Supplemental Information

A Hallucinogenic Serotonin-2A Receptor

Agonist Reduces Visual Response Gain

and Alters Temporal Dynamics in Mouse V1

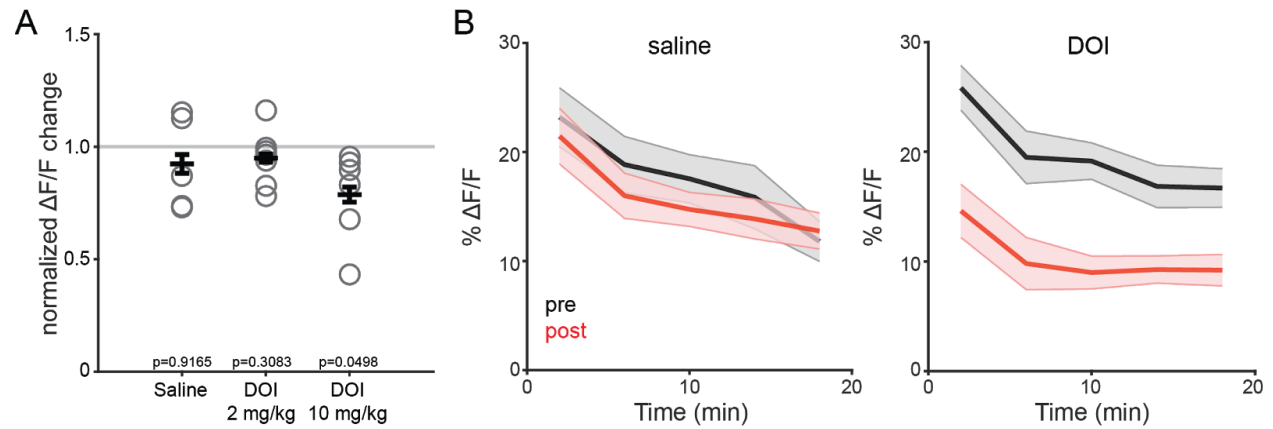Angie M. Michaiel, Philip R.L. Parker, and Cristopher M. Niell

Figure S1: Dosage effects and kinetics of DOI-induced changes in V1 activity. Related to all main text Figures. A) Comparison of changes to visually evoked widefield responses after drug administration across groups of naive animals (as in Figure 1D-F). Open circles are individual animals, bars are mean ± SEM. A value of 1 represents no change, p-values are two-tailed paired t-test for pre vs. post within group. B) Time course of visually-evoked activity from two-photon experiments. The same stimulus set is repeat before (black) and after (red) drug injection. Values are mean ± SEM, n=animals/cells: saline = 22/413, DOI = 17/359.
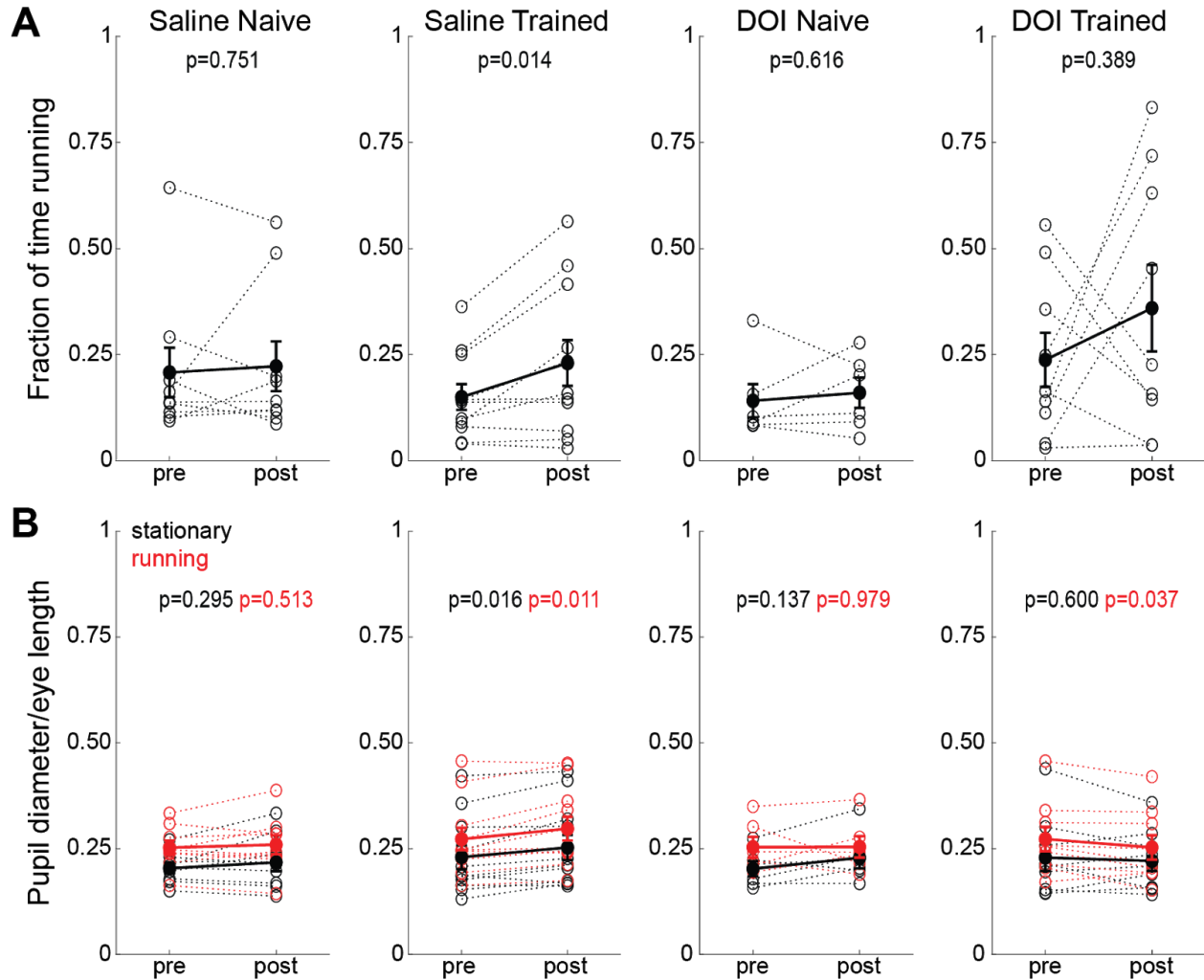
Figure S2: Baseline and post-drug measures relating to behavioral state. Related to Figure 2. A) Total fraction of experiment time spent running before (pre) and after (post) administration of saline or DOI for each group during two-photon imaging. Open circles connected by dotted lines represent individual animals and closed circles connected by thick lines with error bars are group mean ± SEM. Significance from paired t-tests are reported above each group plot. B) Average pupil diameter normalized to length of the animal's eye before and after drug administration. Black data represent stationary and red represent running periods. Open circles connected by dotted lines represent individual animals and closed circles connected by thick lines with error bars are group mean ± SEM.
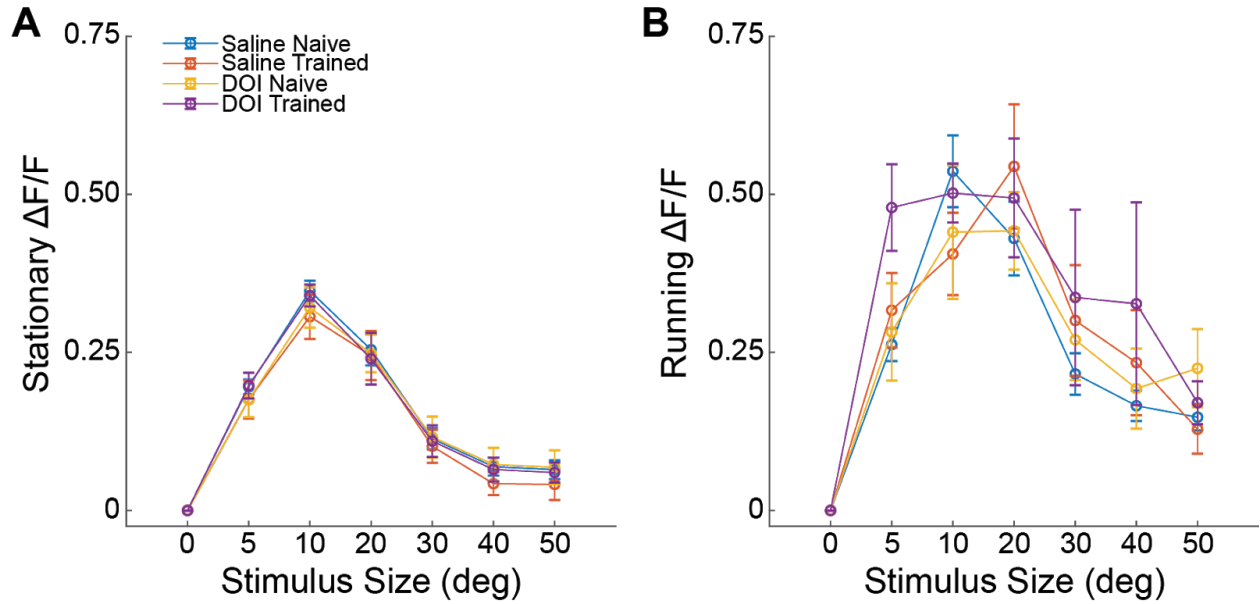
Figure S3: Comparison of baseline response magnitudes across experimental groups. Related to Figure 2.
Size tuning curves showing baseline response magnitudes (before drug application) of all four groups for A)
stationary, and B) running periods (p = 0.619 stationary, p = 0.939 running, Kruskal-Wallis). Open circles are group
means and error bars are SEM.