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Supplemental information

**The residence of synaptically
released dopamine on D2 autoreceptors**

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Full field (40x40 μm)

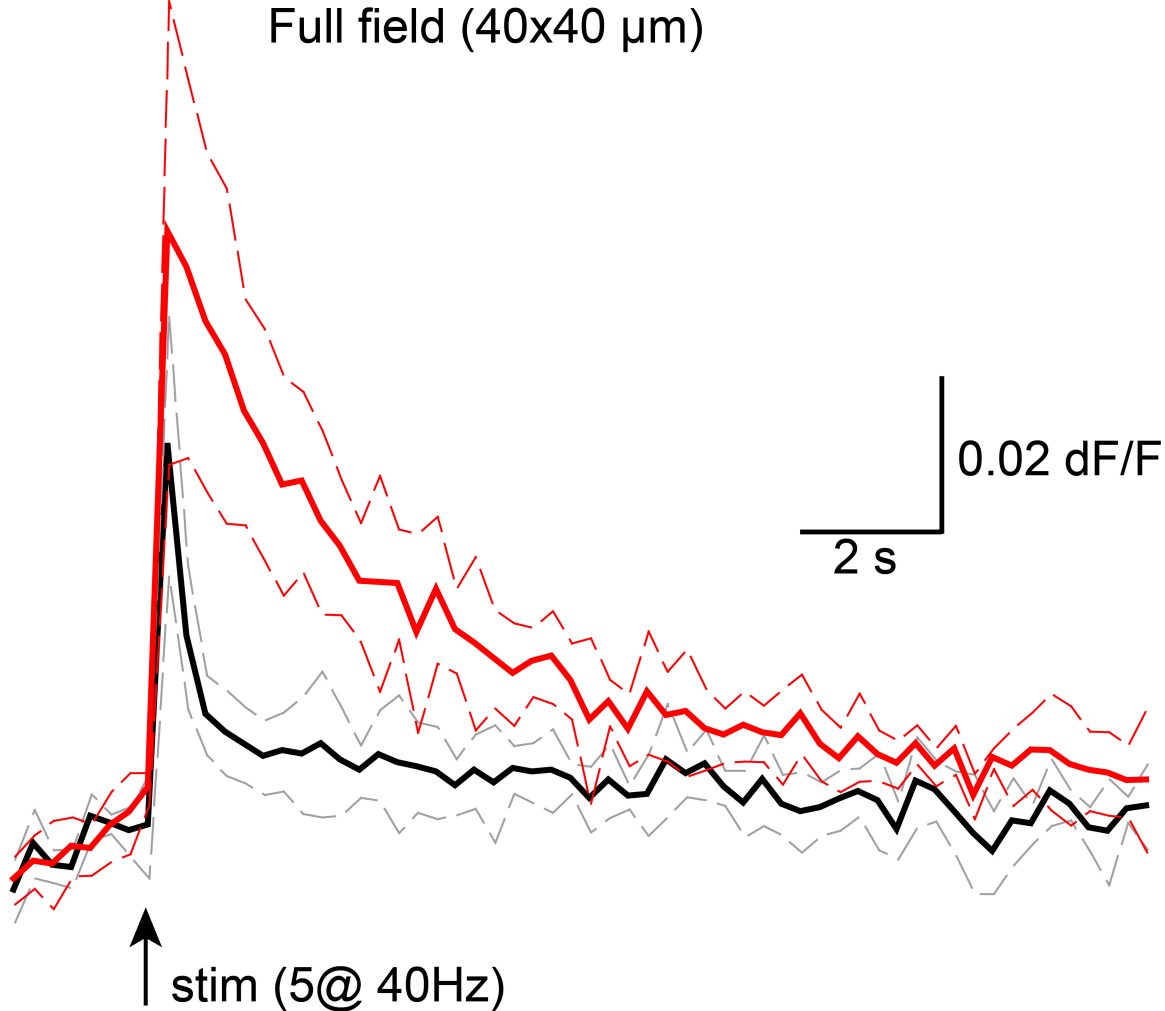


Figure S1. Cocaine prolongs the presence of dopamine following electrical stimulation as detected with dLight1.3b (related to figure 1). Summarized results showing the rise and fall of fluorescence induced by electrical stimulation in control (black line) and in the presence of cocaine (10 μM , red line). Dotted lines indicate the 95% confidence limits (n=5 slices, 4 animals).

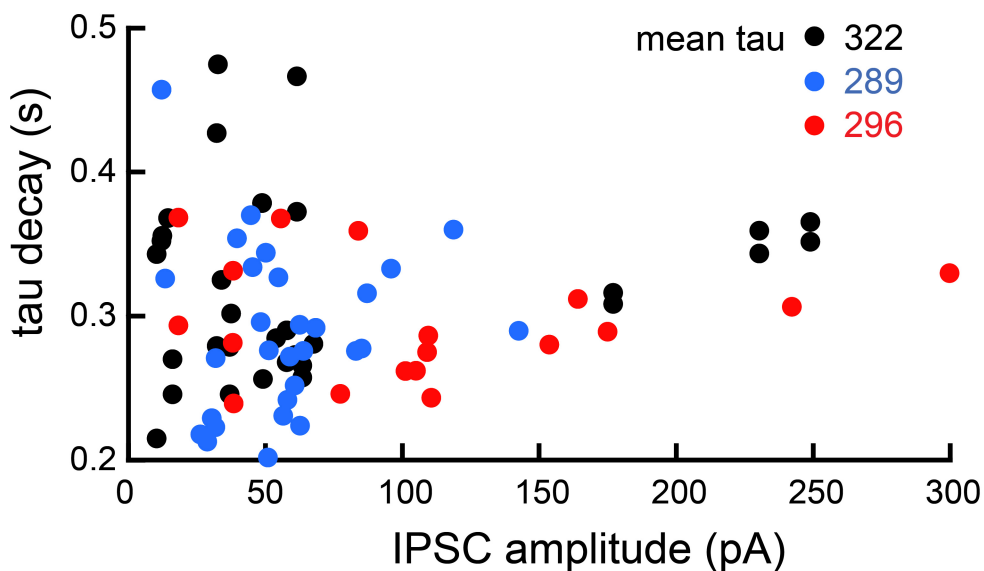
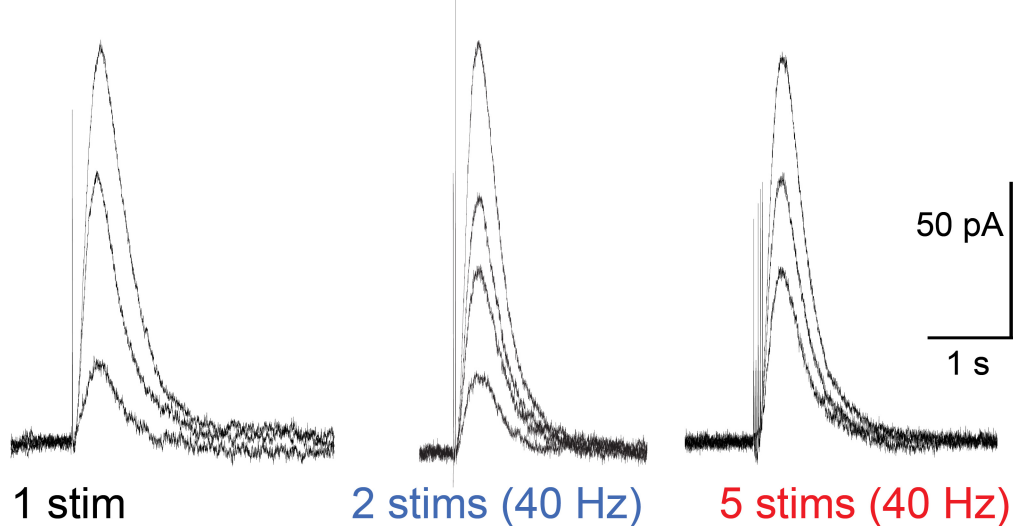


Figure S2. The decay of the IPSC is independent of stimulus strength and stimulus number (related to figure 3). Top – examples of IPSCs evoked with different stimulus intensities and stimulus numbers. Bottom summary of the time constant of decay of IPSCs evoked with 1 (black) ,2 (blue) and 5 (red) stimuli plotted against the amplitude of the IPSC.

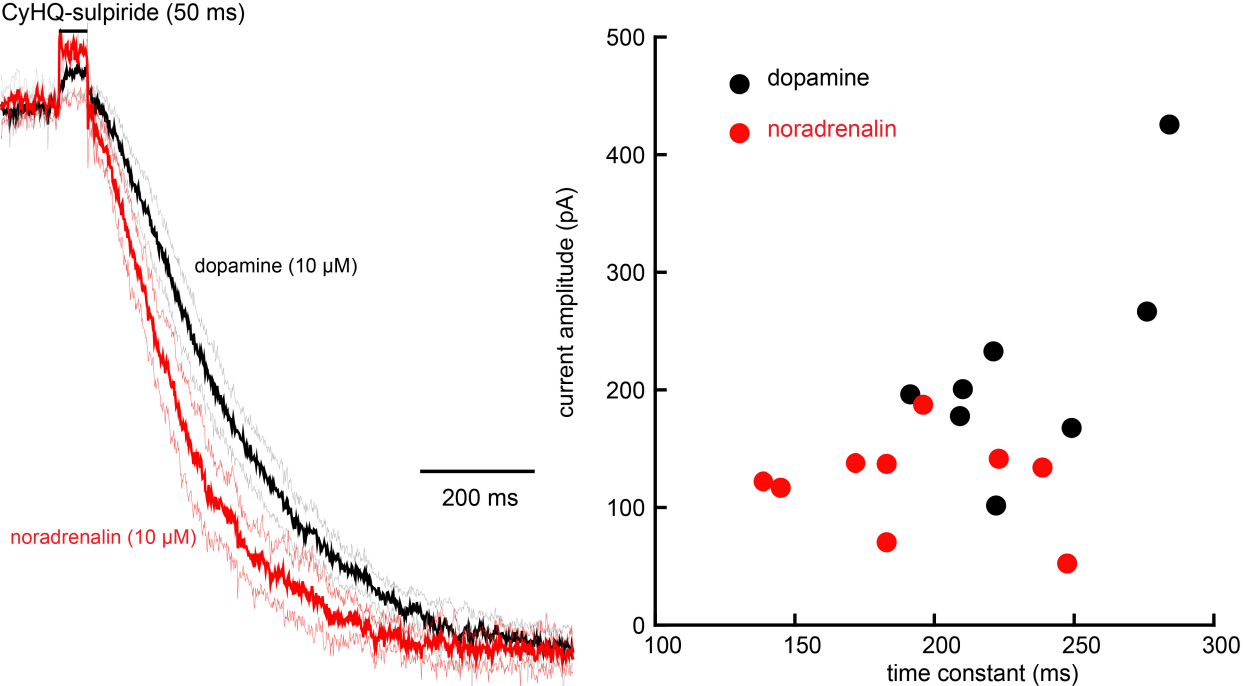


Figure S3. The inhibition of current induced by noradrenalin by photoactivation of CyHQ-sulpiride is faster than dopamine (related to figure 4). Left normalized averaged results showing the decline in dopamine (black) and noradrenalin (red) current induced by photoactivation of CyHQ-sulpiride. The faint lines are the 95% confidence limits. Right is a plot of the currents induced by dopamine and noradrenalin plotted against the time constant of decay for each experiment. The time constant of decay dopamine was 232.9 ± 33.3 (mean \pm SD, $n=8$) and noradrenalin was 191.6 ± 38.5 (mean \pm SD, $n=9$). The mean difference was 41.2 ms, $p=0.033$.

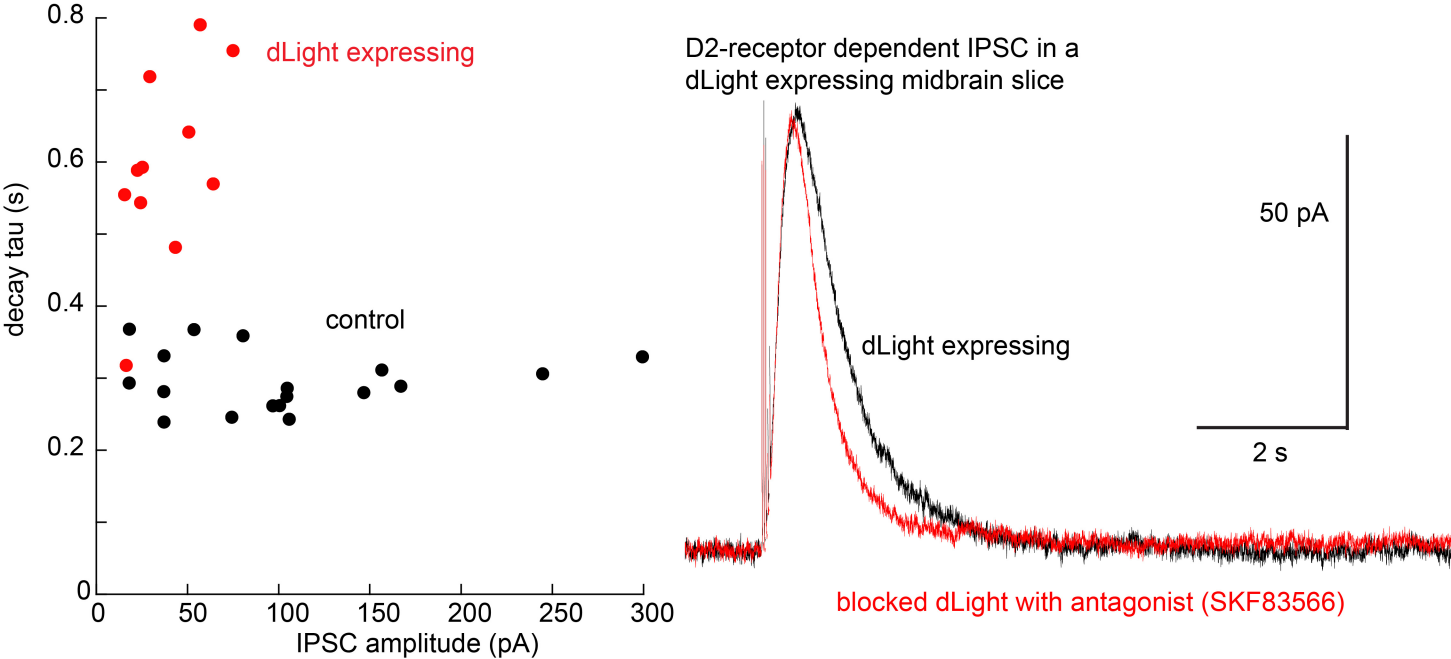


Figure S4. Expression of dLight decreases the rate of decline of the IPSC (related to figure 4). Left is a plot of the time constant of decline of the IPSC against the amplitude of the IPSC. The time constant of decline in slices taken from animals expressing dLight (red) are slow compared to control animals. Right shows an example where blockade of dLight with the D1 antagonist (SKF83566, 1 μ M) resulted in an increase in the decay of the IPSC (dLight expressing tau= 715 \pm 273, +SKF83566 = 415 \pm 173, n=8, mean \pm SD, p=0.0005).