

Supplementary Table 1 | Exact P-values from Figures 3, 5, and 7 and Extended Data Figures 5 and 8.

Figure	Part	Exact P-value
3	b	*P=0.0399 (0.04g), ***P=0.0006 (0.07g), ***P=0.0003 (0.16g), ****P<0.0001 (ipsi); **P=0.0084, *P=0.0307, ****P<0.0001 (contra)
	c	**P=0.0039, ****P<0.0001 (ipsi); ****P<0.0001 (contra)
	d	**P=0.0024; ****P<0.0001 (ipsi); *P=0.0115 ; *P=0.0172 (contra)
	e	*P=0.0262 ; ****P<0.0001 (ipsi); ****P<0.0001 (contra)
	g	**P=0.0038 (on 1), **P=0.0031 (on 2), *P=0.05 (on 3), **P=0.0057 (on 4) (paw) ****P<0.0001, *P=0.0127 (whisker pad)
	h	***P=0.0003, ****P<0.0001
	j	****P<0.0001, *P=0.0208
5	b	****P<0.0001 (injured); **P=0.0074 (0.07g), ***P=0.0002, **P=0.0019 (0.60g) (uninjured)
	d	**P=0.0063, ns, P=0.8014
	e	**P=0.0033, *P=0.0139, P*=0.0366 (ChR2 baseline vs. stimulation)
7	e	****P<0.0001 (FC, Ins, Intralaminar, PAG), ***P=0.0006 (striatum), *P=0.0233 (BLA), *P=0.0294 (NAc), *P=0.0363 (TeA/ECT), *P=0.0177 (PBN), *P=0.0228 (SolT)
	f	*P=0.0146, *P=0.0293
ED5	b	No graphs are significant (ns). Inner: (Baseline: GFPv.ChR2, P=0.996, GFPv.eArch, P=0.947, ChR2v.eArch, P=0.475; Stimulation: GFPv.ChR2, P=0.170, GFPv.eArch, P>0.999, ChR2v.eArch, P=0.073; Post-stim: GFPv.ChR2, P=0.875, GFPv.eArch, P=0.960, ChR2v.eArch, P=0.194). Outer: (Baseline: GFPv.ChR2, P=0.995, GFPv.eArch, P=0.947, ChR2v.eArch, P=0.468; Stimulation: GFPv.ChR2, P=0.172, GFPv.eArch, P>0.999, ChR2v.eArch, P=0.071; Post-stim: GFPv.ChR2, P=0.878, GFPv.eArch, P=0.957, ChR2v.eArch, P=0.190).
	c	No graphs are significant (ns). (Baseline: GFPv.ChR2, P=0.132, GFPv.eArch, P>0.999, ChR2v.eArch, P=0.354; Stimulation: GFPv.ChR2, P=0.770, GFPv.eArch, P=0.979, ChR2v.eArch, P>0.999; Post-stim: GFPv.ChR2, P=0.191, GFPv.eArch, P>0.999, ChR2v.eArch, P=0.608).
	d	No graphs are significant (ns). Open: (Baseline: GFPv.ChR2, P=0.974, GFPv.eArch, P=0.869, ChR2v.eArch, P>0.999; Stimulation: GFPv.ChR2, P>0.999, GFPv.eArch, P>0.999, ChR2v.eArch, P>0.999; Post-stim: GFPv.ChR2, P=0.622, GFPv.eArch, P>0.999, ChR2v.eArch, P=0.896). Closed: (Baseline: GFPv.ChR2, P=0.998, GFPv.eArch, P=0.741, ChR2v.eArch, P=0.989; Stimulation: GFPv.ChR2, P=0.986, GFPv.eArch, P>0.999, ChR2v.eArch, P>0.999; Post-stim: GFPv.ChR2, P=0.777, GFPv.eArch, P>0.999, ChR2v.eArch, P=0.995).
ED8	a	Ipsi: P>0.999 (0.4g), P=0.181 (0.6g), P=0.083 (1.0g), P=0.022 (1.4g), P=0.050 (2.0g), P=0.985 (4.0g); Contra: P>0.999 (0.4g), P=0.524 (0.6g), P<0.0001 (1.0g), P=0.002 (1.4g), P=0.003 (2.0g), P>0.999 (4.0g).
	b	Ipsi: P>0.999 (0.008g), P>0.999 (0.02g), P>0.999 (0.04g), P=0.999 (0.07g), P>0.999 (0.16g), P=0.983 (0.40g), P>0.999 (0.60g), P>0.999 (1.0g); Contra: P>0.999 (0.008g), P>0.999 (0.02g), P=0.920 (0.04g), P=0.999 (0.07g), P=0.575 (0.16g), P=0.999 (0.40g), P=0.999 (0.60g), P>0.999 (1.0g).