



**Extended Data Figure 6**

**The TLM does not capture the changes in HBW caused by  $PV^+$  neuron manipulation in the data.**

(A) Scatter plot of the change in HBW as a function of the percent change in firing rate for TLM-simulated effects of  $PV^+$  neuron manipulations on the D/M population. Here and in all remaining panels, the cyan line is the linear regression fit to the TLM-simulated data. The  $r$  and  $p$  values here and in panels (C, E) refer to the linear regression fit to the TLM-simulated data. (B) Same as in (A) but for the D/M population in the real data (same plot as shown in Fig. 2A). The black line, here and in (D, F) is the linear regression fit to the real data, to which the  $r$  and  $p$  values refer. (C, D) Same as (A, B) but for the NL population. Panel (D) shows the same plot as in Fig. 2E. (E, F) Same as in (A, B) but for the Unclassified (U) population. Other conventions are as in Fig. 2A, E.