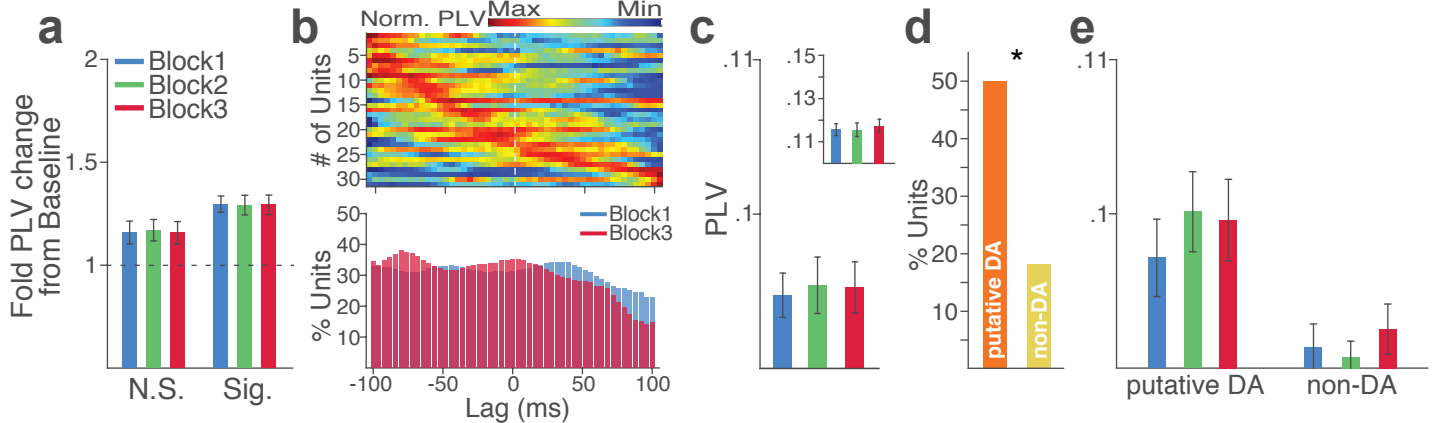


Figure 9-figure supplement 3

Phase-locking of VTA spikes to VTA theta oscillation



Phase-locking of VTA spikes to mPFC theta oscillation

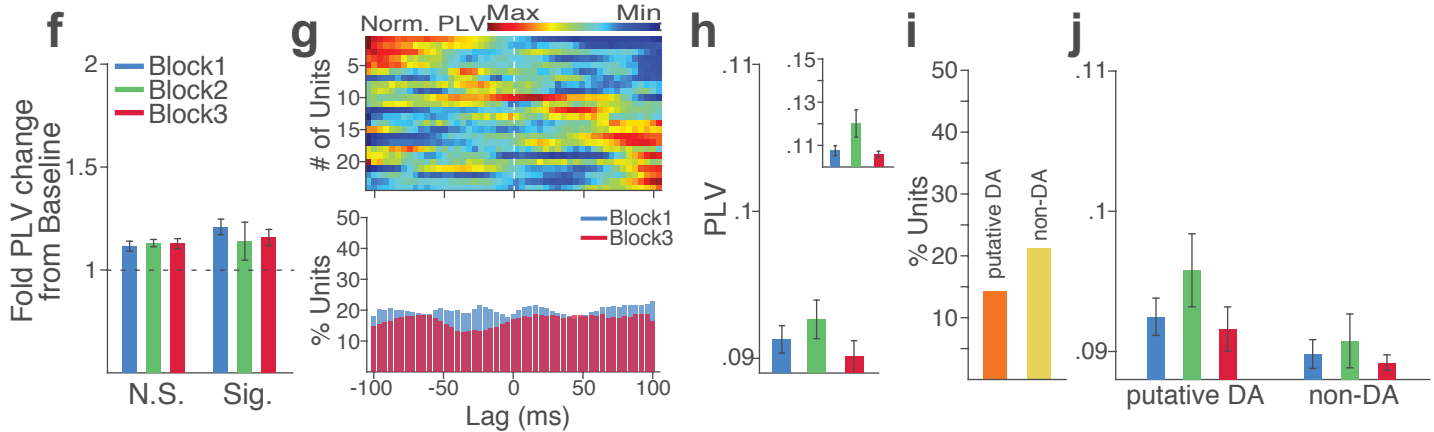


Figure 9-figure supplement 3. VTA neuronal synchrony to VTA and mPFC theta oscillations did not change across blocks in the absence of punishment (No-shock control). (a-e) VTA neuronal phase-locking to the VTA theta oscillation. (a) Fold change from baseline in the strength of the neuronal phase-locking during peri-action epoch in units that passed Rayleigh z-test (Sig.) and rest of the units (N.S.). (b) Top, Normalized PLVs in block 1 across a range of time lags for all phase-locked VTA units, aligned by s. Bottom, Percentage of significantly phase-locked VTA units in block 1 vs 3 across a range of lags. (c) Mean \pm s.e.m. PLVs across different blocks. The PLVs did not significantly differ across blocks (Signed-rank test, p values > 0.743). Inset, PLVs including significantly phase-locked units only. (d) Percentage of phase-locked VTA putative DA and non-DA units. Greater fraction of putative DA units (50%) appeared to be phase-locked to the VTA theta oscillation compared with non-DA units (18%) (Chi-square test, $\chi^2_1 = 6.959$, $p = 0.008$). (e) PLVs of VTA putative DA and non-DA units plotted separately. (f-j) VTA neuronal phase-locking to the mPFC theta oscillation. The VTA neuronal phase-locking to the mPFC theta oscillation did not differ across blocks (Signed-rank test, p values > 0.355).