	12.12	2978	7000
13	38889.4	8900	8.16	7.62	61	181
14	1500	15600	9.58	7.49	113	103
15	9108.4	10657	6.43	5.23	75	69
16	23350	10490	6.48	5.43	121	243
17	28122.6	529	10.27	7.74	27	112
18	50000	5484	7.9	6.45	406	311
19	24445.5	40665	8.26	7.2	42	138
20	50000	6618	10.02	8.26	668	1257

BNP, natriuretic peptide; WBC, white blood cell; ALT, glutamic-pyruvic transaminase; AST, glutamic oxalacetic transaminase.

**Supplementary Table S3. The laboratory and virus serological characteristics of FM patients in miRNA microarray analysis and qPCR analysis.**

<b>Patients</b>	<b>BUN (mmol/L)</b>	<b>SCR (<math>\mu</math>mol/L)</b>	<b>PT (s)</b>	<b>APTT (s)</b>	<b>CMV (IgG/IgM)</b>	<b>EBV (IgG/IgM)</b>	<b>CBV (IgG/IgM)</b>
1	9.04	59	15.3	49	Not detected	Not detected	Not detected
2	6.31	99	17.9	53.5	+/-	+/+	+/+
3	7.37	73	-	-	Not detected	Not detected	Not detected
4	8	76	16.2	42.2	+/-	+/-	+/-
5	6.95	98	20.1	>180	Not detected	Not detected	Not detected
6	6	103	14.6	41.7	Not detected	Not detected	Not detected
7	7.93	71	17.8	73.4	Not detected	Not detected	Not detected
8	12.52	131	18.6	100.8	+/-	+/+	+/+
9	5.27	45	18	180	Not detected	Not detected	Not detected
10	1.38	73	14.1	33.9	Not detected	Not detected	Not detected
11	7.38	91	15.4	105	Not detected	Not detected	Not detected
12	19.78	248	20.1	57	Not detected	Not detected	Not detected
13	6.28	66	14.7	38.7	Not detected	Not detected	Not detected
14	4.7	84	14.5	30	Not detected	Not detected	Not detected
15	7	65	15.4	35	Not detected	Not detected	Not detected
16	6.82	58	16.1	39.9	+/-	Not detected	Not detected
17	3.7	63	13.5	37.2	Not detected	Not detected	Not detected
18	7.3	87	13.9	35.2	+/-	+/-	+/-
19	12.66	121	13.6	-	Not detected	Not detected	Not detected
20	6.89	116	15.4	36	Not detected	Not detected	Not detected

BUN, blood urea nitrogen; SCR, serum creatinine; PT, prothrombin time; APTT, activated partial thromboplastin time; CMV, cytomegalovirus; EBV, Epstein-Barr virus; CBV, coxsackie B virus. “+” means positive; “-” means negative.

**Supplementary Table S4. The imaging examination characteristics of FM patients in miRNA microarray analysis and qPCR analysis.**

<b>Patients</b>	<b>LVEF (%)</b>	<b>MRI</b>
1	30	edema;
2	40	no detection
3	20	necrosis
4	26	necrosis
5	23	edema; necrosis
6	50	no detection
7	18	no detection
8	38	necrosis
9	30	necrosis
10	40	edema; necrosis
11	60	necrosis
12	36	edema; necrosis
13	45	necrosis
14	20	necrosis
15	30	necrosis;
16	25	edema; necrosis
17	53	necrosis
18	45	necrosis
19	44	necrosis
20	52	necrosis

LVEF, left ventricular ejection fraction; MRI, magnetic resonance imaging.

**Supplementary Table S5. The clinical characteristics of healthy controls in miRNA microarray analysis and qPCR analysis.**

<b>No.</b>	<b>Gender</b>	<b>Age (Year)</b>	<b>BP (mmHg)</b>	<b>RR (time/min)</b>	<b>HR (time/min)</b>	<b>Symptoms</b>	<b>Troponin (pg/ml)</b>	<b>BNP (pg/ml)</b>
1	Male	27	112/76	25	86	non	normal	normal
2	Male	30	120/70	24	78	non	normal	normal
3	Female	26	109/64	22	82	non	normal	normal
4	Male	29	111/80	22	78	non	normal	normal
5	Female	31	106/60	23	90	non	normal	normal
6	Male	26	111/69	22	78	non	normal	normal
7	Female	28	118/78	26	81	non	normal	normal
8	Male	31	109/68	25	90	non	normal	normal
9	Male	29	110/78	24	82	non	normal	normal
10	Male	28	120/80	29	76	non	normal	normal

BP, blood pressure; RR, respiratory rate; HR, heart rate; BNP, natriuretic peptide.

**Supplementary Table S6. Expressions of changed miRNAs in plasma from FM patients detected by microarray.**

miRNAs	rep-1		rep-2		Change Consistency
	Fold Change	P-value	Fold Change	P-value	
hsa-miR-1292-3p	5.5665716	0.017400127	4.2915561	0.148434873	Yes
hsa-miR-1343-5p	2.1706765	0.013140548	1.5661065	0.123807629	Yes
hsa-miR-187-5p	3.8760104	0.023390019	1.9169418	0.021897065	Yes
hsa-miR-3663-3p	2.1079457	3.25035E-05	1.8542373	0.014886535	Yes
hsa-miR-3960	2.1290809	0.01088666	2.7086013	0.043127715	Yes
hsa-miR-4281	2.2751115	0.002312042	2.6016621	0.01765731	Yes
hsa-miR-4516	2.348358	0.003367775	1.746351	0.047434271	Yes
hsa-miR-4687-3p	2.2576347	0.046363172	3.195623	0.098491181	Yes
hsa-miR-4763-3p	2.2893713	0.003233119	2.4314457	0.043467693	Yes
hsa-miR-5096	8.0888842	0.027584302	2.2915277	0.492991283	Yes
hsa-miR-557	2.1574977	0.033326534	1.7082006	0.151700188	Yes
hsa-miR-6090	2.2540275	0.023014246	2.5249579	0.052865817	Yes
hsa-miR-6787-3p	7.7677508	0.020459967	4.9245955	0.109112661	Yes
hsa-miR-6850-5p	2.1530108	0.026485425	2.2993003	0.060326852	Yes
hsa-miR-762	2.8516224	0.009787574	3.0108339	0.082569859	Yes
hsa-miR-1207-5p	1.8239762	0.012423968	2.1650684	0.036489617	Yes
hsa-miR-2861	1.6773418	0.073602858	2.1877244	0.035195411	Yes
hsa-miR-3615	5.1474729	0.121622138	11.2102729	0.036488215	Yes
hsa-miR-5585-3p	8.0514333	0.082807466	30.8210635	0.03420369	Yes
hsa-miR-6089	1.7274137	0.047136898	2.2563471	0.019368792	Yes
hsa-miR-6800-5p	1.74665	0.004385088	2.0700685	0.019441732	Yes
hsa-miR-6869-5p	2.1820196	0.073793449	3.4925469	0.009152809	Yes
hsa-miR-103a-2-5p	0.36537	0.270931903	0.070726	0.012269165	Yes

hsa-miR-151a-3p	0.026912	0.033212323	0.003523	8.36429E-05	Yes
hsa-miR-330-3p	0.157352	0.105014502	0.056014	0.013896628	Yes
hsa-miR-519d-3p	0.201808	0.104146701	0.075466	0.026640582	Yes
hsa-miR-126-5p	0.131086	0.048208162	0.215016	0.186527183	Yes
hsa-miR-223-3p	0.111126	0.00579297	0.10536	0.078707711	Yes
hsa-miR-451a	0.02825	0.006711307	0.015981	0.057119657	Yes
hsa-miR-486-5p	0.231677	0.006260743	0.252604	0.076834895	Yes

Fold Change > 2.0 with P-value < 0.05 or Fold Change < 0.5 with P-value < 0.05 were considered statistically significant for up- or down-regulated miRNAs respectively.

**Supplementary Table S7. The clinical characteristics of MI patients in miRNA microarray analysis.**

<b>Patients</b>	<b>Gender</b>	<b>Age (Year)</b>	<b>BP (mmHg)</b>	<b>Symptoms</b>	<b>LVEF (%)</b>	<b>Troponin (pg/ml)</b>	<b>BNP (pg/ml)</b>
1	Female	30	100/66	Chest Pain	69	2347.90	1210
2	Female	36	110/62	Chest Pain	52	3509.6	3367
3	Male	36	98/60	Chest Pain	62	3509.6	2231
4	Male	38	100/60	Chest Pain	66	4343	1899
5	Male	38	92/52	Chest Pain	63	3427.53	2176

BP, blood pressure; LVEF, left ventricular ejection fraction; BNP, natriuretic peptide.



**Supplementary Table S8. The treatment strategy for each FM patient.**

Patients	IABP	ECMO	CRRT	Anti-virus	Glucocorticoid	Dopamine	Survival
1	+	-	+	+	+	-	Yes
2	+	-	+	+	+	+	Yes
3	+	-	+	+	+	-	Yes
4	+	-	+	+	+	-	Yes
5	+	+	+	+	+	-	Yes
6	+	-	+	+	+	-	Yes
7	+	+	+	+	+	+	Yes
8	+	-	+	+	+	+	Yes
9	+	+	+	+	+	+	No
10	+	-	-	+	+	-	Yes
11	+	-	+	+	+	+	Yes
12	+	+	+	+	+	+	Yes
13	+	-	+	+	+	-	Yes
14	+	-	-	+	+	+	Yes
15	+	-	+	+	+	-	Yes
16	+	-	+	+	+	+	Yes
17	+	-	+	+	+	-	Yes
18	+	-	+	+	+	+	Yes
19	+	-	+	+	+	-	Yes
20	+	+	+	+	+	+	Yes

IABP, intra-aortic balloon pump; ECMO, extracorporeal membrane oxygenation; CRRT, continuous renal replacement therapy. “+” means Yes; “-” means No.

**Supplementary Table S9. Expression of miRNAs in plasma from FM patients with treatment detected by microarray.**

Name	Fold Change	P-value	FDR
miR-4281	1.58	0.053	0.46
miR-4763-3p	1.06	0.73	0.89
miR-151a-3p	0.004	<0.001	0.13

FDR: false discovery rate.