

**Table S1.** All characteristics of all studies on the use of miRNAs as diagnostic biomarkers of myocardial infarction

Study (author, year, reference)	miRNA biomarker (fold change)	Study design (location and setting)	Study population (number, age, sex; m/f)	Source	AMI diagnosis	miRNA (1) Isolation (2) Detection (3) Normalization	Multivariate analysis	Quality score	Time of blood sampling	Base level (fold)	Time of measurable increase	Peak level (fold)	Peak time	Duration	Sensitivity	Specificity	AUC	
Adachi, T. et al. 2010 [11]	miR-499-1	Japan Hospital admission	9 patients with AMI Age: 66.3±9.39 Sex (m/f): 6/3	10 healthy adults Age: 41.5±6.0 Sex (m/f): 5/5	Plasma	None	(1) miRNA PARIS kit (2) qPCR, TaqMan (3) Small nuclear RNA U6	No	5	<48 h	—	<48 h	6–12 h	Before discharge	1.00	1.00	—	
Al, J. et al. 2010 [12]	miR-1	China Hospital admission	93 patients with AMI Age: 58.2±10.2 Sex (m/f): 67/26	66 healthy adults Age: 55.1±9.6 Sex (m/f): 39/27	Plasma	Ischemic symptoms; increased cTnI and CK-MB; pathological Q wave	(1) miRNA miRNA isolation kit (2) qPCR (3) Small nuclear RNA U6	No	6	—	—	—	—	—	0.73	0.88	0.774	
Chang, Y. et al. 2010 [13]	miR-1	China Hospital admission	31 patients with AMI Age: 57±6.1 Sex (m/f): 18/13	20 non-AMI with at least one vessel disease patients Age: 62±13 Sex (m/f): 20/12	Serum	Chest pain characteristic of myocardial infarction lasting 30 min or more; ST segment elevation within 4 h of chest pain at at least 1.1 mV in at least two leads of the ECG	(1) miRNA PARIS isolation kit (2) qPCR (3) miR-1	No	8	8.5 ± 3.82 h	1	100	6 h	7 days	—	—	—	
Corsten, M.F. et al. 2010 [14]	miR-208b-1 miR-499-1	The Netherlands; Belgium; Luxembourg Hospital admission	32 patients with AMI Age: 62±13 Sex (m/f): 20/12	36 non-AMI with atypical chest pain patients Age: 62±13 Sex (m/f): 20/12	Plasma	ST segment elevation or depression ST segment elevation and ST-T up to greater than 2-fold the upper limit of normal	(1) miRNA PARIS kit (2) qPCR, miScript kit (3) 3 C elegans spike-in miRNAs	No	7	8.5 ± 3.82 h <12 h of onset of chest pain	1 1 1	100 1460 1420	6 h <12 h <12 h	7 days — —	— 0.91 0.85	— 0.89 0.89	— 0.94 0.98	
D'Alessandro, V. et al. 2010 [15]	miR-1 miR-133a-1 miR-499-5p miR-122-1 miR-21	Italy Hospital admission	33 STEMI patients Age: 46.1±13.9 Sex (m/f): 13/4 25 patients Age: 57.2±8.6 Sex (m/f): 24/1 8 patients Age: 61.4±9	17 healthy people Age: 46.1±13.9 Sex (m/f): 13/4	Plasma	CTnI; acute anterior STEMI undergoing PPCI, late symptom-to-balloon < 2 h and < 12 h; EF post PCI = 45%; TIMI flow > 2 post PPCI	(1) TRIzol LS reagent, miRNA PARIS, miRNA NGS kit (2) qPCR, TaqMan (3) miR-150	Yes (age)	9	Group1: 25 patients 517 ± 309 pmol/day 5, day 30 Group 2: 8 patients 156 ± 72 pmol at the onset of symptoms and again at 3, 9, 15, 21, 33, 45, and 60 h	Group 1 Group 2	Group 1 Group 2	Group 1 Group 2	Group 1 and Group 2 ALL	ALL	ALL	ALL	
Gidof, O. et al. 2011 [16]	miR-1 miR-133a-1 miR-208b-1 miR-499-5p	Sweden Hospital admission	25 STEMI patients Age: 59.6±12.7 Sex (m/f): 20/5	11 healthy people Age: 60.9±16.3 Sex (m/f): 7/4	Plasma	Patients undergoing primary percutaneous coronary intervention at Skane University Hospital Lund due to an STEMI were eligible for inclusion	(1) TRIzol LS reagent, miRNA PARIS, miRNA NGS kit (2) qPCR (3) C elegans spike-in miRNAs were normalized against the arbitrary unit of 40	No	7	First within 2 h (<12 h, n=9) and >12 h, n=16) of onset of symptoms, second within 48 h, and third within 72 h.	ALL	<12 h <12 h <12 h 250	<12 h >72 h >72 h 1.00	<12 h Patients, n = 9 controls, n = 11 0.82 0.86 1.00 0.99	<12 h Patients, n = 9 controls, n = 11 0.86 0.96 1.00 0.99	<12 h Patients, n = 9 controls, n = 11 0.98 0.96 1.00 0.97		
Kuwabara, Y. et al. 2011 [17]	miR-1 miR-133a-1 miR-499-5p	Japan CCU admission	29 ACS (21 MI and 8 IAF) Age: 69.7±2.4 Sex (m/f): 23/6	42 non-ACS people Age: 67.8±2.4 Sex (m/f): 24/18	Plasma	CK-MB; cTnI; pathological Q wave; ST segment elevation or depression; chest pain	(1) TRIzol LS reagent (2) qPCR, TaqMan (3) Small nuclear RNA U6	No	8	miR-1 <3 h, 3–9 h, 9–15 h, 15–21 h, >21 h miR-133a <3 h, 3–9 h, 9–15 h, 15–21 h, >21 h miR-499-5p 4 h, 4–8 h, 8–12 h, 12–16 h, 16–20 h, 20–24 h, 24–48 h, 48–72 h, 72–96 h, 96–144 h, 144–216 h, 216–360 h, 360–504 h, 504–720 h, 720–1008 h, 1008–1440 h, 1440–2160 h, 2160–3600 h, 3600–5040 h, 5040–7200 h, 7200–10080 h	ALL	<3 h ALL	<3 h ALL	<15 h 6.00	0.96	0.77		
Long, G. et al. 2012 [18]	miR-126-1	China Hospital admission	17 patients with AMI Age: 53±12.5 Sex (m/f): 13/4	25 healthy adults Age: 51±7.2 Sex (m/f): 14/11	Plasma	CK-MB; cTnI; pathological Q wave; ST segment elevation or depression; ischemic symptoms	(1) TRIzol LS reagent (2) qPCR (3) Small nuclear RNA U6	No	7	miR-1 <3 h (n = 30 min), 3 h (n = 30 min), 12 h (n = 30 min), 24 h (n = 30 min), 48 h (n = 30 min), 72 h (n = 30 min), and 1 w (n = 60 min) after the onset of symptoms	ALL	<3 h 15.87 ± 4.5	8 h	1 w	4 h: 0.83, 8 h: 0.93, 12 h: 0.94, 24 h: 0.90, 48 h: 0.90, 72 h: 0.90, 96 h: 0.90, 120 h: 0.88, 144 h: 0.87, 168 h: 0.86, 192 h: 0.87, 216 h: 0.87, 240 h: 0.87, 264 h: 0.87, 288 h: 0.87, 312 h: 0.86, 336 h: 0.87, 360 h: 0.86, 384 h: 0.86, 408 h: 0.86, 432 h: 0.86, 456 h: 0.86, 480 h: 0.86, 504 h: 0.86, 528 h: 0.86, 552 h: 0.86, 576 h: 0.86, 600 h: 0.86, 624 h: 0.86, 648 h: 0.86, 672 h: 0.86, 700 h: 0.86, 720 h: 0.86, 744 h: 0.86, 768 h: 0.86, 792 h: 0.86, 816 h: 0.86, 840 h: 0.86, 864 h: 0.86, 888 h: 0.86, 912 h: 0.86, 936 h: 0.86, 960 h: 0.86, 984 h: 0.86, 1008 h: 0.86, 1032 h: 0.86, 1056 h: 0.86, 1080 h: 0.86, 1104 h: 0.86, 1128 h: 0.86, 1152 h: 0.86, 1176 h: 0.86, 1200 h: 0.86, 1224 h: 0.86, 1248 h: 0.86, 1272 h: 0.86, 1296 h: 0.86, 1320 h: 0.86, 1344 h: 0.86, 1368 h: 0.86, 1392 h: 0.86, 1416 h: 0.86, 1440 h: 0.86, 1464 h: 0.86, 1488 h: 0.86, 1512 h: 0.86, 1536 h: 0.86, 1560 h: 0.86, 1584 h: 0.86, 1608 h: 0.86, 1632 h: 0.86, 1656 h: 0.86, 1680 h: 0.86, 1704 h: 0.86, 1728 h: 0.86, 1752 h: 0.86, 1776 h: 0.86, 1800 h: 0.86, 1824 h: 0.86, 1848 h: 0.86, 1872 h: 0.86, 1900 h: 0.86, 1920 h: 0.86, 1944 h: 0.86, 1968 h: 0.86, 1992 h: 0.86, 2016 h: 0.86, 2040 h: 0.86, 2064 h: 0.86, 2088 h: 0.86, 2112 h: 0.86, 2136 h: 0.86, 2160 h: 0.86, 2184 h: 0.86, 2208 h: 0.86, 2232 h: 0.86, 2256 h: 0.86, 2280 h: 0.86, 2304 h: 0.86, 2328 h: 0.86, 2352 h: 0.86, 2376 h: 0.86, 2400 h: 0.86, 2424 h: 0.86, 2448 h: 0.86, 2472 h: 0.86, 2496 h: 0.86, 2520 h: 0.86, 2544 h: 0.86, 2568 h: 0.86, 2592 h: 0.86, 2616 h: 0.86, 2640 h: 0.86, 2664 h: 0.86, 2688 h: 0.86, 2712 h: 0.86, 2736 h: 0.86, 2760 h: 0.86, 2784 h: 0.86, 2808 h: 0.86, 2832 h: 0.86, 2856 h: 0.86, 2880 h: 0.86, 2904 h: 0.86, 2928 h: 0.86, 2952 h: 0.86, 2976 h: 0.86, 3000 h: 0.86, 3024 h: 0.86, 3048 h: 0.86, 3072 h: 0.86, 3096 h: 0.86, 3120 h: 0.86, 3144 h: 0.86, 3168 h: 0.86, 3192 h: 0.86, 3216 h: 0.86, 3240 h: 0.86, 3264 h: 0.86, 3288 h: 0.86, 3312 h: 0.86, 3336 h: 0.86, 3360 h: 0.86, 3384 h: 0.86, 3408 h: 0.86, 3432 h: 0.86, 3456 h: 0.86, 3480 h: 0.86, 3504 h: 0.86, 3528 h: 0.86, 3552 h: 0.86, 3576 h: 0.86, 3600 h: 0.86, 3624 h: 0.86, 3648 h: 0.86, 3672 h: 0.86, 3696 h: 0.86, 3720 h: 0.86, 3744 h: 0.86, 3768 h: 0.86, 3792 h: 0.86, 3816 h: 0.86, 3840 h: 0.86, 3864 h: 0.86, 3888 h: 0.86, 3912 h: 0.86, 3936 h: 0.86, 3960 h: 0.86, 3984 h: 0.86, 4008 h: 0.86, 4032 h: 0.86, 4056 h: 0.86, 4080 h: 0.86, 4104 h: 0.86, 4128 h: 0.86, 4152 h: 0.86, 4176 h: 0.86, 4200 h: 0.86, 4224 h: 0.86, 4248 h: 0.86, 4272 h: 0.86, 4296 h: 0.86, 4320 h: 0.86, 4344 h: 0.86, 4368 h: 0.86, 4392 h: 0.86, 4416 h: 0.86, 4440 h: 0.86, 4464 h: 0.86, 4488 h: 0.86, 4512 h: 0.86, 4536 h: 0.86, 4560 h: 0.86, 4584 h: 0.86, 4608 h: 0.86, 4632 h: 0.86, 4656 h: 0.86, 4680 h: 0.86, 4704 h: 0.86, 4728 h: 0.86, 4752 h: 0.86, 4776 h: 0.86, 4800 h: 0.86, 4824 h: 0.86, 4848 h: 0.86, 4872 h: 0.86, 4896 h: 0.86, 4920 h: 0.86, 4944 h: 0.86, 4968 h: 0.86, 4992 h: 0.86, 5016 h: 0.86, 5040 h: 0.86, 5064 h: 0.86, 5088 h: 0.86, 5112 h: 0.86, 5136 h: 0.86, 5160 h: 0.86, 5184 h: 0.86, 5208 h: 0.86, 5232 h: 0.86, 5256 h: 0.86, 5280 h: 0.86, 5304 h: 0.86, 5328 h: 0.86, 5352 h: 0.86, 5376 h: 0.86, 5400 h: 0.86, 5424 h: 0.86, 5448 h: 0.86, 5472 h: 0.86, 5496 h: 0.86, 5520 h: 0.86, 5544 h: 0.86, 5568 h: 0.86, 5592 h: 0.86, 5616 h: 0.86, 5640 h: 0.86, 5664 h: 0.86, 5688 h: 0.86, 5712 h: 0.86, 5736 h: 0.86, 5760 h: 0.86, 5784 h: 0.86, 5808 h: 0.86, 5832 h: 0.86, 5856 h: 0.86, 5880 h: 0.86, 5904 h: 0.86, 5928 h: 0.86, 5952 h: 0.86, 5976 h: 0.86, 6000 h: 0.86, 6024 h: 0.86, 6048 h: 0.86, 6072 h: 0.86, 6096 h: 0.86, 6120 h: 0.86, 6144 h: 0.86, 6168 h: 0.86, 6192 h: 0.86, 6216 h: 0.86, 6240 h: 0.86, 6264 h: 0.86, 6288 h: 0.86, 6312 h: 0.86, 6336 h: 0.86, 6360 h: 0.86, 6384 h: 0.86, 6408 h: 0.86, 6432 h: 0.86, 6456 h: 0.86, 6480 h: 0.86, 6504 h: 0.86, 6528 h: 0.86, 6552 h: 0.86, 6576 h: 0.86, 6600 h: 0.86, 6624 h: 0.86, 6648 h: 0.86, 6672 h: 0.86, 6696 h: 0.86, 6720 h: 0.86, 6744 h: 0.86, 6768 h: 0.86, 6792 h: 0.86, 6816 h: 0.86, 6840 h: 0.86, 6864 h: 0.86, 6888 h: 0.86, 6912 h: 0.86, 6936 h: 0.86, 6960 h: 0.86, 6984 h: 0.86, 7008 h: 0.86, 7032 h: 0.86, 7056 h: 0.86, 7080 h: 0.86, 7104 h: 0.86, 7128 h: 0.86, 7152 h: 0.86, 7176 h: 0.86, 7200 h: 0.86, 7224 h: 0.86, 7248 h: 0.86, 7272 h: 0.86, 7296 h: 0.86, 7320 h: 0.86, 7344 h: 0.86, 7368 h: 0.86, 7392 h: 0.86, 7416 h: 0.86, 7440 h: 0.86, 7464 h: 0.86, 7488 h: 0.86, 7512 h: 0.86, 7536 h: 0.86, 7560 h: 0.86, 7584 h: 0.86, 7608 h: 0.86, 7632 h: 0.86, 7656 h: 0.86, 7680 h: 0.86, 7704 h: 0.86, 7728 h: 0.86, 7752 h: 0.86, 7776 h: 0.86, 7800 h: 0.86, 7824 h: 0.86, 7848 h: 0.86, 7872 h: 0.86, 7900 h: 0.86, 7920 h: 0.86, 7944 h: 0.86, 7968 h: 0.86, 7992 h: 0.86, 8016 h: 0.86, 8032 h: 0.86, 8064 h: 0.86, 8080 h: 0.86, 8100 h: 0.86, 8120 h: 0.86, 8140 h: 0.86, 8160 h: 0.86, 8180 h: 0.86, 8200 h: 0.86, 8220 h: 0.86, 8240 h: 0.86, 8260 h: 0.86, 8280 h: 0.86, 8300 h: 0.86, 8320 h: 0.86, 8340 h: 0.86, 8360 h: 0.86, 8380 h: 0.86, 8400 h: 0.86, 8420 h: 0.86, 8440 h: 0.86, 8460 h: 0.86, 8480 h: 0.86, 8500 h: 0.86, 8520 h: 0.86, 8540 h: 0.86, 8560 h: 0.86, 8580 h: 0.86, 8600 h: 0.86, 8620 h: 0.86, 8640 h: 0.86, 8660 h: 0.86, 8680 h: 0.86, 8700 h: 0.86, 8720 h: 0.86, 8740 h: 0.86, 8760 h: 0.86, 8780 h: 0.86, 8800 h: 0.86, 8820 h: 0.86, 8840 h: 0.86, 8860 h: 0.86, 8880 h: 0.86, 8900 h: 0.86, 8920 h: 0.86, 8940 h: 0.86, 8960 h: 0.86, 8980 h: 0.86, 9000 h: 0.86, 9020 h: 0.86, 9040 h: 0.86, 9060 h: 0.86, 9080 h: 0.86, 9100 h: 0.86, 9120 h: 0.86, 9140 h: 0.86, 9160 h: 0.86, 9180 h: 0.86, 9200 h: 0.86, 9220 h: 0.86, 9240 h: 0.86, 9260 h: 0.86, 9280 h: 0.86, 9300 h: 0.86, 9320 h: 0.86, 9340 h: 0.86, 9360 h: 0.86, 9380 h: 0.86, 9400 h: 0.86, 9420 h: 0.86, 9440 h: 0.86, 9460 h: 0.86, 9480 h: 0.86, 9500 h: 0.86, 9520 h: 0.86, 9540 h: 0.86, 9560 h: 0.86, 9580 h: 0.86, 9600 h: 0.86, 9620 h: 0.86, 9640 h: 0.86, 9660 h: 0.86, 9680 h: 0.86, 9700 h: 0.86, 9720 h: 0.86, 9740 h: 0.86, 9760 h: 0.86, 9780 h: 0.86, 9800 h: 0.86, 9820 h: 0.86, 9840 h: 0.86, 9860 h: 0.86, 9880 h: 0.86, 9900 h: 0.86, 9920 h: 0.86, 9940 h: 0.86, 9960 h: 0.86, 9980 h: 0.86, 10000 h: 0.86			
Long, G. et al. 2012 [19]	miR-30a-1 miR-195	China Hospital admission	18 patients with AMI Age: 55 ± 11.4 Sex (m/f): 13/5	30 healthy adults Age: 50 ± 12.3 Sex (m/f): 17/13	Plasma	CK-MB; cTnI; pathological Q wave; ST segment elevation or depression; ischemic symptoms	(1) TRIzol LS reagent (2) qPCR, GenScan mini kit (3) Small nuclear RNA U6	No	7	miR-30a-1 <4 h (n = 30 min), 4 h (n = 30 min), 12 h (n = 30 min), 24 h (n = 30 min), 48 h (n = 30 min), 72 h (n = 30 min), and 1 w (n = 60 min) after the onset of symptoms	ALL	<4 h 4 h: 1.4±0.40 12 h: 1.3±0.45 24 h: 1.3±0.45 48 h: 1.3±0.45 72 h: 1.3±0.45 1 w: 1.3±0.45	10.48 ± 2.75	8 h	1 w	4 h: 0.88, 8 h: 0.88, 12 h: 0.88	4 h: 0.83, 8 h: 0.86, 12 h: 0.86	4 h: 0.88, 8 h: 0.86, 12 h: 0.88
Mader, B. et al. 2011 [20]	miR-1291-1 miR-629a-1 miR-30c-1 miR-145f	Germany CCU admission	20 STEMI patients Age: 62.3±14.8 Sex (m/f): 16/4	20 healthy adults Age: 50 ± 12.3 Sex (m/f): 14/6	Whole blood	ESC/AHA redefined guidelines	(1) miRNA Nucleo Spin miRNA (2) qPCR, RiboSnp (3) Small nuclear RNA RNU6-2	No	7	3.0 ± 2.3 h after the onset of symptoms at 3 d and 4 d	ALL	ALL	ALL	ALL	0.85	0.85	0.91	
Oerlemans, M. I. F. et al. 2012 [21]	miR-1 miR-208a-1 miR-133a-1 miR-146a	The Netherlands ED admission	106 ACS patients (82 with NSTEMI, 24 with IAF) Age: 68.7±12.6 Sex (m/f): 70/36	226 non-ACS patients with CHD Age: 67.2±14.3 Sex (m/f): 120/106	Serum	Patients were enrolled at the ED of the Maastricht Medical Center (Maastricht, the Netherlands) between May 2007 and November 2007. STEMI—these patients underwent immediate PPCI or referral to a hospital informed consent for the early exclusion criteria	(1) TRIzol LS reagent (2) qPCR, TaqMan (3) Small nuclear RNA U6	Yes	10	NSTEMI <3 h 3–6 h 6–12 h 12–24 h 24–48 h 48–72 h 72–96 h 96–144 h 144–216 h 216–360 h 360–504 h 504–720 h 720–1008 h 1008–1440 h 1440–2160 h 2160–3600 h 3600–5040 h 5040–7200 h 7200–10080 h 10080–14400 h 14400–21600 h 21600–36000 h 36000–50400 h 50400–72000 h 72000–100800 h 100800–144000 h 144000–216000 h 216000–360000 h 360000–504000 h 504000–720000 h 720000–1008000 h 1008000–1440000 h 1440000–2160000 h 2160000–3600000 h 3600000–5040000 h 5040000–7200000 h 7200000–10080000 h 10080000–14400000 h 14400000–21600000 h 21600000–36000000 h 36000000–50400000 h 50400000–72000000 h 72000000–100800000 h 100800000–144000000 h 144000000–216000000 h 216000000–360000000 h 360000000–504000000 h 504000000–720000000 h 720000000–1008000000 h 1008000000–1440000000 h 1440000000–2160000000 h 2160000000–3600000000 h 3600000000–5040000000 h 5040000000–7200000000 h 7200000000–10080000000 h 10080000000–14400000000 h 14400000000–21600000000 h 21600000000–36000000000 h 36000000000–50400000000 h 50400000000–72000000000 h 72000000000–100800000000 h 100800000000–144000000000 h 144000000000–216000000000 h 216000000000–360000000000 h 360000000000–504000000000 h 504000000000–720000000000 h 720000000000–1008000000000 h 1008000000000–1440000000000 h 1440000000000–2160000000000 h 2160000000000–3600000000000 h 3600000000000–5040000000000 h 5040000000000–7200000000000 h 7200000000000–10080000000000 h 10080000000000–14400000000000 h 14400000000000–21600000000000 h 21600000000000–36000000000000 h 36000000000000–50400000000000 h 50400000000000–72000000000000 h 72000000000000–100800000000000 h 100800000000000–144000000000000 h 144000000000000–216000000000000 h 216000000000000–360000000000000 h 360000000000000–504000000000000 h 504000000000000–720000000000000 h 720000000000000–1008000000000000 h 1008000000000000–1440000000000000 h 1440000000000000–2160000000000000 h 2160000000000000–3600000000000000 h 3600000000000000–5040000000000000 h 5040000000000000–7200000000000000 h 7200000000000000–10080000000000000 h 10080000000000000–14400000000000000 h 14400000000000000–2160000000								