Supplemental Table 1

Supplemental Figure Statistics

Figure	Panel	Statistical test	Effects	Statistic	p-value
S1	A	One-way ANOVA		$F_{(2,19)}$ = 20.71	< 0.0001
	B	One-way ANOVA		$F_{(2,19)}$ = 8.27	0.003
	C	Two-way ANOVA	No effect of Group	$F_{(1,27)}$ = 0.20	0.661
			No effect of Test	$F_{(1,27)}$ = 0.58	0.452
			Significant Group X Test interaction	$F_{(1,27)}$ = 19.39	< 0.001
	D	Two-way ANOVA	No effect of Group	$F_{(1,27)}$ = 0.38	0.541
			No effect of Test	$F_{(1,27)}$ = 4.10	0.053
			Significant Group X Test interaction	$F_{(1,27)}$ = 12.78	0.001
S2	A	Two-way RM ANOVA	No effect of Genotype	$F_{(1,16)}$ = 1.89	0.188
			Significant effect of Light	$F_{(1,16)}$ = 10.77	0.005
			No Genotype X Light interaction	$F_{(1,16)}$ = 0.03	0.859
	B	Two-way RM ANOVA	No effect of Genotype	$F_{(1,16)}$ = 1.21	0.289
			Significant effect of Light	$F_{(1,16)}$ = 6.26	0.024
			No Genotype X Light interaction	$F_{(1,16)}$ = 4.18	0.058
	C	Two-way RM ANOVA	No effect of Genotype	$F_{(1,16)}$ = 0.06	0.805
			No effect of Light	$F_{(1,16)}$ = 0.31	0.586
			No Genotype X Light interaction	$F_{(1,16)}$ = 0.01	0.928
	D	Two-way RM ANOVA	No effect of Genotype	$F_{(1,13)}$ = 0.27	0.610
			Significant effect of Light	$F_{(1,13)}$ = 6.60	0.023
			No Genotype X Light interaction	$F_{(1,13)}$ < 0.01	0.982
	E	Two-way RM ANOVA	Significant effect of Genotype	$F_{(1,13)}$ = 4.92	0.045
			No effect of Light	$F_{(1,13)}$ = 0.38	0.546
			No Genotype X Light interaction	$F_{(1,13)}$ = 0.35	0.562
	F	Two-way RM ANOVA	No effect of Genotype	$F_{(1,13)}$ = 1.72	0.212
			No effect of Light	$F_{(1,13)}$ = 0.36	0.560
			No Genotype X Light interaction	$F_{(1,13)}$ < 0.01	0.993
S3	C	Two-way RM ANOVA	Significant effect of Genotype	$F_{(1,16)}$ = 11.06	0.004
			No effect of Light	$F_{(1,16)}$ = 0.01	0.931
			No Genotype X Light interaction	$F_{(1,16)}$ = 0.61	0.447
S4	B	Student's t-test, two-sided		$t_{(6)}$ = 5.78	0.001
	D	Mann Whitney test		$U_{(6)}$ = 0	0.036
S5	B	Two-way RM ANOVA	No effect of Group	$F_{(2,17)}$ = 3.20	0.066
			No effect of Light	$F_{(1,17)}$ = 1.98	0.177
			No Group X Light interaction	$F_{(2,17)}$ = 0.74	0.492
	C	Two-way RM ANOVA	No effect of Group	$F_{(2,17)}$ = 0.93	0.413

			No effect of Light	$F_{(1,17)} = 0.50$	0.489
			No Group X Light interaction	$F_{(2,17)} = 1.91$	0.179
	D	Two-way RM ANOVA	No effect of Group	$F_{(2,17)} = 1.08$	0.362
			No effect of Light	$F_{(1,17)} = 1.30$	0.270
			No Group X Light interaction	$F_{(2,17)} = 3.57$	0.051
			No effect of Light	$F_{(1,17)} = 1.30$	0.270
			No Group X Light interaction	$F_{(2,17)} = 3.57$	0.051
S6	C	Two-way RM ANOVA	No effect of Group	$F_{(2,17)} = 2.26$	0.135
			No effect of Light	$F_{(1,17)} = 0.25$	0.624
			Significant Group X Light interaction	$F_{(2,17)} = 4.44$	0.028

Supplemental Table 2

Male/Female Group Distribution

Figure	Group	Male	Female	Total
1	No Ext	6	2	8
	Ext	6	2	8
	Alt Ctx	3	3	6
2	Acq-Tag/ExtTest	4	4	8
	Ext-Tag/ExtTest	4	4	8
	Acq-Tag/SpontRec	4	4	8
	Ext-Tag/SpontRec	3	4	7
3	ArcCreER^{T2}(-):	6	3	9
	ArcCreER^{T2}(+):	5	4	9
4	ArcCreER^{T2}(-):	3	5	8
	ArcCreER^{T2}(+):	4	3	7
5	Acq-Tag(-)	3	3	6
	Acq-Tag(+)	2	2	4
	Ext-Tag(-)	3	3	6
	Ext-Tag(+)	1	3	4