

## **Appendix**

# **Reprogramming-derived Gene Cocktail Increases Cardiomyocyte Proliferation for Heart Regeneration**

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Four appendix tables

Six appendix figures

## Appendix Tables

**Table S1.** List of genes from microarray showing > 2-fold up- or down-regulation at day 2 of CM reprogramming

Up-regulation					
Probe Name	Gene Symbol	Fold Change	Probe Name	Gene Symbol	Fold Change
A_55_P1983858	Scel	45.64251	A_52_P232637	Dhh	4.7735643
A_51_P468260	S100b	30.435705	A_55_P2324976	5033406O09Rik	4.7283297
A_52_P449871	Id4	22.281864	A_66_P129622	Phldb3	4.687701
A_52_P65237	Zbtb7c	13.476518	A_55_P2072561	Gm3065	4.5743523
A_52_P734742	Lrrc73	9.040887	A_51_P346165	Agpat4	4.557826
A_55_P2128153	Col6a1	8.170807	A_55_P2078365	Rgs12	4.5333815
A_55_P1960157	Bcat1	7.06457	A_55_P2060243	Itgbl1	4.4744444
A_55_P2394308	Fst	6.9435678	A_51_P342871	S100a10	4.420988
A_55_P2435563	Etl4	6.8120604	A_51_P446510	Emp3	4.39257
A_55_P2052563	Id1	6.740239	A_55_P2023188	Lsm2	4.327197
A_52_P60353	Greb1l	6.6704416	A_51_P386539	Rnf125	4.3269434
A_51_P109258	Cys1	6.6209254	A_55_P2060592	Hoxa1	4.1997914
A_55_P1993723	Acsbg2	6.5329037	A_51_P273556	Fam83d	4.17568
A_55_P2044143	Loxl4	6.458679	A_55_P2088615	Fbln5	4.146144
A_52_P281145	Kank4	6.4442263	A_55_P2176792	Sh3gl3	4.115314
A_51_P497724	Apol7a	6.3823647	A_55_P1954221	Emp1	4.046907
A_52_P381484	Spon2	6.2921624	A_55_P1992572	Celf4	4.0398936
A_55_P1962224	Afap1l2	6.124147	A_55_P1978962	Slc9a3r2	4.038525
A_52_P216672	Klk8	6.088077	A_66_P103654	Asxl3	4.0326796
A_55_P2059765	Foxf1	6.0161486	A_66_P109460	Mtfr2	3.9742641
A_52_P78373	Sorbs3	6.0027595	A_66_P136228	Rai14	3.964933
A_55_P2116180	Mrgprf	5.9930716	A_51_P453475	Slc1a5	3.9449556
A_51_P481159	Cbr3	5.9385004	A_55_P1996946	Cdc20	3.9338164
A_55_P1982404	Gpm6b	5.934873	A_51_P519008	Mkx	3.8981695
A_52_P187940	Lfng	5.7675996	A_55_P1997141	Mybl2	3.890319
A_52_P479262	Col6a3	5.6138806	A_51_P284665	Plcb1	3.884924
A_66_P107231	Loxl4	5.5048423	A_51_P427516	Thsd1	3.868489

A_55_P2282969	Gm2a	5.4894214	A_51_P344566	Plk1	3.864454
A_55_P2043627	Fam89a	5.430696	A_55_P2054663	Cox4i2	3.8643885
A_55_P1960238	Slc2a6	5.430179	A_55_P2068892	Il6ra	3.8381197
A_55_P1978927	Srgap1	5.2673154	A_55_P2004248	Apcdd1	3.8375382
A_51_P245368	Abcb1b	5.0189505	A_51_P362661	Spin4	3.8306196
A_55_P2079669	Bcat1	4.99613	A_52_P110534	Ttk	3.8258631
A_55_P2041828	Tubb3	4.9266286	A_52_P162099	Ckap2	3.8220913
A_55_P2091196	Hrct1	4.8966403	A_55_P2089035	Pole	3.820475
A_52_P106620	Tnfrsf11b	4.856102	A_55_P2025033	Cep55	3.8159385
A_52_P190647	Mxd3	3.8075	A_51_P255456	Cyp1b1	3.4338624
A_66_P134542	Anln	3.7966588	A_55_P2050439	Dlgap5	3.4318545
A_55_P2065671	Ccnb1	3.7957191	A_52_P411003	Dlgap5	3.4307065
A_55_P2136318	Slc1a5	3.794008	A_55_P1966332	Plac9a	3.4234562
A_52_P520466	Kif18b	3.7776713	A_55_P2100209	Kif2c	3.413538
A_55_P2090060	Mab21l3	3.7619236	A_55_P2022211	Plxdc2	3.4097457
A_51_P125205	Aqp1	3.7459762	A_55_P2061739	Tmsb4x	3.4020982
A_51_P270355	Dclk1	3.7252653	A_55_P2076048	Nuf2	3.4011672
A_51_P363749	Irf6	3.7250223	A_55_P1991605	Aplp1	3.3956993
A_52_P148212	Mis18bp1	3.655101	A_51_P515120	Hs3st3a1	3.3558095
A_55_P2023692	Neurl1a	3.6530645	A_51_P275697	Fam101b	3.3437078
A_51_P324287	Kif23	3.6165519	A_55_P2172201	Zfp57	3.3272264
A_55_P1966327	Plac9a	3.6114252	A_52_P35057	Kctd17	3.3261037
A_55_P2128668	Ccnb1	3.608869	A_51_P233928	B4galnt1	3.3256085
A_55_P2111478	Polq	3.603814	A_51_P288876	Tmem45a	3.3254223
A_51_P481920	Ccna2	3.5933723	A_55_P2139889	Zfp783	3.3180504
A_55_P1996941	Ube2c	3.5617204	A_52_P628067	Cdca3	3.312787
A_51_P253803	Mki67	3.5542693	A_55_P1988228	Aspm	3.3036397
A_52_P588881	Iqgap3	3.5460815	A_51_P481398	Kif11	3.2819011
A_66_P114695	Cdc25c	3.5441322	A_55_P2158011	Knstrn	3.2691545
A_52_P515769	Pcdh12	3.5343127	A_51_P501018	Nek2	3.2683141
A_55_P1952256	Ccnb1	3.5285118	A_51_P289889	Npnt	3.2646446
A_51_P451151	Ube2c	3.5246308	A_51_P164014	Cenpe	3.2354968
A_55_P1983450	S100a4	3.5200028	A_52_P251366	Neil3	3.2346928
A_51_P381260	Fxyd5	3.5123565	A_51_P279712	Rell1	3.2332022

A_51_P303749	Depdc1b	3.5091054	A_55_P1994997	Arhgap11a	3.2256691
A_55_P2173313	Plcb1	3.5016758	A_55_P2164957	Slc9a3r2	3.2222402
A_55_P2016618	Neurl1a	3.49488	A_51_P320022	Atp10a	3.2138982
A_51_P140641	Eva1a	3.482435	A_55_P2059010	Rbp1	3.2074208
A_51_P240453	Nusap1	3.4736712	A_52_P399584	Ckap2l	3.2073534
A_55_P2073377	Mki67	3.4709878	A_66_P125209	Kif2c	3.1988144
A_55_P2096947	Ereg	3.462979	A_55_P1983448	S100a4	3.194373
A_55_P2114201	G2e3	3.4441366	A_55_P1985433	Nrg1	3.192924
A_55_P2012389	Sfxn3	3.4359188	A_55_P1983769	Birc5	3.1925611
A_51_P326994	Calhm2	3.4341128	A_52_P27020	Sgol2	3.187126
A_55_P2181928	Slc45a3	3.1808927	A_55_P2025790	Fanci	3.1838439
A_52_P658437	Espl1	3.168732	A_52_P633714	Troap	2.9917948
A_51_P155142	Cdca8	3.1658123	A_52_P30989	Cdkn3	2.987538
A_52_P139650	Ska1	3.159886	A_51_P369200	Tpx2	2.9870327
A_51_P254805	Kif4	3.1572728	A_55_P1980631	Aurkb	2.9868243
A_51_P396983	Ssu2	3.1478918	A_51_P481693	Ero1l	2.9864867
A_55_P1988083	Prc1	3.1477556	A_55_P1983768	Birc5	2.9853733
A_55_P1983773	Birc5	3.1413915	A_51_P457196	Sfrp4	2.9806476
A_55_P2108768	Col6a2	3.1360626	A_52_P556099	Oip5	2.9777246
A_55_P1999633	Cit	3.1314445	A_55_P2105152	Trim59	2.9771929
A_55_P2037439	Depdc1a	3.13088	A_51_P139651	Nos3	2.9695275
A_51_P418116	Tmem119	3.1297226	A_52_P52849	Cpxm2	2.9664185
A_55_P1995007	Arhgap11a	3.1269655	A_55_P2000743	Kirrel	2.949359
A_52_P5891	Fam101b	3.1164098	A_51_P455897	Fam64a	2.94258
A_55_P2167461	Homer3	3.100387	A_55_P2095271	Pkn3	2.9319787
A_55_P2015032	Kazald1	3.0879328	A_55_P1991718	Hmmr	2.930425
A_55_P1968928	Def6	3.0839853	A_52_P20906	Twist1	2.9292948
A_55_P2056654	Kif22	3.0838487	A_51_P133137	Kif20a	2.9271085
A_55_P2119985	Baiap2	3.0773764	A_51_P519791	Ska3	2.9265118
A_55_P1982049	Icam2	3.0695086	A_55_P2005838	Ticrr	2.9240434
A_51_P492830	Cenph	3.0630379	A_51_P117739	Figf	2.9030569
A_55_P1958537	Map6	3.060607	A_55_P2170681	Cdca8	2.902731
A_55_P2176145	Rgs17	3.0523524	A_51_P195153	Gtse1	2.9025357
A_55_P1989321	Sat1	3.0402265	A_52_P460537	Lpar2	2.9015813

A_51_P123405	Bub1	3.0397656	A_66_P114627	S100a16	2.9014978
A_51_P457528	Ccnb2	3.0338523	A_66_P114451	Gpr126	2.899111
A_51_P513530	Spag5	3.0261045	A_52_P452569	Kirrel	2.897702
A_51_P412914	Efs	3.0213552	A_52_P420466	Hist1h2ab	2.897575
A_55_P2149951	Prx	3.0189447	A_55_P2166501	Cd44	2.8958702
A_55_P1976127	Ect2	3.01776	A_51_P125135	Cdca5	2.8920653
A_55_P1976584	Tmod2	3.0152657	A_52_P229052	Tmeff2	2.8911204
A_51_P211765	Rin1	3.0149472	A_55_P2007273	Pole	2.8881862
A_51_P302139	Mastl	3.0054991	A_55_P2059931	Prom1	2.8828073
A_52_P211223	Cdca2	3.0046873	A_55_P1984307	Gpr116	2.869508
A_55_P2151056	Rarg	3.0039883	A_51_P490509	Bub1b	2.863056
A_51_P172231	Gsdmd	2.9942446	A_52_P348250	Klhl29	2.8597836
A_52_P476431	Evc	2.8566508	A_51_P100174	Mns1	2.8575475
A_51_P137111	Chek2	2.8500872	A_55_P2024993	Hoxb4	2.7260926
A_66_P138137	Pnp	2.8471012	A_51_P105709	Trip13	2.723325
A_55_P2030938	Trim59	2.8466938	A_51_P108252	Gpsm2	2.7196949
A_55_P1972720	Pmm1	2.8463938	A_55_P1956862	Egfr	2.7190154
A_55_P2197914	Srgap1	2.8404524	A_52_P125467	Reep2	2.7166452
A_55_P2017362	BC068157	2.836458	A_55_P2189893	A630073K07Rik	2.7166097
A_55_P2013336	Melk	2.8341742	A_55_P2000280	Mthfd1l	2.7097523
A_55_P2266880	Kirrel	2.8330197	A_51_P513032	Trps1	2.7034926
A_51_P204402	Shcbp1	2.8141005	A_51_P429276	Tmod3	2.6951137
A_66_P133404	2810417H13Rik	2.8033478	A_55_P2010116	Rab27b	2.6950455
A_51_P487999	Sgol1	2.8031306	A_55_P2064043	Cd44	2.6945493
A_52_P206613	Adss	2.8008156	A_55_P2004801	Tacc3	2.6939092
A_55_P2171493	BC030867	2.7987585	A_55_P2014665	Racgap1	2.6892688
A_66_P125035	Duxbl2	2.7983406	A_55_P2038358	Acot1	2.6881132
A_55_P2037454	Etv5	2.7949345	A_55_P2015485	Ccdc19	2.6833737
A_51_P491987	Ripk3	2.793135	A_51_P520849	Sfrp2	2.682533
A_51_P172085	Arhgdig	2.792364	A_51_P270949	Hist1h1b	2.6749337
A_51_P151586	Gsg2	2.790252	A_51_P288916	Tmtc2	2.6694012
A_55_P2064984	Cenpi	2.781655	A_55_P1990341	Ncapg	2.6652567
A_55_P1987028	Kifc5b	2.7790415	A_55_P2077558	Sod3	2.6626797
A_52_P502771	Rad54b	2.778432	A_51_P408071	Kntc1	2.660122

A_51_P123134	Ercc6l	2.7773025	A_55_P1959393	Hhat	2.6530623
A_55_P1995205	Top2a	2.772372	A_51_P220135	Nfatc1	2.6528249
A_55_P2040743	Zwilch	2.769303	A_55_P2109717	Kif20b	2.634895
A_51_P463087	Cenpm	2.767622	A_51_P467224	Fbn1	2.631515
A_66_P130541	Traip	2.764734	A_55_P1972719	Pmm1	2.631147
A_55_P2000943	Nrip3	2.7615218	A_55_P2103796	Arhgap11a	2.6174133
A_55_P2012171	Spata6	2.7538335	A_55_P2099961	Hist1h2ag	2.6141691
A_55_P2204804	Dclk1	2.75351	A_55_P1965154	Spc25	2.6123686
A_65_P05396	Rad18	2.7470057	A_51_P190111	Mcm5	2.6037714
A_51_P390967	Slc43a3	2.7462025	A_55_P2127702	Racgap1	2.602209
A_52_P167278	Mthfd1l	2.7444296	A_51_P293688	Rab32	2.6018975
A_52_P28806	Foxm1	2.7397501	A_52_P350537	Mttr11	2.5924518
A_52_P518997	Epha2	2.7292318	A_55_P1967291	Ncaph	2.5863605
A_52_P114905	Ifitm10	2.7282917	A_51_P487813	Lxn	2.5861104
A_52_P201206	Scrn1	2.574254	A_55_P2010622	Sec16b	2.5751579
A_55_P2034027	Nos3	2.574151	A_55_P2038247	Tyro3	2.457083
A_55_P2035286	Uhrf1	2.5687377	A_55_P1989981	Fam129b	2.4498599
A_52_P269942	Cpt1c	2.5683703	A_55_P2150343	Fam38a	2.4470646
A_55_P2121456	Fam43a	2.5577354	A_52_P191567	Plcl1	2.445575
A_55_P2110713	Anxa2	2.5563364	A_55_P2184449	Gm10387	2.4449475
A_51_P148105	Rad51	2.5527055	A_55_P1955279	Specc1	2.4449325
A_51_P314907	Dbf4	2.5487869	A_55_P2121521	Hist1h3i	2.4449096
A_55_P2147083	Tnfaip6	2.546718	A_55_P2056473	Spc24	2.4433556
A_55_P1969341	Brip1	2.5438125	A_55_P2048588	Cdk1	2.4433448
A_52_P201800	Nanos1	2.5431135	A_55_P2018904	Gm5465	2.4429693
A_55_P1975695	Snx18	2.5315144	A_51_P254045	Traip	2.4403632
A_55_P2152427	Zwilch	2.5280752	A_55_P2164534	Dtl	2.4399781
A_55_P2057686	Cdc42ep5	2.5255249	A_66_P120603	Trps1	2.4393723
A_51_P394802	Fam111a	2.523401	A_55_P1962747	H2-Ab1	2.438183
A_52_P104824	Diap3	2.519928	A_55_P2097553	C77080	2.423738
A_55_P2186648	Bard1	2.517406	A_55_P1987715	Epb4.112	2.4219706
A_55_P1982818	Odc1	2.5166903	A_66_P120074	Uhrf1	2.4176254
A_66_P131979	Cdc6	2.5136158	A_65_P20641	Fads2	2.4138472
A_52_P529570	Nsl1	2.5123994	A_51_P393958	Fbxo5	2.410691

A_52_P498208	Hist1h2ak	2.5107698	A_52_P527106	Arhgap12	2.406184
A_52_P393314	P2rx7	2.5015006	A_52_P462472	C77370	2.4034355
A_55_P1987331	Prl3d1	2.500798	A_55_P2030721	Ankle1	2.400851
A_51_P196973	Chaf1a	2.4958587	A_51_P424810	Ncapg2	2.3999689
A_55_P1991688	Rad51ap1	2.495593	A_55_P2005585	Trps1	2.3918388
A_55_P2069221	Prr11	2.4890509	A_55_P2004881	Ldlrad4	2.3908496
A_51_P240614	Tm4sf1	2.4834535	A_66_P118513	11-Sep	2.388504
A_51_P204442	Phf19	2.4739256	A_55_P2094524	Gm14005	2.3874974
A_55_P2062543	Kifc1	2.469086	A_55_P2041961	Bmp2	2.3869092
A_51_P317031	Ccdc109b	2.46812	A_55_P1981241	Grasp	2.3807874
A_55_P2098200	Tpbg	2.4677062	A_51_P332355	Kif18a	2.3800998
A_55_P2101757	Dscc1	2.4662392	A_55_P2085412	Ankle1	2.3758974
A_55_P2084631	Hist1h2an	2.463547	A_52_P380369	Phf11d	2.3752544
A_55_P2007389	Fam189b	2.4622793	A_51_P367310	Chaf1b	2.3751657
A_55_P2000778	Kif7	2.4617934	A_55_P2036883	Hist2h2bb	2.3737593
A_55_P2140031	Fam129b	2.4605255	A_55_P1978201	Incenp	2.3720763
A_66_P108143	Fbxw10	2.3673067	A_52_P634090	Jag1	2.2472148
A_51_P453043	Aacs	2.364335	A_55_P1989296	Tnxb	2.238779
A_55_P2048119	Slc29a4	2.3622744	A_51_P306218	Xkr5	2.236555
A_51_P299216	Wdr90	2.3594036	A_51_P246339	Rfc5	2.235493
A_52_P457967	Trerf1	2.3496401	A_66_P134481	Skp2	2.2353992
A_55_P2041070	Tle3	2.347125	A_51_P128876	Ifitm3	2.2333114
A_55_P2019463	Tnks1bp1	2.3452613	A_55_P1961730	Kcnt2	2.2300813
A_51_P432794	Fam115c	2.344881	A_55_P2012166	Spata6	2.2292001
A_52_P127682	Dagla	2.3433754	A_55_P2154252	Gfpt2	2.226789
A_55_P2065953	Btbd19	2.342753	A_51_P330213	Asf1b	2.2257009
A_55_P2086659	Rad54l	2.3358805	A_55_P2106150	Cenpk	2.2183182
A_52_P75348	Spdl1	2.3287234	A_51_P241645	Tmem194	2.2148042
A_52_P208613	Fancb	2.3260117	A_55_P2000833	E2f8	2.214217
A_55_P2056325	Anxa3	2.3212445	A_66_P128909	Numbl	2.214057
A_51_P405606	Ndrp1	2.316399	A_55_P2122605	Cbr2	2.2092533
A_52_P1026777	Escr	2.3122125	A_55_P1994939	Hmgb2	2.1965373
A_52_P155554	Cdc42ep2	2.3115675	A_51_P334942	Aldh1a1	2.1943865
A_51_P237383	Rnase4	2.3097575	A_55_P2002578	Ephx1	2.1877406

A_52_P282838	Spin2	2.3068016	A_55_P2177998	Tmprss13	2.1860015
A_51_P281380	Tspan5	2.3036907	A_52_P231170	Megf9	2.184845
A_55_P2108012	Fam78b	2.3008935	A_51_P260504	Arhgef4	2.1840866
A_55_P2028054	Incenp	2.3003485	A_55_P2016652	Cdk1	2.174548
A_55_P2317665	E2f1	2.2996154	A_52_P158431	Tshz2	2.1675797
A_52_P591166	Dpysl2	2.295929	A_51_P195034	Esco2	2.1546135
A_51_P281089	S100a6	2.2951696	A_55_P1953087	Mcm3	2.1530664
A_51_P191649	Ndc80	2.2937024	A_51_P227392	Rhou	2.1519089
A_55_P2172274	Smc2	2.2912965	A_55_P2020148	Zfp239	2.1510825
A_55_P1968355	Tle1	2.2843323	A_55_P2052290	Psat1	2.1496198
A_55_P2429225	Psrc1	2.2837493	A_51_P469008	Ehd1	2.149087
A_51_P427603	BC018242	2.2758195	A_55_P2133255	Mad2l1	2.1462216
A_51_P351970	Hells	2.2694194	A_51_P231630	Zfp239	2.146201
A_51_P372550	Cgref1	2.26249	A_51_P407248	Antxr1	2.1461911
A_55_P2133165	Wwc1	2.2592406	A_65_P17218	Mndal	2.1428928
A_55_P2062598	E2f7	2.2570715	A_52_P151320	Tnfaip8l1	2.1421633
A_52_P64763	Gen1	2.25424	A_55_P1975021	Rad18	2.1410556
A_52_P556462	Fancd2	2.2481968	A_52_P590535	Fbln2	2.1398883
A_51_P208680	Chtf18	2.136382	A_51_P410918	Tor4a	2.054474
A_55_P2001998	Zfp503	2.1353548	A_55_P1972039	Nox4	2.0544324
A_52_P512817	Shisa5	2.1340823	A_52_P304947	Cenpn	2.0523508
A_55_P2156016	Recql4	2.1329093	A_55_P2000658	Gm15645	2.0498903
A_66_P102090	Pkmyt1	2.1275618	A_66_P104815	Ecm1	2.0469174
A_51_P241791	Mif1ip	2.1208868	A_52_P98625	Sowahc	2.0467753
A_52_P609024	Cenpw	2.1164157	A_55_P2002129	Rgs12	2.045846
A_55_P2149107	BC055324	2.1159973	A_55_P2024290	Fam149a	2.0442805
A_51_P223709	Pask	2.1151268	A_66_P106113	Rhoj	2.0440416
A_65_P17827	Cenpl	2.1149733	A_55_P2084656	Hist1h2ah	2.0429752
A_55_P2086423	Recql4	2.1061614	A_55_P2039881	5-Sep	2.0421493
A_55_P2085181	Chaf1b	2.1036687	A_51_P356931	Orc1	2.0409997
A_51_P347240	Lrr1	2.101033	A_55_P2042823	Sh3bp2	2.0374854
A_55_P2039320	Zfp365	2.098049	A_55_P2069597	Tspan17	2.036126
A_52_P437795	Cdh11	2.0894513	A_51_P466229	Pdgfrl	2.0351367
A_55_P2032750	Cpt1c	2.0879645	A_55_P2027087	Plcl1	2.0290952



A_55_P2000354	Rgs11	2.0878568	A_51_P190254	Scrn1	2.0285559
A_51_P300709	Srm	2.086297	A_55_P2084652	Hist1h2ak	2.0279403
A_51_P472274	Sox18	2.079722	A_55_P2030536	Ccnyl1	2.0275261
A_55_P2123496	Jam2	2.0759068	A_51_P517051	Gatsl3	2.0267055
A_65_P20433	Parpbp	2.0735905	A_66_P137605	Mb21d1	2.026433
A_55_P2045258	Ehd1	2.0734859	A_52_P106259	Egfr	2.0253048
A_55_P2063465	Thbs3	2.0720322	A_51_P125986	Gan	2.018743
A_51_P427530	Pgm1	2.071374	A_55_P1964787	Slc35e4	2.0096962
A_51_P301394	Gspt2	2.0657253	A_51_P209807	Ccnyl1	2.0070941
A_51_P505823	Endod1	2.061496	A_51_P171288	Gli3	2.005231
A_51_P275976	Dok1	2.0606222	A_55_P2236291	Ppap2a	2.0050724
A_66_P121495	Psat1	2.058627	A_52_P330214	Fanca	2.0049188
A_55_P2138333	Mad2l1	2.0564246	A_52_P436238	Odc1	2.0020258
A_52_P278295	Pear1	2.0552857	A_55_P2457154	G2e3	2.0009356

### Down-regulation

Probe Name	Gene Symbol	Fold Change	Probe Name	Gene Symbol	Fold Change
A_51_P363187	Cxcl1	8.819109	A_51_P378051	Aoc3	3.4195278
A_51_P371750	Marco	4.244317	A_51_P509573	Ccl4	3.2854807
A_51_P140710	Ccl3	3.8399758	A_51_P110301	C3	3.143817
A_55_P2011872	Scd4	3.1273491	A_52_P419373	Lrrc39	2.2218037
A_55_P2010066	Capn3	3.066352	A_52_P537827	Wdr72	2.211024
A_52_P638459	Ccl5	3.0502234	A_55_P2131899	Sox4	2.2036295
A_51_P438805	Txnip	2.960222	A_55_P1968958	Cycs	2.1992636
A_55_P1961127	H19	2.7792394	A_55_P2083511	Fam179a	2.1970444
A_51_P485405	Gtsf1	2.753445	A_51_P224064	Klhl38	2.1529965
A_55_P2049717	AgRP	2.614552	A_52_P411430	Gm5914	2.1467266
A_66_P125223	Gm14492	2.5872364	A_55_P2156155	Gadl1	2.1390762
A_55_P2137611	Irgm2	2.507127	A_51_P186476	Slc11a1	2.1028404
A_51_P112355	Igtp	2.500275	A_55_P2012849	Dock10	2.096866
A_55_P2006255	Txnip	2.4396472	A_55_P2144386	Emr1	2.0907123
A_52_P495565	Efnb3	2.4059038	A_55_P2069818	Mapk10	2.0728924
A_55_P2048607	Hp	2.3700798	A_52_P54280	Adck3	2.0677137
A_51_P149714	Ms4a6d	2.3155587	A_55_P2121608	Sox4	2.058894

A_55_P1964598	Hsd17b7	2.2948925	A_66_P119771	Nme8	2.0545104
A_55_P2004213	Gprasp2	2.290954	A_55_P2150757	Gzmm	2.050169
A_51_P134452	Lpar3	2.2610373	A_51_P285413	Rbbp6	2.0317993
A_66_P119968	Clec4a1	2.2528236	A_55_P1984655	Smtnl2	2.0299695
A_55_P2153496	Ppp2r3d	2.241007	A_52_P518808	Mmd	2.0077486
A_51_P126337	Fgf12	2.231632	A_52_P400425	Pirt	2.005233
A_51_P111612	Arrdc4	2.2245975	A_55_P1971174	Cd1d2	2.002264

**Table S2.** Sequences of cDNAs of FoxM1, Id1, Hmgb2, and Jnk3-shRNAs.

<b>Selected genes for overexpression in CMs</b>		
<b>Gene name</b>	<b>Forward 5'-3'</b>	<b>Reverse 5'-3'</b>
FoxM1	CGAAGCGGCCTCACGATGAGAACAAGCCC	CTTGCAGTACTCGCAGCTAAGGGATGAACTG
Id1	CCTGCTCGAGGGATCATGAAGGTCGCCAG	CTCAAGTACTCGCCTCAGCGACACAAGA
Hmgb2	ACGCGAATTCGTCGTCATGGGCAAGGG	CACTGATATCCAGCCACTTATTCTTCATCCTC
<b>Specific shRNAs targeting Jnk3</b>		
<b>shRNAs</b>	<b>Targeting sequences</b>	
Jnk3-shRNA	CAATAGAGAGATCCAACATAA	

**Table S3.** List of primers utilized in real-time PCR.

Gene name	Forward 5'-3'	Reverse 5'-3'
<b>Genes from CM reprogramming day 2</b>		
<i>FoxM1</i>	CACTTGGATTGAGGACCACTT	GTCGTTTCTGCTGTGATTCC
<i>Id1</i>	CGACTACATCAGGGACCTGCA	GAACACATGCCGCCTCGG
<i>Jnk3</i>	AAACTACGTGGAGAATGCGCC	TGGCTTGGCTGGCTTTAAGT
<i>Hmgb2</i>	TGTCCTCGTACGCCTTCTTC	CCTCCTCATCTTCTGGTTTCG
<i>E2f8</i>	GAGAAATCCCAGCCGAGTC	CATAAATCCGCCGACGTT
<i>Spon2</i>	CGGCCAAATACAGCATCACC	CCCAGCAGCGAAGACCACT
<i>Plk1</i>	GCCCCTCACAGTCCTCAATA	TACCCAAGGCCGTACTTGTC
<i>Ccl5</i>	TGCGAGGACTCTGAGACAGC	GAGTGGTGTCCGAGCCATA
<i>Fgf12</i>	TGTATCGCCAACAGGAATCAGG	GGAGAGGGAAGAACGGAGAG
<b>Genes for each functional group in microarray</b>		
<i>Krt6a</i>	AGAGAGGGGTGCGCATGAACT	TCATCTGTTAGACTGTCTGCCTT
<i>Elf3</i>	GGCCCTCATGGCTGCCACCT	TTGGGATCTTGTCTGAGGTCCTGGA
<i>Ocln</i>	ATCCACCTATCACTTCAGA	TAATCTCCCACCATCCTC
<i>Cldn3</i>	GGCGGCTCTGCTCACCTTA	CGTACAACCCAGCTCCCATC
<i>Fgf4</i>	CGTGGTGAGCATCTTCGGAGTGG	CCTTCTTGGTCCGCCCGTTCTTA
<i>Fdps</i>	ATGGAGATGGGCGAGTTCTTC	CCGACCTTTCCCGTCACA
<i>Hmgcs1</i>	GCCGTGAACTGGGTGCAA	GCATATATAGCAATGTCTCCTGCAA
<i>Cgn</i>	CTAAACCGACTTCCTCGATTAA	TGTTGATGAGCGAGTCCACTG
<i>Tjp2</i>	AAGTTCCCTGCCTACGAG	ATTCAACCGAACCACTCC
<b>Genes for mechanism</b>		
<i>Cdk4</i>	AGTCAGTGGTGCCAGAGAT	AGATTGCTTATGTGGGTTA
<i>Cdk2</i>	TGTGCCTCCCCTGGATGAAG	CATCCTGGAAGAAAGGGTGA
<i>Cdk1</i>	GTCCGTCGTAACCTGTTGAG	TGACTATATTTGGATGTCGAAG
<i>p16</i>	GAACTCTTTCCGGTCGTACCC	CGAATCTGCACCGTAGTTGA
<i>p21</i>	GCAGATCCACAGCGATATCC	CAACTGCTCACTGTCCACGG
<i>p27</i>	GGGCAGATACGAGTGGCAG	CCTGAGACCCAATTAAGGCAC
<i>Aurkb</i>	CATCCCTGAGGAGGAAGACC	TTCATAGCAGAGCACCCCG
<i>Mad2L1</i>	TGGTAGTGTTCTCCGTTGATCT	GCAGGGTGATGCCTTGCT

**Table S4.** List of *p*-values in each figure.

Figure	<i>p</i> -value	Figure	<i>p</i> -value
<b>Fig 3A</b>	$p(\text{Id1})=0.0059$ $p(\text{Hmgb2})=0.0214$ $p(\text{FoxM1})=0.0245$ $p(\text{Jnk3})=0.0096$	<b>Fig 3C</b>	$p(\text{F})=0.0349$ $p(\text{I})=0.039$ $p(\text{H})=0.3225$ $p(\text{Ji})=0.0146$ $p(\text{FI})=0.0004$ $p(\text{Iji})=0.003$ $p(\text{Fji})=0.0268$ $p(\text{FIji})=0.0002$
<b>Fig 3D</b> <b>Fig 3H</b>	$p\text{-value}=0.041$ $p\text{-value}=0.0176$	<b>Fig 3E</b>	$p(\text{H3P})=0.0036$ $p(\text{AURKB})=0.0123$
<b>Fig 4B</b> <b>Fig 4C</b>	$p\text{-value}=0.0121$ $p\text{-value}=0.0003$	<b>Fig 4E</b> <b>Fig 4F</b>	$p\text{-value}=0.0008$ $p\text{-value}=0.0406$
<b>Fig 5C</b>	$p(\text{BrdU})=0.0016$ $p(\text{H3P})=0.0053$	<b>Fig 5E</b>  <b>Fig 5F</b>	$p(+dP/dt)=0.0019$ $p(-dP/dt)=0.007$ $p(\text{ESPVR})=0.0052$ $p(\text{PRSW})=0.0247$ $p(\text{Tau})=0.0669$  $p\text{-value}=0.0189$
<b>Fig 5D</b>	$p(\text{EF\%-D1})=0.0743$ $p(\text{EF\%-D21})=0.0127$ $p(\text{FS\%-D1})=0.0676$ $p(\text{EF\%-D21})=0.014$		
<b>Fig 6A</b>	$p(\text{Aurkb-F})=0.0438$ $p(\text{Aurkb-I})=0.0331$ $p(\text{Aurkb-Js})=0.0059$ $p(\text{Aurkb-FIJs})=0.0002$ $p(\text{Mad2L1-F})=0.0118$ $p(\text{Mad2L1-I})=0.0002$ $p(\text{Mad2L1-Js})=0.0055$ $p(\text{Mad2L1-FIJs})=0.0091$ $p(\text{Plk1-F})=0.0017$ $p(\text{Plk1-I})=0.0037$ $p(\text{Plk1-Js})=0.0029$ $p(\text{Plk1-FIJs})=0.0011$	<b>Fig 6B</b>	$p(\text{Cdk4 -I})=0.0196$ $p(\text{Cdk4-FIJs})=0.0019$  $p(\text{Cdk2-F})=0.0344$ $p(\text{Cdk2 -Js})=0.0124$ $p(\text{Cdk2-FIJs})=0.0074$  $p(\text{Cdk1-F})=0.0001$ $p(\text{Cdk1-I})=0.0334$ $p(\text{Cdk1-Js})=0.0124$ $p(\text{Cdk1-FIJs})=0.0002$
<b>Fig 6C</b>	$p(p16\text{-I})=0.0114$ $p(p16\text{-FIJs})=0.0393$ $p(p21\text{-F})=0.0002$ $p(p21\text{-FIJs})=0.0016$ $p(p27\text{-Js})=0.0406$ $p(p27\text{-FIJs})=0.011$	<b>Appendix Fig S2B</b>  <b>Appendix Fig S5</b>	$p\text{-value}=0.0011$ $p(\text{F-D4})<0.0001$ ; $p(\text{F-D21}) <0.0001$ $p(\text{I-D1})=0.0114$ $p(\text{Js-D1})=0.0209$ $p(\text{Js-D7})=0.0134$ $p(\text{Js-D21})=0.03$

# Appendix figures

## Figure S1

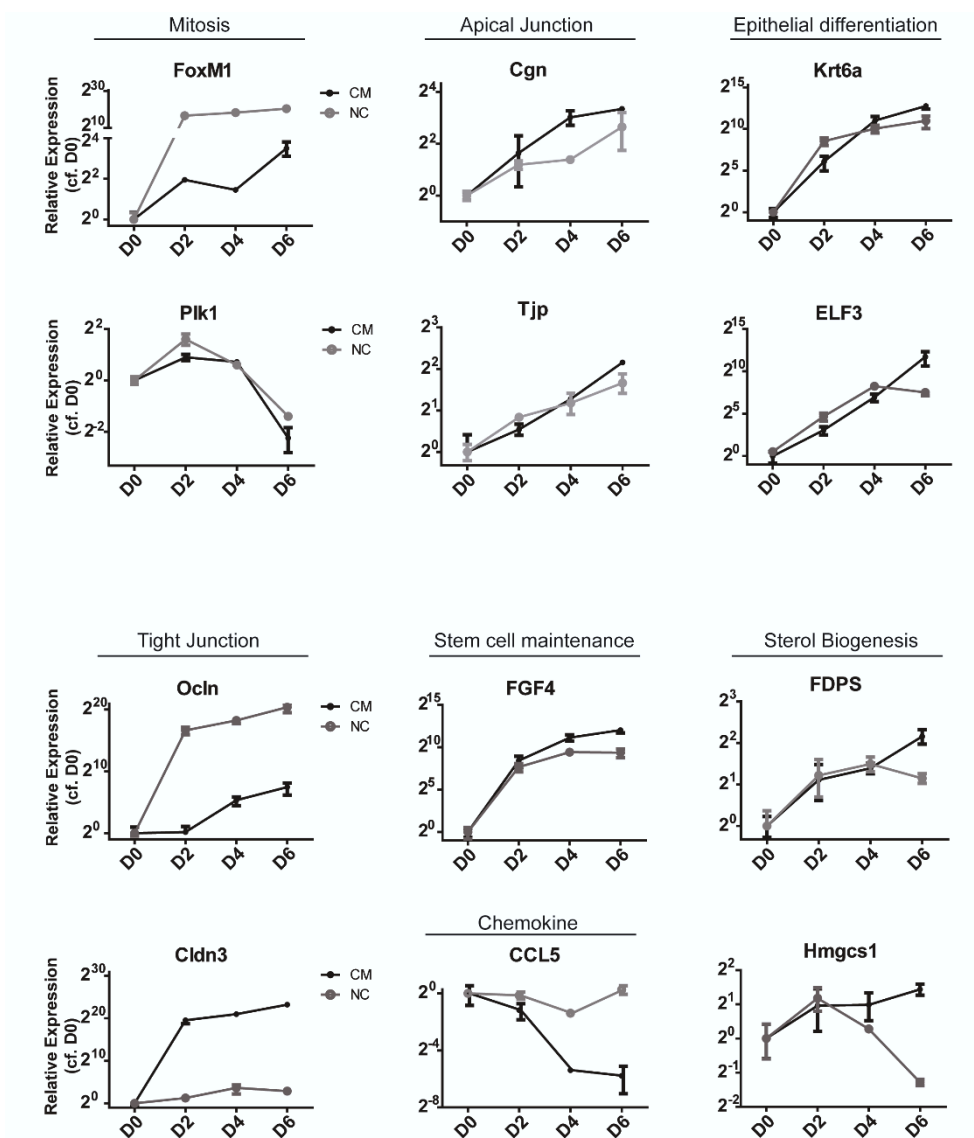
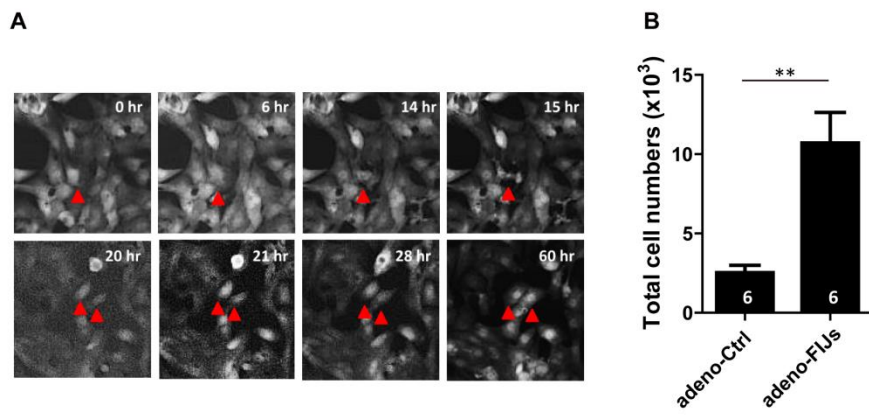


Figure S1. Real-time PCR validation of selected genes in each microarray functional group.

## Figure S2

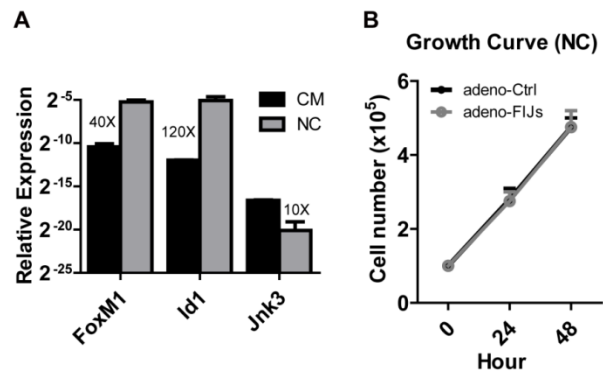


**Figure S2. FIJs-treated CMs undergo complete cell cycle to increase total cell numbers**

A The time-lapse microscopy of the complete cell cycle of isolated CMs.

B Total numbers of isolated CMs after treating with adeno-Ctrl or adeno-FIJs. \*\*,  $P < 0.01$ .

## Appendix Figure S3



**Figure S3. The various effects of the FIJs treatment in the heart.**

A RNA expression of cardiac FoxM1, Id1, or Jnk3 in CMs and NCs.

B The growth curve of NCs after adeno-Ctrl or adeno-FIJs treatment.



## Appendix Figure S4

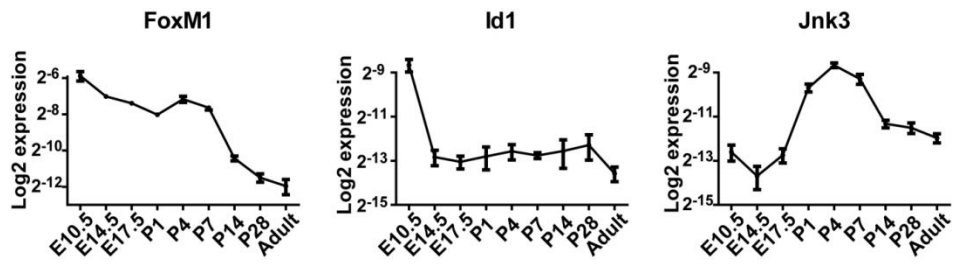


Figure S4. Transcriptional changes of cardiac FoxM1, Id1, or Jnk3 during development.

## Appendix Figure S5

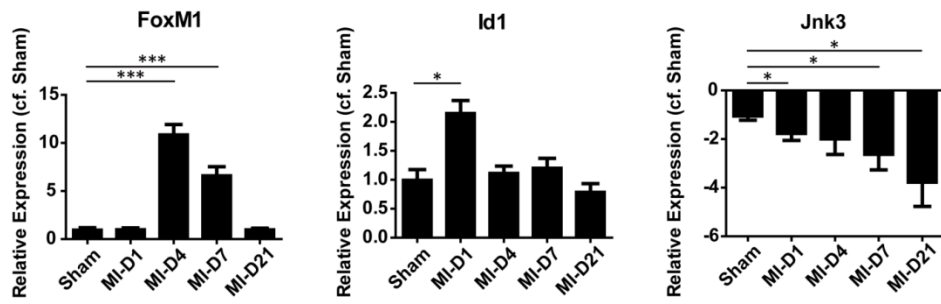
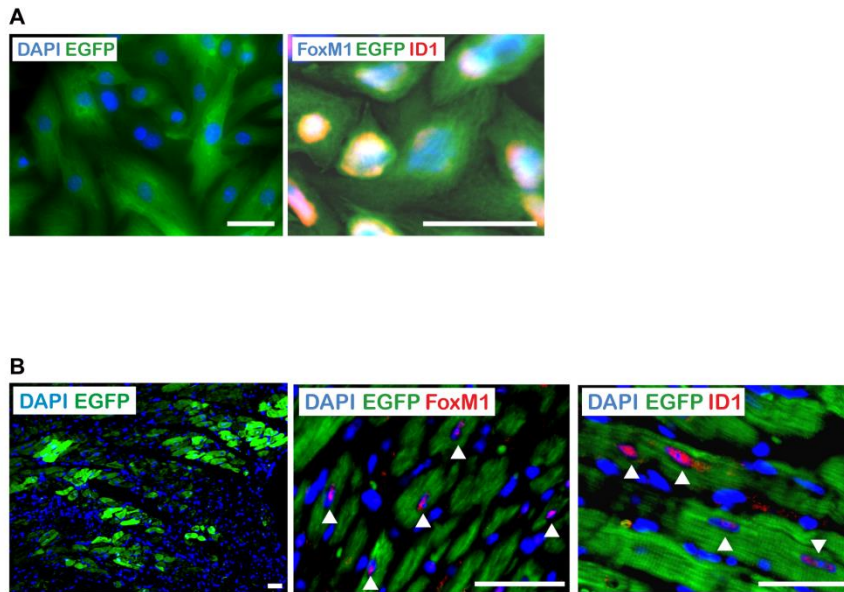


Figure S5. Transcriptional changes of cardiac FoxM1, Id1, or Jnk3 after MI.

\*,  $P < 0.05$ , and \*\*\*,  $P < 0.001$ .

## Appendix Figure S6



**Fig S6 Adenoviral infection efficiency of CMs after adeno-FIJs treatment.**

A EGFP expression combined with immunofluorescence staining of FoxM1 and Id1 in CMs after adeno-FIJs treatment *in vitro*.

B Immunofluorescence staining of EGFP and FoxM1 or Id1 in CMs after adeno-FIJs treatment *in vivo*.

The scale bar represents 50  $\mu\text{m}$ .