photomultiplier tube (10770PB-40, Hamamatsu). Images (512 × 512 pixels) were acquired at ~30 Hz with resonating scanners using ScanImage software.

Example 12—CRISPR/Cas9 Genome Editing

The CMV promoter in pAAV-CMV-SaCas9-empty (Slaymaker et al., 2016, Science, 351:84-8) was replaced with hSyn1 to generate pAAV-hSyn1-SaCas9-empty. Oligonucleotides encoding sgRNA protospacer sequences were custom ordered, phosphorylated, hybridized and ligated into the BsaI restriction sites of pAAV-hSyn1-SaCas9-emtpy to generate pAAV-hSyn1-SaCas9-tdTomato-1 to -10. Oligonucleotide sequences used were:

tdTomato sgRNA 1 Fwd: CAC CGC AAG GGC GAG GAG GTC ATC A (SEQ ID NO:108)

tdTomato sgRNA 1 Rev: AAA CTG ATG ACC TCC TCG CCC TTG C (SEQ ID NO:87)

tdTomato sgRNA 2 Fwd: CAC CGT GGA GGG CTC CAT GAA CGG CC (SEQ ID NO:88)

tdTomato sgRNA 2 Rev: AAA CGG CCG TTC ATG GAG CCC TCC AC (SEQ ID NO:89)

tdTomato sgRNA 3 Fwd: CAC CGA GGA CGG CGG CCA CTA CCT GG (SEQ ID NO:90)

tdTomato sgRNA 3 Rev: AAA CCC AGG TAG TGG CCG CCG TCC TC (SEQ ID NO:91)

tdTomato sgRNA 4 Fwd: CAC CGA CAA CAA CAT GGC CGT CAT CA (SEQ ID NO:92)

tdTomato sgRNA 4 Rev: AAA CTG ATG ACG GCC ATG TTG TTG TC (SEQ ID NO:93)

tdTomato sgRNA 5 Fwd: CAC CGA AGG ACG GCG GCC ACT ACC TGG (SEQ ID NO:94)

tdTomato sgRNA 5 Rev: AAA CCC AGG TAG TGG CCG CCG TCC TTC (SEQ ID NO:95)

tdTomato sgRNA 6 Fwd: CAC CGA CAA CAA CAT GGC CGT CAT CA (SEQ ID NO:96)

tdTomato sgRNA 6 Rev: AAA CTG ATG ACG GCC ATG TTG TTG TC (SEQ ID NO:97)

tdTomato sgRNA 7 Fwd: CAC CGG TCA CCT TCA GCT TGG CGG T (SEQ ID NO:98)

tdTomato sgRNA 7 Rev: AAA CAC CGC CAA GCT GAA GGT GAC C (SEQ ID NO:99)