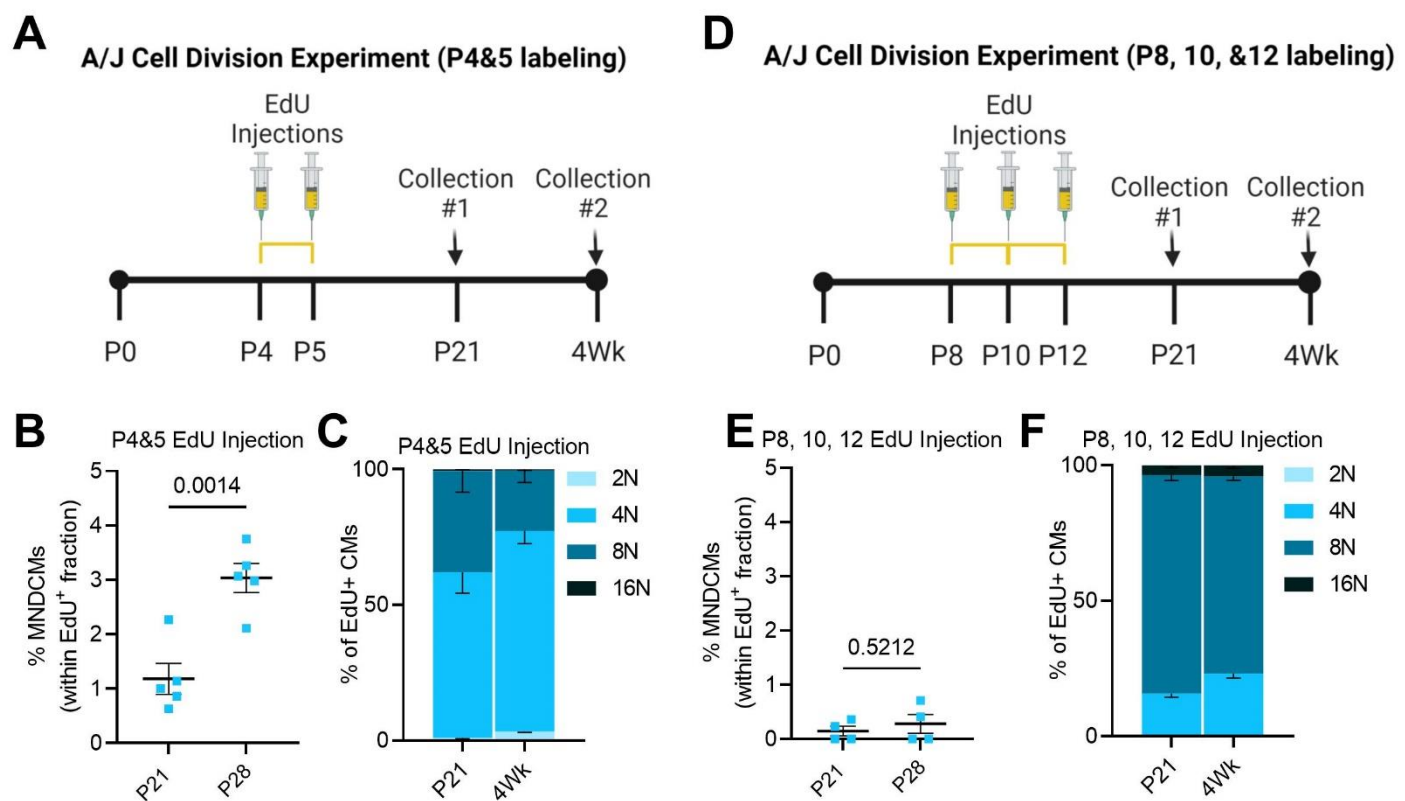
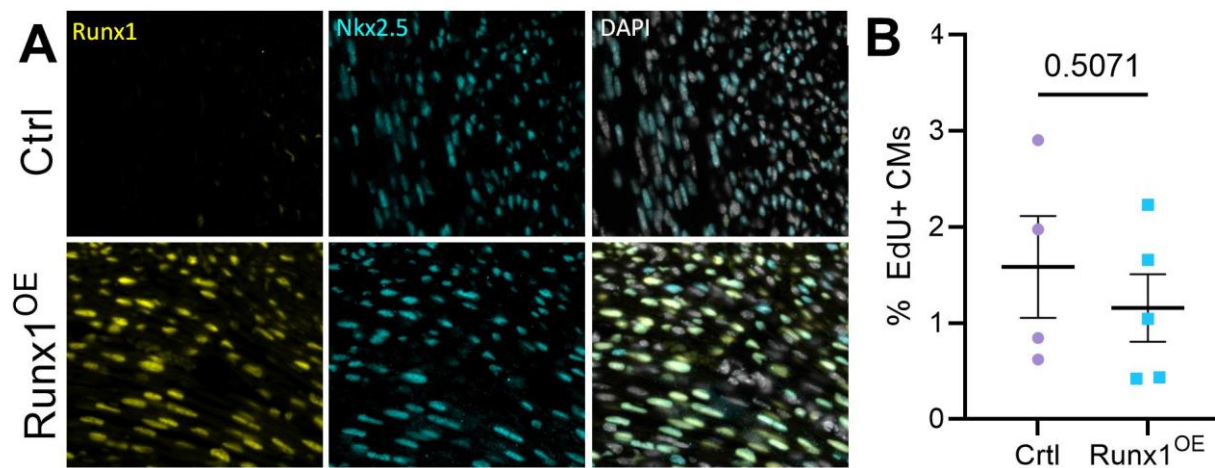


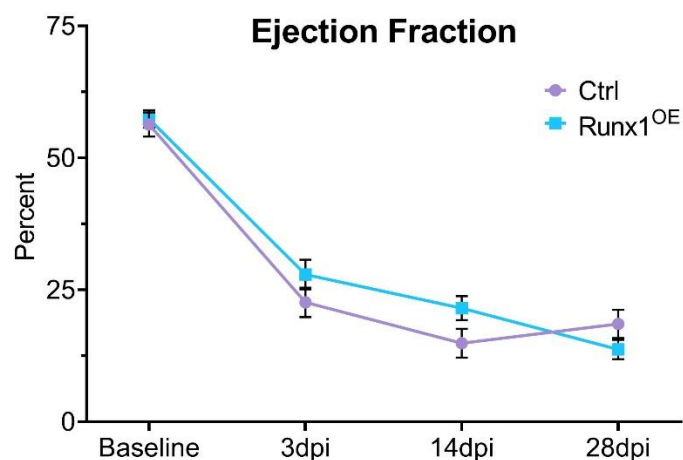
**Fig. S1. (A)** Body weight in grams (g) across A/J and C57BL/6J. **(B)** Heart weight in grams (g) across A/J and C57BL/6J. **(C)** HW/BW ratio in A/J and C57BL/6J. N=4-25 (see Supp table 3 for detailed N.)



**Fig. S2. (A)** Schematic EdU injection regimen on A/J mice for single cell suspension analysis of ploidy and cell division. Single EdU injections on P4 and P5 and collection at P21 or 4 weeks (Wks). **(B)** Quantifications of EdU-positive MNDCMs as a percent of total EdU-positive cardiomyocytes in A/J mice. P-value calculated first by MANOVA of all populations in panel C, followed by a two-tailed Student's t-test. **(C)** Quantifications of EdU-positive cardiomyocytes broken down into total DNA content (i.e. 2N, 4N, 8N, or 16N) following Experimental paradigm described in panel A. **(D)** Schematic EdU injection regimen on A/J mice for single cell suspension analysis of ploidy and cell division. EdU injections on P8, 10, and 12 with collection at P21 and 4 weeks (Wks). **(E)** Quantifications of EdU-positive MNDCMs as a percent of total EdU-positive cardiomyocytes in A/J mice following Experimental paradigm in panel D. **(F)** Quantifications of EdU+ cardiomyocytes broken down into total DNA content (i.e. 2N, 4N, 8N, or 16N) following Experimental paradigm in panel D. Complete breakdown of N and litter contributions can be found for all experiments in Supp Table 3.



**Fig. S3. (A)** Immunofluorescent images for Runx1 (yellow), Nkx2.5 (cyan), and DAPI (greyscale) in Cre-positive Control animals (Ctrl) and Runx1<sup>OE</sup> hearts following two tamoxifen injections at P0 and P1. **(B)** Quantification of total EdU-positive cardiomyocytes in single cell suspension following EdU administration outlined in Figure 4G represented as a percent of total cardiomyocytes. N=4 Ctrl and 5 Runx1<sup>OE</sup>. P-value calculated by Student's t-test.



**Fig. S4.** Ejection fraction as measured by long axis B-mode traces of Cre-positive Control animals (Ctrl) and Runx1<sup>OE</sup> hearts prior to MI (baseline) and 3-, 14-, and 28-days-post-infarction (dpi). N = 10 Ctrl and 13 Runx1<sup>OE</sup>. Statistical significance was assessed by Two-way repeated measures ANOVA with Bonferroni post hoc test; no statistical significance was identified across genotypes at any time point.

**Table S1.** Summary of descriptive statistics including N, Mean, and standard error of the mean (SEM), one-way ANOVA, and Tukey HSD post hoc analyses for Figure 1A.

<b>C57BL/6J</b>				<b>A/J</b>			
Age	N	Mean	SEM	Age	N	Mean	SEM
P1	8	647,125	114,823	P1	8	643,500	61,030
P7	11	1,337,273	59,689	P7	7	1,084,000	34,404
P21	7	1,644,286	84,427	P21	16	1,224,813	83,246
6Wk	6	1,691,667	90,973	4Wk	13	1,484,615	85,227
				6Wk	11	1,572,727	105,745
<b>C57BL/6J ANOVA p &lt; 0.0001</b>				<b>A/J ANOVA p &lt; 0.0001</b>			
Tukey post hoc test				Tukey post hoc test			
Timepoint	Timepoint	P-value		Timepoint	Timepoint	P-value	
P1	P7	<0.0001		P1	P7	0.0413	
	P21	<0.0001			P21	0.0003	
	6Wk	<0.0001			4Wk	<0.0001	
P7	P21	0.1331			6Wk	<0.0001	
	6Wk	0.0768		P7	P21	0.8251	
P21	6Wk	0.9852			4Wk	0.0401	
					6Wk	0.0096	
				P21	4Wk	0.1387	
					6Wk	0.0299	
				4Wk	6Wk	0.9473	

**Table S2.** Multivariate ANOVA with Tukey HSD post hoc tests for Figure 1C.

C57Bl/6J Pillai's Trace P=0.00445				A/J Pillai's Trace P=0.00337			
Ploidy class	Timepoint	Timepoint	Tukey P-value	Ploidy class	Timepoint	Timepoint	Tukey P-value
2N	P7	P14	2.24E-06	2N	P7	P14	1.33E-07
		P21	8.46E-07			P21	1.01E-09
		6wk	5.38E-07			4wk	1.26E-06
	P14	P21	0.686		P14	6wk	6.36E-07
		6wk	0.382			P21	0.592
		P21	0.942			4wk	0.362
4N	P7	P14	0.001	4N	P21	4wk	0.007
		P21	5.87E-05			6wk	0.006
		6wk	6.82E-06			4wk	1.000
	P14	P21	0.263		P7	P14	0.989
		6wk	0.013			P21	0.737
		P21	0.269			4wk	0.736
8N	P7	P14	4.28E-06	8N	P14	6wk	0.999
		P21	3.80E-07			P21	0.958
		6wk	8.69E-08			4wk	0.954
	P14	P21	0.073		P21	6wk	0.998
		6wk	0.003			4wk	1.000
		P21	0.230			6wk	0.783
16N	P7	P14	0.731	16N	P7	P14	0.012
		P21	0.999			P21	0.004
		6wk	0.408			4wk	0.160
	P14	P21	0.854		P14	6wk	0.023
		6wk	0.951			P21	1.000
		P21	0.570			4wk	0.531
8N	P7	P14	0.971	8N	P21	4wk	0.379
		P21	0.619			6wk	0.944
		4wk	0.720			4wk	0.900
	P14	6wk	0.076		P21	6wk	0.859
		P21	0.948			4wk	0.977
		4wk	0.977			6wk	0.538
P21	4wk	1.000	4wk	6wk	0.485		
	6wk	0.538					
	6wk	0.485					

**Table S3.** Compilation of N, number of litters, and the range in litter size for each postnatal development experiment.

Figure	Strain	Timepoint	N	Number of Contributing Litters	Litter Size (Range)	
1A	A/J	P1	11	2	7-10	
		P7	7	2	3-4	
		P21	14	5	5-9	
		4Wk	12	4	4-5	
		6Wk	11	5	5-9	
	C57Bl/6J	P1	12	2	7-9	
		P7	11	2	4-10	
		P21	7	2	7	
6Wk	6	2	7			
1C&D 2G&H	A/J	P7	4	1	Unknown	
		P14	4	1	Unknown	
		P21	7	2	Unknown	
		4Wk	6	2	Unknown	
		6Wk	9	3	Unknown	
	C57Bl/6J	P7	4	2	Unknown	
		P14	3	1	Unknown	
		P21	3	1	Unknown	
		6Wk	3	1	Unknown	
		1F	A/J	P4	3	2
P7	5			1	7	
P10	8			2	6	
P14-20	5			2	3	
P21-24	3			Unknown	Unknown	
P25-28	2		Unknown	Unknown		
C57Bl/6J	P4		5	1	9	
	P7		4	1	9	
	P10		6	1	6	
	P14-20		5	Unknown	Unknown	
	P21-24	4	Unknown	Unknown		
P25-28	4	Unknown	Unknown			
2D-F	A/J	P21	7	2	6-7	
		6Wk	6	3	6-9	
	C57Bl/6J	P21	5	2	7	
		6Wk	4	2	7	
3A	<i>Tnni3k<sup>+/+</sup></i>	P21	4	2	7-9	
		4Wk	3	2	6-9	
		6Wk	4	3	5-7	
	<i>Tnni3k<sup>-/-</sup></i>	P21	4	3	6-9	
		4Wk	5	2	5-9	
		6Wk	5	3	5-7	
	3B-D	<i>Tnni3k<sup>+/+</sup></i>	P21	4	2	7-9
			6Wk	6	4	5-7
<i>Tnni3k<sup>-/-</sup></i>		P21	4	3	6-9	
		6Wk	5	3	5-7	
4E&F	A/J	P21	5	2	3	
	C57Bl/6J	P21	5	Unknown	Unknown	
4G&H	Ctrl	4WK	4	2	7	
	<i>Runx1<sup>OE</sup></i>	4Wk	5	2	7	
4I	Ctrl	4WK	7	2	6-7	
	<i>Runx1<sup>OE</sup></i>	4Wk	6	2	6-7	
Supp 1A (BW)	A/J	P1	11	2	7-10	
		P5	4	2	6	
		P7	9	3	3-6	
		P11	8	2	6	
		P21	25	7	4-10	
	4Wk	20	6	4-10		
	C57Bl/6J	P1	14	2	7-9	
		P5	6	1	6	
		P7	13	2	4-10	
		P11	6	1	6	
4Wk		6	2	3-4		
Supp 1B&C	A/J	P1	6	1	7	
		P5	4	2	6	
		P7	7	2	3-4	
		P11	8	2	6	
		P21	11	4	4-10	
	4Wk	19	6	4-10		
	C57Bl/6J	P1	14	2	7-9	
		P5	6	1	6	
		P7	13	2	4-10	
		P11	6	1	6	
4Wk		6	2	3-4		
Supp 2B&C	A/J	P21	5	2	4-10	
		4Wk	5	2	4-10	
Supp 2D&E	A/J	P21	4	1	8	
		4Wk	4	1	8	