

conventional GCaMP resulted into aberrantly higher Ca^{2+} signals than GCaMP6m- X_C (Fig. 4f). We assume that both GCaMP and GCaMP-X of similar expression levels (tens of μM) would also produce “buffering effects” about equally in average. So for the neurons loaded with 5 μM Fura-2, adding GCaMP or GCaMP-X would further attenuate the signals to the

same extent. And importantly, in the context of such fair comparison between GCaMP and GCaMP-X, the larger Ca^{2+} signal should be attributed to abnormal GCaMP enhancement of Ca^{2+} currents mediated by $\text{Ca}_\text{v}1$ channels. Consistent with electrophysiological recordings, Ca^{2+} fluorescence imaging with GCaMP itself or organic dye Fura-2 demonstrated that

