SUPPLEMENTARY MATERIAL FOR

Optogenetic Assessment of VIP, PV, SOM and NOS Inhibitory Neuron Activity and Cerebral Blood Flow Regulation in Mouse Somato-sensory Cortex

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Running/Alternate Title:
Contribution of Interneuron Sub-populations to CBF
Supplementary Figure 1: Average CBF changes measured in control experiments. (A) Illustration of the optic fiber and LDF probe placement in a non-expressing region with the optic fiber facing away from the expressing location. (B) Time series of the changes in CBF to the strongest photo-stimulation parameters tested (1mW 30ms pulses at 5 Hz or 1mW 10ms pulses at 40 Hz). Blue-shaded bars in panel B indicate the stimulation period while the gray shaded region in the time series indicates the standard deviation. (C) Summary of the changes in CBF, error bars denote the standard deviation.
Supplementary Figure 2: Average CBF changes measured by LDF in response to photo-stimulation for 1 second at various frequencies (5 Hz blue traces, 10 Hz red traces, 20 Hz green traces, 40 Hz black traces) in VIP-cre (A), PV-cre (C), SOM-cre (E) and NOS-cre (G) mice. Similarly, average CBF changes in response to photo-stimulation for 4 seconds in VIP-cre (B), PV-cre (D), SOM-cre (F) and NOS-cre (H) mice. The photo-stimulus amplitude and pulse duration were fixed to 1mW and 10 ms. The shaded blue rectangle denotes the photo-stimulation period.
**Supplementary Figure 3:** (A) Average changes in CBF evoked by photo-stimulation of VGAT-ChR2 mice. CBF responses to 1-sec (top panels), 4-sec (bottom panels), different pulse durations (left panels) and different frequencies (right panels) are presented. The average CBF amplitude immediately following photo-stimulation is compared different pulse widths (B) and different stimulation frequencies (C). Evident increases in CBF were observed after stimulation onset but did not remain significantly elevated after 4-5 seconds for the photo-stimulation parameters used, such that for 4-second photo-stimulation only slight decreases in CBF were observed after stimulus cessation. Significant increases relative to pre-stimulation baseline are indicated by a white star (*, p<0.05, panels B and C). Error bar denotes the standard deviation.