Supplementary Table 1. Statistical tests used in Figure 1 – 6

Figure	Sample size	Statistic test	P value
1c	20 each (10 males + 10 females)	Repeated-measure two-way ANOVA Assume sphericity? No Factor 1: Time Factor 2: Treatment (Ctrl, SD)	Time x Treatment, F (4, 152) = 1.398 P=0.2374 Time, F (2.589, 98.39) = 2.209 P=0.1008 Treatment, F (1, 38) = 1.029 P=0.3169 Subject, F (38, 152) = 2.175 P=0.0005
1d	20 each (10 males + 10 females)	Repeated-measure two-way ANOVA Assume sphericity? No Factor 1: Time Factor 2: Treatment (Ctrl, SD)	Time x Treatment, F (4, 152) = 0.6330 P=0.6397 Time, F (3.657, 139.0) = 16.83 P=0.000000000119916 Treatment, F (1, 38) = 0.2470 P=0.6221 Subject, F (38, 152) = 4.104 P<0.0001
1e	20 each (10 males + 10 females)	Repeated-measure two-way ANOVA Assume sphericity? No Factor 1: Time Factor 2: Treatment (Ctrl, SD)	Time x Treatment, F (4, 152) = 1.243 P=0.2953 Time, F (3.086, 117.3) = 3.978 P=0.0091 Treatment, F (1, 38) = 6.269 P=0.0167 Subject, F (38, 152) = 1.669 P=0.0161
1f	20 each (10 males + 10 females)	Repeated-measure two-way ANOVA Assume sphericity? No Factor 1: Time Factor 2: Treatment (Ctrl, SD)	Time x Treatment, F (4, 152) = 0.1925 P=0.9420 Time, F (3.544, 134.7) = 13.67 P=0.000000010816056 Treatment, F (1, 38) = 7.806 P=0.0081 Subject, F (38, 152) = 2.906 P<0.0001
1g	20 each (10 males + 10 females)	Repeated-measure two-way ANOVA Assume sphericity? No Factor 1: Stimulus (Tria 1 E, Tria 1 S1, Tria 2 S1, Tria 2 S2) Factor 2: Treatment (Ctrl, SD) Tukey's multiple comparisons test	Stimulus x Treatment, F (3, 114) = 6.226 P=0.0006 Stimulus, F (2.014, 76.52) = 83.36 P<0.0001 Treatment, F (1, 38) = 0.9826 P=0.3278 Subject, F (38, 114) = 2.599 P<0.0001 Multiple comparisons P: Trial 1 E vs. Trial 1 S1: Ctrl 0.0000023, SD 0.0000001 Trial 1 E vs. Trial 2 S1: Ctrl 0.1720371, SD 0.1081043 Trial 1 E vs. Trial 2 S2: Ctrl 0.0000004, SD 0.0059640 Trial 1 S1 vs. Trial 2 S1: Ctrl 0.0000016, SD 0.0000015 Trial 1 S1 vs. Trial 2 S2: Ctrl 0.0964569, SD 0.0000191 Trial 2 S1 vs. Trial 2 S2: Ctrl 0.0000008, SD 0.5340232
1h	20 each (10 males + 10 females)	Unpaired t test with Welch's correction	t=0.4585, df=35.99, Two-tailed P = 0.6493
1i	20 each (10 males + 10 females)	Mann-Whitney test	Mann-Whitney U = 30.50, Two-tailed P = 0.000000412545753
1j	12 each (Ctrl: 10 males + 2 females; SD: 11 males +1 female)	Repeated-measure two-way ANOVA Assume sphericity? No Factor 1: Stimulus (Tria 1 E, Tria 1 S1, Tria 2 S1, Tria 2 S2) Factor 2: Treatment (Ctrl, Res) Tukey's multiple comparisons test	Stimulus x Treatment, F (3, 66) = 0.1400 P=0.9357 Stimulus, F (2.195, 48.28) = 59.20 P<0.0001 Treatment, F (1, 22) = 0.9220 P=0.3474 Subject, F (22, 66) = 1.791 P=0.0363 Multiple comparisons P: Trial 1 E vs. Trial 1 S1: Ctrl 0.0000057, Res 0.0002747 Trial 1 E vs. Trial 2 S1: Ctrl 0.0104708, Res 0.0048963 Trial 1 E vs. Trial 2 S2: Ctrl 0.0005546, Res 0.0000610 Trial 1 S1 vs. Trial 2 S1: Ctrl 0.0000175, Res 0.0040384 Trial 1 S1 vs. Trial 2 S2: Ctrl 0.4979571, Res 0.2347252 Trial 2 S1 vs. Trial 2 S2: Ctrl 0.0030444, Res 0.0007702
1k	12 each (Ctrl: 10 males + 2 females; SD: 11	Unpaired t test with Welch's correction	t = 0.1268, df = 21.47, Two-tailed P = 0.900281

<table>
<tr><td></td><td>males +1 female)</td><td></td><td></td></tr>
<tr><td>1l</td><td>12 each (Ctrl: 10 males + 2 females; SD: 11 males +1 female)</td><td>Unpaired t test with Welch's correction</td><td>t = 0.1054, df = 21.44, Two-tailed P = 0.917062</td></tr>
<tr><td>1n</td><td>13 each (10 males + 3 females)</td><td>Repeated-measure two-way ANOVA
Assume sphericity? No
Factor 1: Stimulus (Tria 1 E, Tria 1 S1, Tria 2 S1, Tria 2 S2)
Factor 2: Treatment (Ctrl, SD)
Tukey's multiple comparisons test</td><td>Stimulus x Treatment, F (3, 72) = 10.76 P=0.0000063
Stimulus, F (2.327, 55.86) = 53.58 P<0.0001
Treatment, F (1, 24) = 0.2687 P=0.6089
Subject, F (24, 72) = 7.082 P<0.0001
Multiple comparisons P:
<table><tr><td></td><td>Ctrl</td><td>SD</td></tr><tr><td>Trial 1 E vs. Trial 1 S1</td><td>0.0000017</td><td>0.0047030</td></tr><tr><td>Trial 1 E vs. Trial 2 S1</td><td>0.8248622</td><td>0.1010195</td></tr><tr><td>Trial 1 E vs. Trial 2 S2</td><td>0.0000011</td><td>0.0461483</td></tr><tr><td>Trial 1 S1 vs. Trial 2 S1</td><td>0.0000015</td><td>0.1149412</td></tr><tr><td>Trial 1 S1 vs. Trial 2 S2</td><td>0.0034759</td><td>0.0874396</td></tr><tr><td>Trial 2 S1 vs. Trial 2 S2</td><td>0.0007697</td><td>0.9982539</td></tr></table></td></tr>
<tr><td>1o</td><td>13 each (10 males + 3 females)</td><td>Unpaired t test with Welch's correction</td><td>t = 3.774, df = 21.44, Two-tailed P = 0.0011</td></tr>
<tr><td>1p</td><td>13 each (10 males + 3 females)</td><td>Unpaired t test with Welch's correction</td><td>t = 4.643, df = 16.44, Two-tailed P = 0.0003</td></tr>
<tr><td>1r</td><td>13 each (5 males + 8 females)</td><td>Repeated-measure two-way ANOVA
Assume sphericity? No
Factor 1: Stimulus (Tria 1 E, Tria 1 S1, Tria 2 S1, Tria 2 S2)
Factor 2: Treatment (Ctrl, SD)
Tukey's multiple comparisons test</td><td>Stimulus x Treatment, F (3, 72) = 0.7382 P=0.5327
Stimulus, F (2.268, 54.43) = 46.98 P<0.0001
Treatment, F (1, 24) = 0.05691 P=0.8135
Subject, F (24, 72) = 3.277 P<0.0001
Multiple comparisons P:
<table><tr><td></td><td>Ctrl</td><td>SD</td></tr><tr><td>Trial 1 E vs. Trial 1 S1</td><td>0.0003000</td><td>0.0000935</td></tr><tr><td>Trial 1 E vs. Trial 2 S1</td><td>0.0167234</td><td>0.1315173</td></tr><tr><td>Trial 1 E vs. Trial 2 S2</td><td>0.0013789</td><td>0.0008299</td></tr><tr><td>Trial 1 S1 vs. Trial 2 S1</td><td>0.0025357</td><td>0.0002826</td></tr><tr><td>Trial 1 S1 vs. Trial 2 S2</td><td>0.5348568</td><td>0.0996259</td></tr><tr><td>Trial 2 S1 vs. Trial 2 S2</td><td>0.0111133</td><td>0.0007321</td></tr></table></td></tr>
<tr><td>1s</td><td>13 each (5 males + 8 females)</td><td>Unpaired t test with Welch's correction</td><td>t=0.9233, df=16.97, Two-tailed P = 0.3688</td></tr>
<tr><td>1t</td><td>13 each (5 males + 8 females)</td><td>Unpaired t test with Welch's correction</td><td>t=0.2240, df=23.93, Two-tailed P = 0.8247</td></tr>
<tr><td>2c</td><td>6 each (all males)</td><td>Unpaired t test with Welch's correction</td><td>t = 0.7383, df = 9.324, Two-tailed P = 0.4785</td></tr>
<tr><td>2h</td><td>6 each (all males)</td><td>Non-linear regression with one phase decay model</td><td><table><tr><td>Best-fit values</td><td>Ctrl</td><td>SD</td></tr><tr><td>Y0</td><td>4.946</td><td>5.633</td></tr><tr><td>Plateau</td><td>0.2968</td><td>1.027</td></tr><tr><td>K</td><td>0.2105</td><td>0.5490</td></tr><tr><td>Half Life</td><td>3.292</td><td>1.262</td></tr><tr><td>Tau</td><td>4.750</td><td>1.821</td></tr><tr><td>Span</td><td>4.649</td><td>4.606</td></tr><tr><td>Std. Error</td><td></td><td></td></tr><tr><td>Y0</td><td>1.578</td><td>2.263</td></tr><tr><td>Plateau</td><td>2.025</td><td>0.4054</td></tr><tr><td>K</td><td>0.2519</td><td>0.3608</td></tr><tr><td>Span</td><td>1.478</td><td>2.091</td></tr><tr><td>95% CI (profile likelihood)</td><td></td><td></td></tr><tr><td>Y0</td><td>2.775 to ???</td><td>2.698 to ???</td></tr></table></td></tr>
</table>

			Plateau	??? to 1.987	-397.2 to 1.703
			K	???	0.0006019 to ???
			Half Life	???	??? to 1152
			Tau	???	??? to 1661
			Goodness of Fit		
			Degrees of Freedom	57	57
			R squared	0.1754	0.1958
			Sum of Squares	290.9	164.7
			Sy.x	2.259	1.700

Null hypothesis	One curve for all data sets
Alternative hypothesis	Different curve for each data set
P value	0.5867
Conclusion (alpha = 0.05)	Do not reject null hypothesis
Preferred model	One curve for all data sets
F (DFn, DFd)	0.6466 (3, 114)

2i	6 each (all males)	Non-linear regression with one phase decay model	**Best-fit values**	**Ctrl**	**SD**
			Y0	14.46	5.094
			Plateau	2.664	1.580
			K	0.7422	0.3688
			Half Life	0.9339	1.880
			Tau	1.347	2.712
			Span	11.80	3.514
			Std. Error		
			Y0	5.971	1.950
			Plateau	0.5952	0.7657
			K	0.4058	0.3826
			Span	5.738	1.619
			95% CI (profile likelihood)		
			Y0	7.264 to 95.86	2.725 to 21.88
			Plateau	0.6041 to 3.716	??? to 2.470
			K	0.1876 to 2.888	??? to 2.420
			Half Life	0.2400 to 3.696	0.2864 to ???
			Tau	0.3463 to 5.331	0.4132 to ???
			Goodness of Fit		
			Degrees of Freedom	57	57
			R squared	0.2470	0.1168
			Sum of Squares	536.3	245.5
			Sy.x	3.067	2.076

			Null hypothesis	One curve for all data sets
			Alternative hypothesis	Different curve for each data set
			P value	0.0057
			Conclusion (alpha = 0.05)	Reject null hypothesis
			Preferred model	Different curve for each data set
			F (DFn, DFd)	4.408 (3, 114)
2j	6 each (all males)	Non-linear regression with one phase decay model	**Best-fit values**	**Ctrl**	**SD**
			Y0	2.262	0.7416
			Plateau	1.915	~ 24.53
			K	0.2838	~ 0.001642
			Half Life	2.442	~ 422.2
			Tau	3.524	~ 609.1
			Span	0.3464	~ -23.78
			Std. Error		
			Y0	1.861	0.6515
			Plateau	1.325	~ 17836
			K	3.816	~ 1.242
			Span	1.437	~ 17835
			95% CI (profile likelihood)		
			Y0	1.406 to ???	???
			Plateau	1.406 to 2.633	(Very wide)
			K	???	(Very wide)
			Half Life	???	(Very wide)
			Tau	???	(Very wide)
			Goodness of Fit		
			Degrees of Freedom	53	57
			R squared	0.001159	0.007079
			Sum of Squares	282.0	104.4
			Sy.x	2.307	1.353
			Null hypothesis	One curve for all data sets
			Alternative hypothesis	Different curve for each data set
			P value	Can't calculate
			Conclusion (alpha = 0.05)	Both fits are ambiguous
			Preferred model	One curve for all data sets
			F (DFn, DFd)	Can't calculate
2k	6 each (all males)	Non-linear regression with one phase decay model	**Best-fit values**	**Ctrl**	**SD**
			Y0	22.18	2.687
			Plateau	2.400	1.287
			K	1.511	0.4159
			Half Life	0.4586	1.667
			Tau	0.6616	2.404
			Span	19.78	1.400
			Std. Error		

<table>
<tr><td></td><td></td><td></td><td>
<table>
<tr><td>Y0</td><td>24.06</td><td>2.100</td></tr>
<tr><td>Plateau</td><td>0.4366</td><td>0.6616</td></tr>
<tr><td>K</td><td>1.173</td><td>1.053</td></tr>
<tr><td>Span</td><td>23.90</td><td>1.807</td></tr>
<tr><td>95% CI (profile likelihood)</td><td></td><td></td></tr>
<tr><td>Y0</td><td>6.889 to ???</td><td>1.110 to ???</td></tr>
<tr><td>Plateau</td><td>1.495 to 3.231</td><td>1.110 to 2.007</td></tr>
<tr><td>K</td><td>0.4608 to ???</td><td>???</td></tr>
<tr><td>Half Life</td><td>??? to 1.504</td><td>???</td></tr>
<tr><td>Tau</td><td>??? to 2.170</td><td>???</td></tr>
<tr><td>Goodness of Fit</td><td></td><td></td></tr>
<tr><td>Degrees of Freedom</td><td>53</td><td>56</td></tr>
<tr><td>R squared</td><td>0.2100</td><td>0.01998</td></tr>
<tr><td>Sum of Squares</td><td>376.0</td><td>231.3</td></tr>
<tr><td>Sy.x</td><td>2.664</td><td>2.032</td></tr>
</table>
<table>
<tr><td>Null hypothesis</td><td>One curve for all data sets</td></tr>
<tr><td>Alternative hypothesis</td><td>Different curve for each data set</td></tr>
<tr><td>P value</td><td>0.0013</td></tr>
<tr><td>Conclusion (alpha = 0.05)</td><td>Reject null hypothesis</td></tr>
<tr><td>Preferred model</td><td>Different curve for each data set</td></tr>
<tr><td>F (DFn, DFd)</td><td>5.630 (3, 109)</td></tr>
</table>
</td></tr>
<tr><td>2l</td><td>6 each (all males)</td><td>Repeated-measure two-way ANOVA
Assume sphericity? Yes
Factor 1: Stimulus (Tria 1 E, Tria 1 S1, Tria 2 S1, Tria 2 S2)
Factor 2: Treatment (Ctrl, SD)
Tukey's multiple comparisons test (for comparison within group)
Bonferroni's multiple comparisons test (for Ctrl vs SD)</td><td>Treatment x Stimulus, F (3, 30) = 2.251 P=0.1028
Treatment, F (1, 10) = 19.27 P=0.0014
Stimulus, F (3, 30) = 3.451 P=0.0288
Subject, F (10, 30) = 0.8019 P=0.6281

Multiple comparisons P:
<table>
<tr><td></td><td>Ctrl</td><td>SD</td></tr>
<tr><td>Trial 1 E vs. Trial 1 S1</td><td>0.1095</td><td>0.9966</td></tr>
<tr><td>Trial 1 E vs. Trial 2 S1</td><td>0.9426</td><td>0.7551</td></tr>
<tr><td>Trial 1 E vs. Trial 2 S2</td><td>0.0746</td><td>0.9016</td></tr>
<tr><td>Trial 1 S1 vs. Trial 2 S1</td><td>0.0323</td><td>0.6292</td></tr>
<tr><td>Trial 1 S1 vs. Trial 2 S2</td><td>0.9977</td><td>0.8059</td></tr>
<tr><td>Trial 2 S1 vs. Trial 2 S2</td><td>0.0208</td><td>0.9899</td></tr>
</table>
<table>
<tr><td></td><td>Trial 1, E</td><td>Trial 1, S1</td><td>Trial 2, S1</td><td>Trial 2, S2</td></tr>
<tr><td>Ctrl vs. SD</td><td>>0.9999</td><td>0.0381</td><td>>0.9999</td><td>0.0017</td></tr>
</table></td></tr>
<tr><td>2n</td><td>6 each (all males)</td><td>Mann-Whitney test</td><td>Mann-Whitney U = 2, Two-tailed P = 0.0087</td></tr>
<tr><td>2o</td><td>6 each (all males)</td><td>Mann-Whitney test</td><td>Mann-Whitney U = 5, Two-tailed P = 0.0411</td></tr>
<tr><td>2p</td><td>6 each (all males)</td><td>Unpaired t test with Welch's correction</td><td>t=2.471, df=7.766, Two-tailed P = 0.0395</td></tr>
<tr><td>2q</td><td>6 each (all males)</td><td>Unpaired t test with Welch's correction</td><td>t=1.432, df=7.818, Two-tailed P = 0.1910</td></tr>
<tr><td>3g</td><td>Ctrl: 7 (4 males + 3 females); SD: 6 (3 males + 3 females)</td><td>Non-linear regression with one phase decay model</td><td>
<table>
<tr><td>Best-fit values</td><td>Ctrl</td><td>SD</td></tr>
<tr><td>Y0</td><td>2.004</td><td>7.883</td></tr>
<tr><td>Plateau</td><td>0.7699</td><td>0.4145</td></tr>
<tr><td>K</td><td>0.3351</td><td>1.289</td></tr>
</table>
</td></tr>
</table>

			Half Life	2.069	0.5377
			Tau	2.984	0.7758
			Span	1.234	7.469
			Std. Error		
			Y0	1.074	5.221
			Plateau	0.5364	0.2053
			K	0.6089	0.6790
			Span	0.8570	5.124
			95% CI (profile likelihood)		
			Y0	"0.8934 to ???"	"2.751 to ???"
			Plateau	"??? to 1.283"	"-0.2298 to 0.8097"
			K	???	"0.3529 to ???"
			Half Life	???	"??? to 1.964"
			Tau	???	"??? to 2.834"
			Goodness of Fit		
			Degrees of Freedom	64	34
			R squared	0.04135	0.4466
			Sum of Squares	109.3	24.43
			Sy.x	1.307	0.8477

Null hypothesis	"One curve for all data sets"
Alternative hypothesis	"Different curve for each data set"
P value	0.1119
Conclusion (alpha = 0.05)	"Do not reject null hypothesis"
Preferred model	"One curve for all data sets"
F (DFn, DFd)	"2.050 (3, 98)"

3h	Ctrl: 7 (4 males + 3 females); SD: 6 (3 males + 3 females)	Non-linear regression with one phase decay model	**Best-fit values**	**Ctrl**	**SD**
			Y0	9.034	7.911
			Plateau	1.101	2.076
			K	0.8362	0.4451
			Half Life	0.8289	1.557
			Tau	1.196	2.247
			Span	7.933	5.835
			Std. Error		
			Y0	"4.293 to 97.28"	"4.659 to 15.64"
			Plateau	"0.07981 to 1.623"	"??? to 2.971"
			K	"0.2298 to 3.383"	"??? to 1.264"
			Span	"0.2049 to 3.016"	"0.5484 to ???"
			95% CI (profile likelihood)	"0.2956 to 4.351"	"0.7912 to ???"
			Y0		

			Plateau	67	56
			K	0.2998	0.2454
			Half Life	177.8	239.3
			Tau	1.629	2.067
			Goodness of Fit	9.034	7.911
			Degrees of Freedom	1.101	2.076
			R squared	0.8362	0.4451
			Sum of Squares	0.8289	1.557
			Sy.x	1.196	2.247

Null hypothesis	"One curve for all data sets"
Alternative hypothesis	"Different curve for each data set"
P value	0.0004
Conclusion (alpha = 0.05)	"Reject null hypothesis"
Preferred model	"Different curve for each data set"
F (DFn, DFd)	"6.424 (3, 123)"

3i	Ctrl: 7 (4 males + 3 females); SD: 6 (3 males + 3 females)	Non-linear regression with one phase decay model	**Best-fit values**	**Ctrl**	**SD**
			Y0	1.126	3.456
			Plateau	0.1894	0.6136
			K	-0.006347	0.9663
			Half Life	-109.2	0.7174
			Tau	-157.6	1.035
			Span	0.9370	2.843
			Std. Error		
			Y0	"0.9186 to 1.622"	"0.9739 to ???"
			Plateau	???	"??? to 1.020"
			K	???	"-0.2936 to ???"
			Span	???	"??? to +infinity"
			95% CI (profile likelihood)	???	"??? to +infinity"
			Y0		
			Plateau	56	39
			K	0.0003491	0.1320
			Half Life	46.62	36.83
			Tau	0.9124	0.9718
			Goodness of Fit	1.126	3.456
			Degrees of Freedom	0.1894	0.6136
			R squared	-0.006347	0.9663
			Sum of Squares	-109.2	0.7174
			Sy.x	-157.6	1.035

			Null hypothesis: "One curve for all data sets" Alternative hypothesis: "Different curve for each data set" P value: 0.0672 Conclusion (alpha = 0.05): "Do not reject null hypothesis" Preferred model: "One curve for all data sets" F (DFn, DFd): "2.463 (3, 95)"
3j	Ctrl: 7 (4 males + 3 females); SD: 6 (3 males + 3 females)	Non-linear regression with one phase decay model	**Best-fit values** / **Ctrl** / **SD** Y0: 5.250 / 2.017 Plateau: 1.197 / 0.7714 K: 0.8691 / 0.3574 Half Life: 0.7975 / 1.939 Tau: 1.151 / 2.798 Span: 4.053 / 1.246 **Std. Error** Y0: "2.444 to ???" / "0.8561 to ???" Plateau: "0.4634 to 1.557" / "??? to 1.372" K: "0.1702 to ???" / "??? to +infinity" Span: "??? to 4.073" / ??? **95% CI (profile likelihood)**: "??? to 5.876" / ??? Y0 Plateau: 64 / 44 K: 0.1818 / 0.04543 Half Life: 82.23 / 70.00 Tau: 1.133 / 1.261 **Goodness of Fit**: 5.250 / 2.017 Degrees of Freedom: 1.197 / 0.7714 R squared: 0.8691 / 0.3574 Sum of Squares: 0.7975 / 1.939 Sy.x: 1.151 / 2.798 Null hypothesis: "One curve for all data sets" Alternative hypothesis: "Different curve for each data set" P value: 0.1169 Conclusion (alpha = 0.05): "Do not reject null hypothesis" Preferred model: "One curve for all data sets" F (DFn, DFd): "2.010 (3, 108)"
3l	Ctrl: 7 (4 males + 3 females); SD: 6 (3 males + 3 females)	Repeated-measure two-way ANOVA Assume sphericity? Yes Factor 1: Stimulus (Tria 1 E, Tria 1 S1, Tria 2 S1, Tria 2 S2) Factor 2: Treatment (Ctrl, SD) Tukey's multiple	Treatment x Stimulus, F (3, 33) = 3.243 P=0.0343 Treatment, F (1, 11) = 0.7310 P=0.4108 Stimulus, F (2.346, 25.81) = 9.644 P=0.0004 Subject, F (11, 33) = 1.604 P=0.1434 Multiple comparisons P: Trial 1 E vs. Trial 1 S1: Ctrl 0.0668 / SD 0.2342 Trial 1 E vs. Trial 2 S1: Ctrl 0.9286 / SD 0.9083

		comparisons test (for comparison within group) Bonferroni's multiple comparisons test (for Ctrl vs SD)	Trial 1 E vs. Trial 2 S2 0.2009 0.2475 Trial 1 S1 vs. Trial 2 S1 0.0363 0.2742 Trial 1 S1 vs. Trial 2 S2 0.4415 0.0748 Trial 2 S1 vs. Trial 2 S2 0.0021 0.5701 Trial 1, E / Trial 1, S1 / Trial 2, S1 / Trial 2, S2 Ctrl vs. SD 0.1580 / >0.9999 / 0.2643 / 0.1721
3m	7 (4 males + 3 females)	Mann-Whitney test	Mann-Whitney U = 6, Two-tailed P = 0.0175
3n	6 (3 males + 3 females)	Unpaired t test with Welch's correction	t=0.9233, df=16.97, Two-tailed P = 0.0035
3o	7 (4 males + 3 females)	Unpaired t test with Welch's correction	t=2.425, df=6.594, Two-tailed P = 0.0479
3p	6 (3 males + 3 females)	Unpaired t test with Welch's correction	t=0.7349, df=8.197, Two-tailed P = 0.4829
4h	Ctrl: 43 neurons (4 mice, all males) SD: 35 neurons (4 mice, all males)	Unpaired t test with Welch's correction	t =5.066, df=5.190, Two-tailed P = 0.0011
4i	Ctrl: 39 neurons (4 mice, all males) SD: 35 neurons (4 mice, all males)	Mann-Whitney test	Mann-Whitney U = 608, Two-tailed P = 0.4248
4j	Ctrl: 42 neurons (5 mice, all males) SD: 37 neurons (5 mice, all males)	Unpaired t test with Welch's correction	t = 4.018, df = 76.98, Two-tailed P = 0.0001
4k	Ctrl: 42 neurons (5 mice, all males) SD: 36 neurons (5 mice, all males)	Unpaired t test with Welch's correction	t=4.351, df=73.78, Two-tailed P = 0.0000429
4l	Ctrl: 38 neurons (5 mice, all males) SD: 44 neurons (5 mice, all males)	Unpaired t test with Welch's correction	t=1.531, df=70.10, Two-tailed P = 0.1302
4m	Ctrl: 38 neurons (5 mice, all males) SD: 43 neurons (5 mice, all males)	Mann-Whitney test	Mann-Whitney U = 485, Two-tailed P = 0.0015
5c	Cre–: 8 hM3Dq^{DAT}: 9 (all males)	Repeated-measure two-way ANOVA Assume sphericity? No Factor 1: Stimulus (Tria 1 E, Tria 1 S1, Tria 2 S1, Tria 2 S2) Factor 2: Treatment (Cre–, hM3Dq^{DAT}) Tukey's multiple comparisons test	Stimulus x Treatment, F (3, 45) = 3.930 P=0.0142 Stimulus, F (3, 45) = 21.99 P<0.0001 Treatment, F (1, 15) = 0.07179 P=0.7924 Subject, F (15, 45) = 3.406 P=0.0007 Multiple comparisons P: Cre– / hM3Dq^{DAT} Trial 1 E vs. Trial 1 S1 0.0239 0.0190 Trial 1 E vs. Trial 2 S1 0.9747 0.3759 Trial 1 E vs. Trial 2 S2 0.0130 0.0027 Trial 1 S1 vs. Trial 2 S1 0.0232 0.0100 Trial 1 S1 vs. Trial 2 S2 0.9998 0.1647 Trial 2 S1 vs. Trial 2 S2 0.0194 0.9042
5d	Cre–: 8 mCherry^{DAT}: 4 hM3Dq^{DAT}: 9 (all males)	One-way ANOVA followed by Sidak's multiple comparisons test	Treatment, F (2, 18) = 1.743 P=0.2033 Sidak's multiple comparisons: Cre- vs. hM3Dq^{DAT} 0.6815 mCherryDAT vs. hM3Dq^{DAT} 0.1511
5e	Cre–: 8 mCherry^{DAT}: 4 hM3Dq^{DAT}: 9	One-way ANOVA followed by Sidak's multiple	Treatment, F (2, 18) = 10.58 P=0.0009 Sidak's multiple comparisons: Cre- vs. hM3Dq^{DAT} 0.0009

	(all males)	comparisons test	mCherryDAT vs. hM3Dq^{DAT} 0.0110
5g	mCherry^{DAT}: 8 (5 males + 3 females) hM4Di^{DAT}: 10 (8 males + 2 females)	Repeated-measure two-way ANOVA Assume sphericity? No Factor 1: Stimulus (Tria 1 E, Tria 1 S1, Tria 2 S1, Tria 2 S2) Factor 2: Treatment (mCherry^{DAT}, hM4Di^{DAT}) Tukey's multiple comparisons test	Stimulus x Treatment, F (3, 48) = 1.950 P=0.1341 Stimulus, F (2.256, 36.10) = 28.85 P<0.0001 Treatment, F (1, 16) = 2.202 P=0.1573 Subject, F (16, 48) = 2.430 P=0.0091 Multiple comparisons P: mCherry^{DAT} / hM4Di^{DAT} Trial 1 E vs. Trial 1 S1: 0.0069 / 0.0055 Trial 1 E vs. Trial 2 S1: 0.6704 / 0.9513 Trial 1 E vs. Trial 2 S2: 0.4371 / 0.0156 Trial 1 S1 vs. Trial 2 S1: 0.0107 / 0.0003 Trial 1 S1 vs. Trial 2 S2: 0.0912 / 0.4392 Trial 2 S1 vs. Trial 2 S2: 0.4719 / 0.0038
5h	mCherry^{DAT}: 8 (5 males + 3 females) hM4Di^{DAT}: 10 (8 males + 2 females)	Unpaired t test with Welch's correction	t = 0.6081, df = 14.60, Two-tailed P = 0.5524
5i	mCherry^{DAT}: 8 (5 males + 3 females) hM4Di^{DAT}: 10 (8 males + 2 females)	Unpaired t test with Welch's correction	t = 3.585, df = 15.51, Two-tailed P = 0.0026
5k	Control virus: 33 neurons (4 mice, all males) hM3Dq^{DAT}: 35 neurons (4 mice, all males)	Unpaired t test with Welch's correction	t = 2.826, df = 61.07, Two-tailed P = 0.0064
5l	Control virus: 22 neurons (4 mice, all males) hM3Dq^{DAT}: 33 neurons (4 mice, all males)	Mann-Whitney test	Mann-Whitney U = 277, Two-tailed P = 0.1400
5n	SD + Control virus: 38 neurons (4 mice, all males) SD + hM4Di^{DAT}: 42 neurons (4 mice, all males)	Mann-Whitney test	Mann-Whitney U = 525.5, Two-tailed P = 0.0080
5o	SD + Control virus: 37 neurons (4 mice, all males) SD + hM4Di^{DAT}: 39 neurons (4 mice, all males)	Unpaired t test with Welch's correction	t = 1.311, df = 73.45, Two-tailed P = 0.1940
6b	Veh: 7 (6 males + 1 female) Flup: 8 (all males)	Repeated-measure two-way ANOVA Assume sphericity? Yes Factor 1: Time (ZT) Factor 2: Treatment (Vehicle, Flup) Bonferroni's multiple comparisons test	Time x Treatment, F (23, 299) = 2.608 P=0.0001 Time, F (23, 299) = 8.225 P<0.0001 Treatment, F (1, 13) = 2.196 P=0.1622 Subject, F (13, 299) = 9.723 P<0.0001 Multiple comparisons P: Veh vs. Flup ZT0-1 >0.9999 ZT1-2 >0.9999 ZT2-3 0.0000220 ZT3-4 0.0055

			ZT4-5 >0.9999 ZT5-6 0.0393 ZT6-7 >0.9999 ZT7-8 >0.9999 ZT8-9 >0.9999 ZT9-10 >0.9999 ZT10-11 >0.9999 ZT11-12 >0.9999 ZT12-13 >0.9999 ZT13-14 >0.9999 ZT14-15 >0.9999 ZT15-16 >0.9999 ZT16-17 >0.9999 ZT17-18 >0.9999 ZT18-19 >0.9999 ZT19-20 >0.9999 ZT20-21 >0.9999 ZT21-22 >0.9999 ZT22-23 >0.9999 ZT23-24 >0.9999
6c	Veh: 7 (6 males + 1 female) Flup: 8 (all males)	Unpaired t test with Welch's correction (for Wake & NREM) Mann-Whitney test (for REM)	Wake, t = 3.090, df = 7.876, Two-tailed P = 0.0152 NREM, t = 3.331, df = 8.847, Two-tailed P = 0.0090 REM, Mann-Whitney U = 16, Two-tailed P = 0.1893
6d	12 each (6 males + 6 females)	Repeated-measure two-way ANOVA Assume sphericity? No Factor 1: Stimulus (Tria 1 E, Tria 1 S1, Tria 2 S1, Tria 2 S2) Factor 2: Treatment (Vehicle, Flup) Tukey's multiple comparisons test	Stimulus x Treatment, F (3, 66) = 3.952 P=0.0118 Stimulus, F (1.956, 43.04) = 31.66 P<0.0001 Treatment, F (1, 22) = 1.510 P=0.2321 Subject, F (22, 66) = 1.741 P=0.0438 Multiple comparisons P: Trial 1 E vs. Trial 1 S1 — Vehicle 0.0005, Flup 0.0004 Trial 1 E vs. Trial 2 S1 — Vehicle 0.0047, Flup 0.0619 Trial 1 E vs. Trial 2 S2 — Vehicle 0.0040, Flup 0.0007 Trial 1 S1 vs. Trial 2 S1 — Vehicle 0.0208, Flup 0.0021 Trial 1 S1 vs. Trial 2 S2 — Vehicle 0.0221, Flup 0.7054 Trial 2 S1 vs. Trial 2 S2 — Vehicle 0.9874, Flup 0.0204
6e	12 each (6 males + 6 females)	Mann-Whitney test	Mann-Whitney U = 45, Two-tailed P = 0.1277
6f	12 each (6 males + 6 females)	Mann-Whitney test	Mann-Whitney U = 8, Two-tailed P = 0.0000496
6j	11 each (8 males + 3 females)	Kolmogorov-Smirnov test (for cumulative distributions of frequency steps) Paired t test (for total power of each frequency bands)	Kolmogorov-Smirnov D = 0.1435, P = 0.0001 Paired t tests (OFF vs 1-Hz): δ (<4Hz), t = 2.350, df = 10.00, Two-tailed P = 0.0406 θ (4 - 7Hz), t = 3.026, df = 10.00, Two-tailed P = 0.0128 α (7 - 12Hz), t = 0.4240, df = 10.00, Two-tailed P = 0.6805 β (12 - 30Hz), t = 1.876, df = 10.00, Two-tailed P = 0.0902
6k	11 each (8 males + 3 females)	Paired t test for each state	Wake, t = 0.4480, df = 10.00, Two-tailed P = 0.6637 NREM, t = 0.1850, df = 10.00, Two-tailed P = 0.8570 REM, t = 0.6813, df = 10.00, Two-tailed P = 0.5111
6l	No stim: 9 (6 males + 3 females) 1-Hz: 10 (8 males + 3 females)	Repeated-measure two-way ANOVA Assume sphericity? No Factor 1: Stimulus (Tria 1 E, Tria 1 S1, Tria 2 S1, Tria 2 S2) Factor 2: Treatment (No stim, 1-Hz)	Stimulus x Treatment, F (3, 51) = 1.715 P=0.1755 Stimulus, F (2.025, 34.42) = 19.85 P<0.0001 Treatment, F (1, 17) = 0.5817 P=0.4561 Subject, F (17, 51) = 2.336 P=0.0101 Multiple comparisons P: Trial 1 E vs. Trial 1 S1 — No stim 0.0271, 1-Hz 0.0056

		Tukey's multiple comparisons test	Trial 1 E vs. Trial 2 S1 0.0126 0.1409 Trial 1 E vs. Trial 2 S2 0.0261 0.0063 Trial 1 S1 vs. Trial 2 S1 0.0614 0.0159 Trial 1 S1 vs. Trial 2 S2 0.2303 0.9992 Trial 2 S1 vs. Trial 2 S2 0.6220 0.0496
6m	No stim: 9 (6 males + 3 females) 1-Hz: 10 (8 males + 3 females)	Unpaired t test with Welch's correction	t = 0.3058, df = 11.51, Two-tailed P = 0.7652
6n	No stim: 9 (6 males + 3 females) 1-Hz: 10 (8 males + 3 females)	Unpaired t test with Welch's correction	t = 2.209, df = 14.52, Two-tailed P = 0.0437
6p	9 each (Cre–: 4 males + 5 females; hM4Di^{DAT}: 2 males + 7 females)	Repeated-measure two-way ANOVA Assume sphericity? No Factor 1: Stimulus (Tria 1 E, Tria 1 S1, Tria 2 S1, Tria 2 S2) Factor 2: Treatment (Cre–, hM4Di^{DAT}) Tukey's multiple comparisons test	Stimulus x Treatment, F (3, 48) = 1.846 P=0.1514 Stimulus, F (2.354, 37.66) = 18.01 P<0.0001 Treatment, F (1, 16) = 0.5765 P=0.4587 Subject, F (16, 48) = 2.298 P=0.0135 Multiple comparisons P: Cre– hM4Di^{DAT} Trial 1 E vs. Trial 1 S1 0.0077 0.0139 Trial 1 E vs. Trial 2 S1 0.0362 0.2745 Trial 1 E vs. Trial 2 S2 0.0988 0.0017 Trial 1 S1 vs. Trial 2 S1 0.2550 0.0340 Trial 1 S1 vs. Trial 2 S2 0.1048 0.4508 Trial 2 S1 vs. Trial 2 S2 0.8012 0.0484
6q	9 each (Cre–: 4 males + 5 females; hM4Di^{DAT}: 2 males + 7 females)	Mann-Whitney test	Mann-Whitney U = 38, Two-tailed P = 0.8633
6r	9 each (Cre–: 4 males + 5 females; hM4Di^{DAT}: 2 males + 7 females)	Unpaired t test with Welch's correction	t = 3.601, df = 15.20, Two-tailed P = 0.0026