

## Supplementary Table

Imaging conditions and comments on crosstalk in recently published papers that used GCaMP and C1V1 for all-optical experiments.

Reference	Calcium indicator	Opsin	FOV size ( $\mu\text{m}$ )	Frame rate (Hz)	Power on sample (mW)	Comments about crosstalk
Rickgauer et al. 2014	GCaMP3	C1V1	200 × 100	~15	30 ~ 40	<i>"We measured how the rate of spontaneous activity in neuron populations varied as a function of laser power and opsin expression level ... This helps to define a range for imaging in our experiments (<math>\approx</math>30 - 40 mW) where this effect was small".</i> (Figure 2d)
Packer et al. 2015	GCaMP6s	C1V1	400 × 400	30	50	<i>"Action potential detection sensitivity was maintained even when we imaged the entire 200 × 200 <math>\mu\text{m}</math> field of view, and imaging at this resolution did not result in photostimulation."</i> <i>"There is no significant difference between spontaneous firing rate and that while imaging a 400x400 <math>\mu\text{m}</math> field of view at 50 mW power on sample."</i> (Supplementary Figure 2)
Carrillo-Reid et al. 2016	GCaMP6s	C1V1	240 × 240	4 ~ 5	Not provided	Not provided
Yang et al. 2018	GCaMP6s (or GCaMP6f)	C1V1	240 × 240	23.3	Typical power <50 mW, and up to 80 mW for layers deeper than ~ 250 $\mu\text{m}$	<i>"... we found no significant difference of the firing rate under our normal volumetric imaging conditions, where the laser power was typically below 50 mW and could be up to 80 mW for layers deeper than ~ 250 <math>\mu\text{m}</math>."</i> (Figure 1 - Figure Supplement 3)

Other all-optical studies have used different combinations of indicators and opsins that require different imaging conditions (see Nikolenko et al. 2007, Guo et al. 2009, Dal Maschio et al. 2010, Anselmi et al. 2011, Packer et al. 2012, Akerboom et al. 2013, Hochbaum et al. 2014, Ronzitti et al. 2017, Forli et al. 2018, Mardinly et al. 2018).