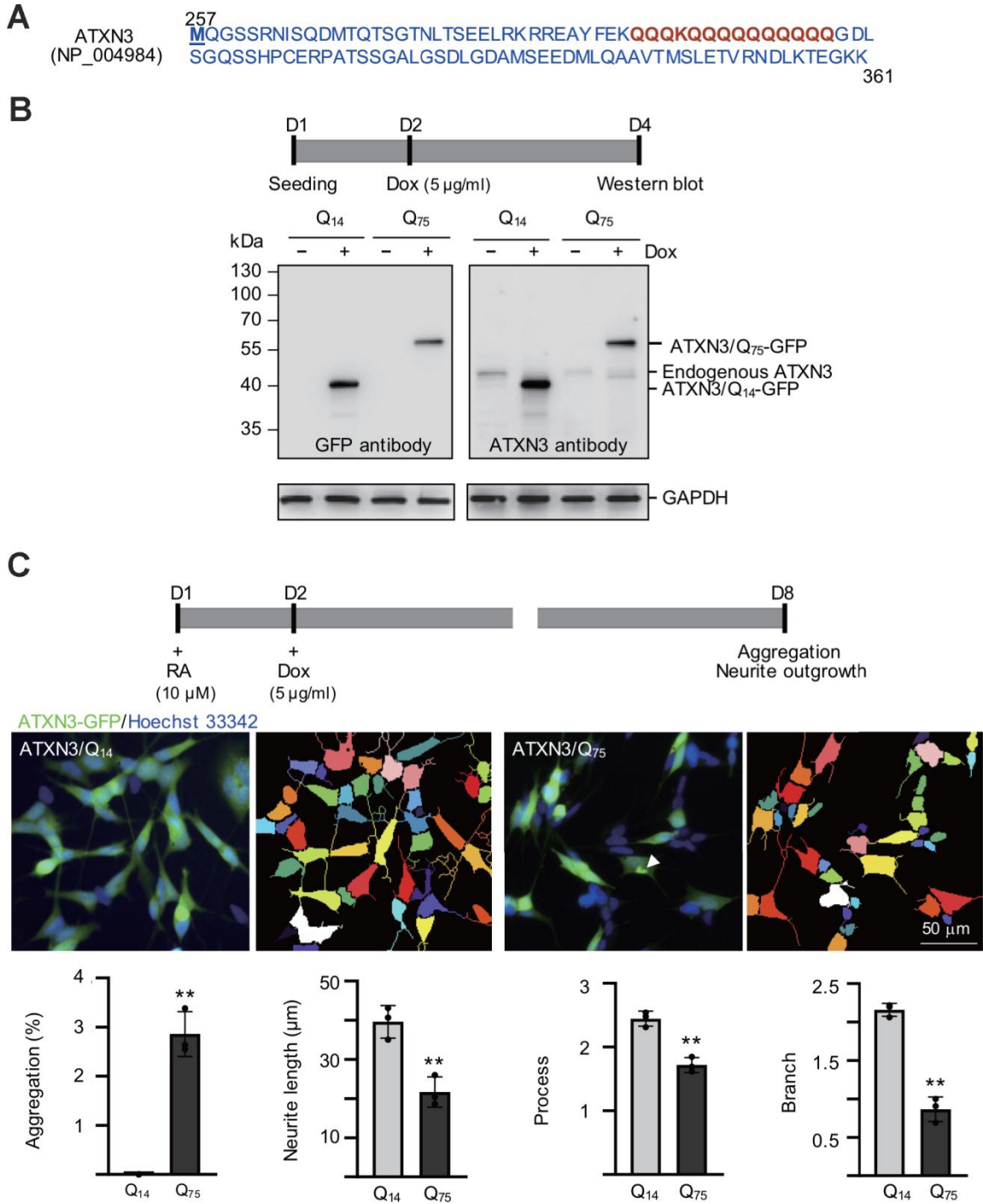
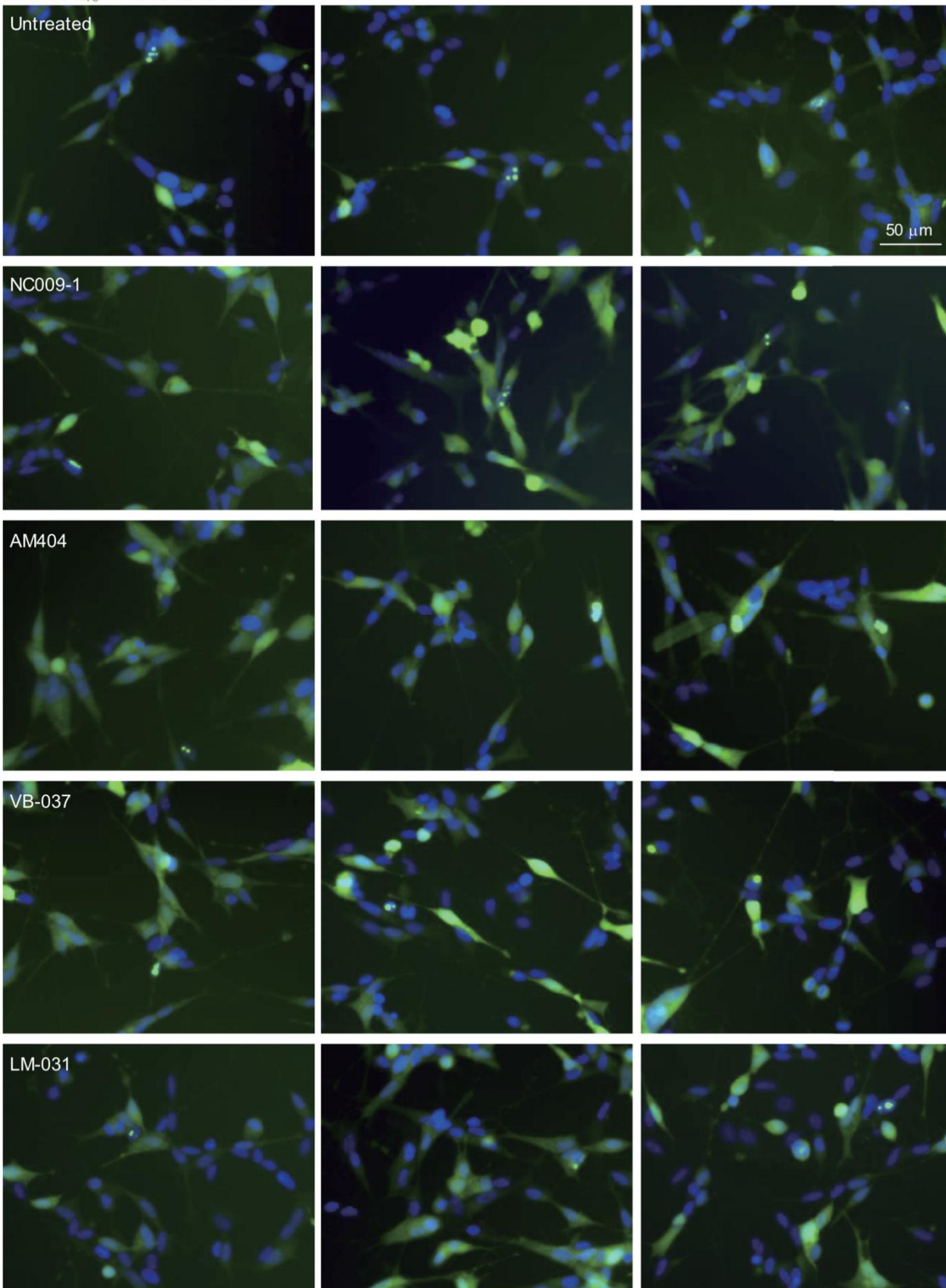
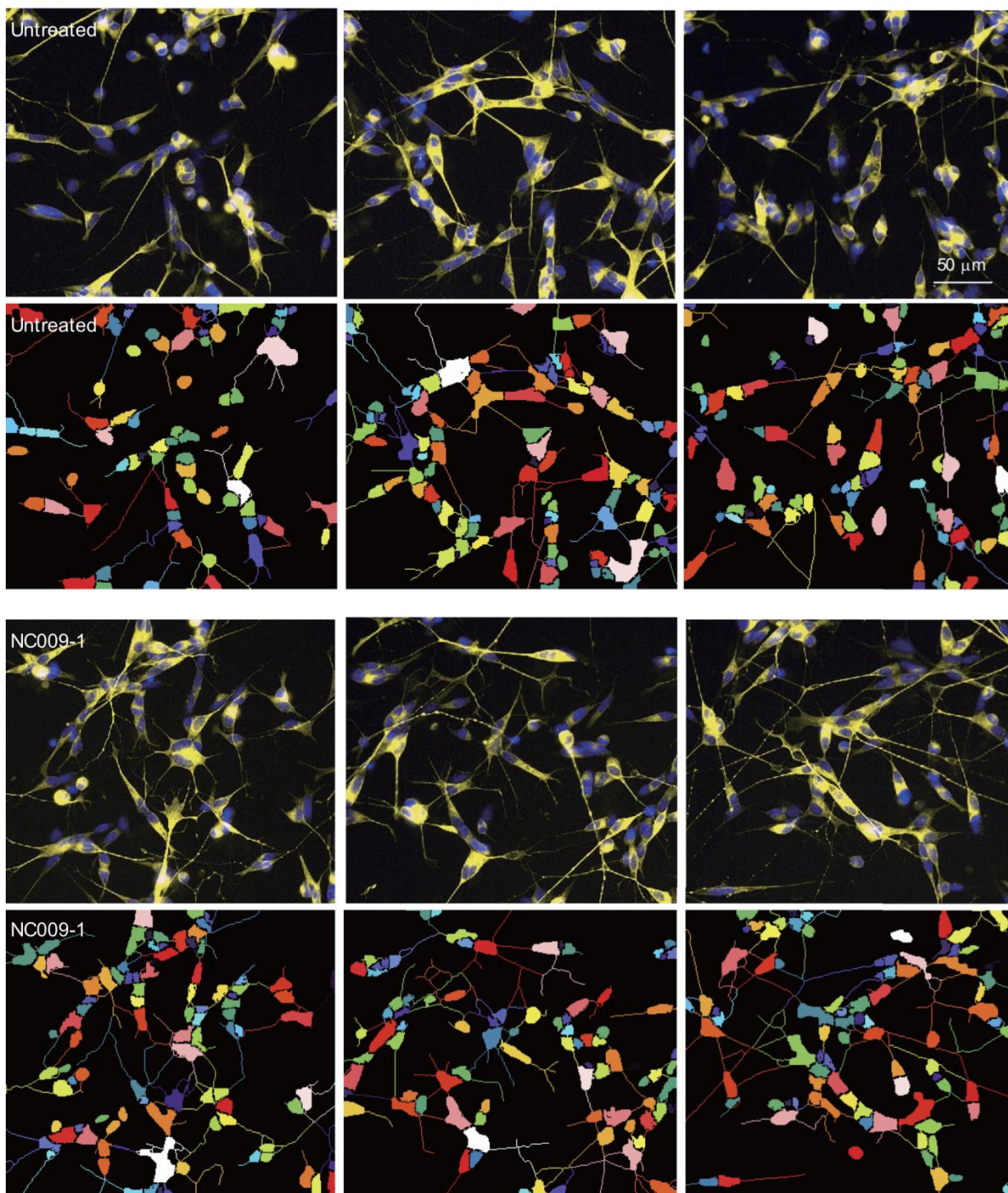


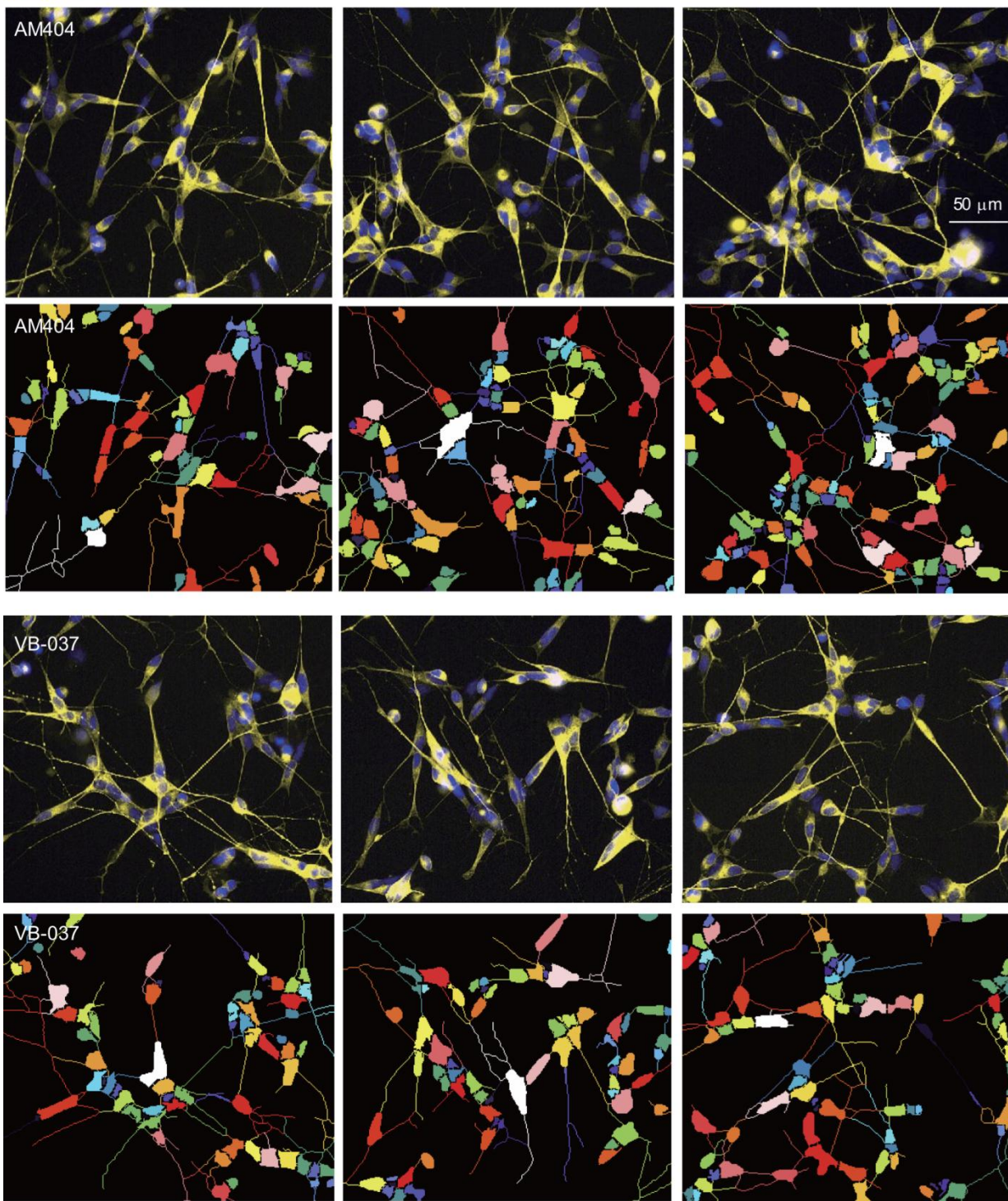
**SUPPLEMENTARY FIGURES**



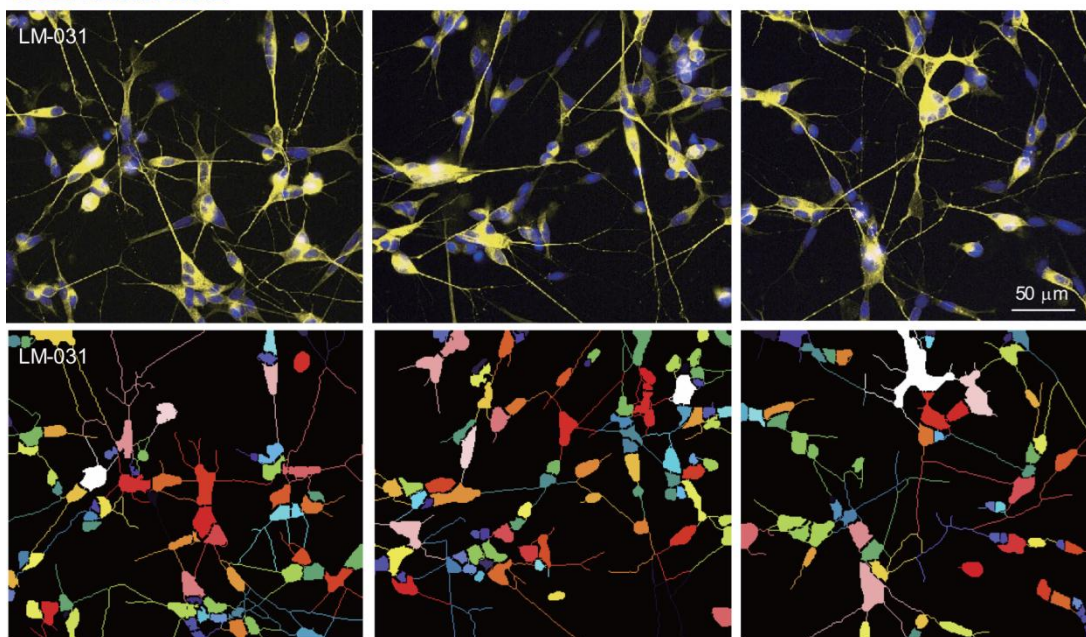
**Supplementary Figure 1. ATXN3/Q<sub>14-75</sub>-GFP SH-SY5Y cells.** (A) Amino acid sequences of ATXN3/Q<sub>14</sub> (residues 257–361, NP\_004984). (B) Western blot analysis of ATXN3/Q<sub>14-75</sub>-GFP SH-SY5Y cells using GFP and ATXN3 antibodies after two days of induction (+ Dox). GAPDH was included as a loading control. (C) Experimental flow chart of retinoic acid (RA, 10 µM) induced neuronal differentiation and microscopic images of differentiated SH-SY5Y cells expressing ATXN3/Q<sub>14-75</sub>-GFP for 6 days, with relative aggregation, neurite length, process, and branch shown below. Shown next to the microscopic images are segmented images with multi-colored mask to assign each outgrowth to a cell body for neurite outgrowth quantification. *P* values: comparisons between ATXN3/Q<sub>14</sub> and ATXN3/Q<sub>75</sub> cells (\*: *P* < 0.05, \*\*: *P* < 0.01, and \*\*\*: *P* < 0.001). (two-tailed Student’s *t* test).



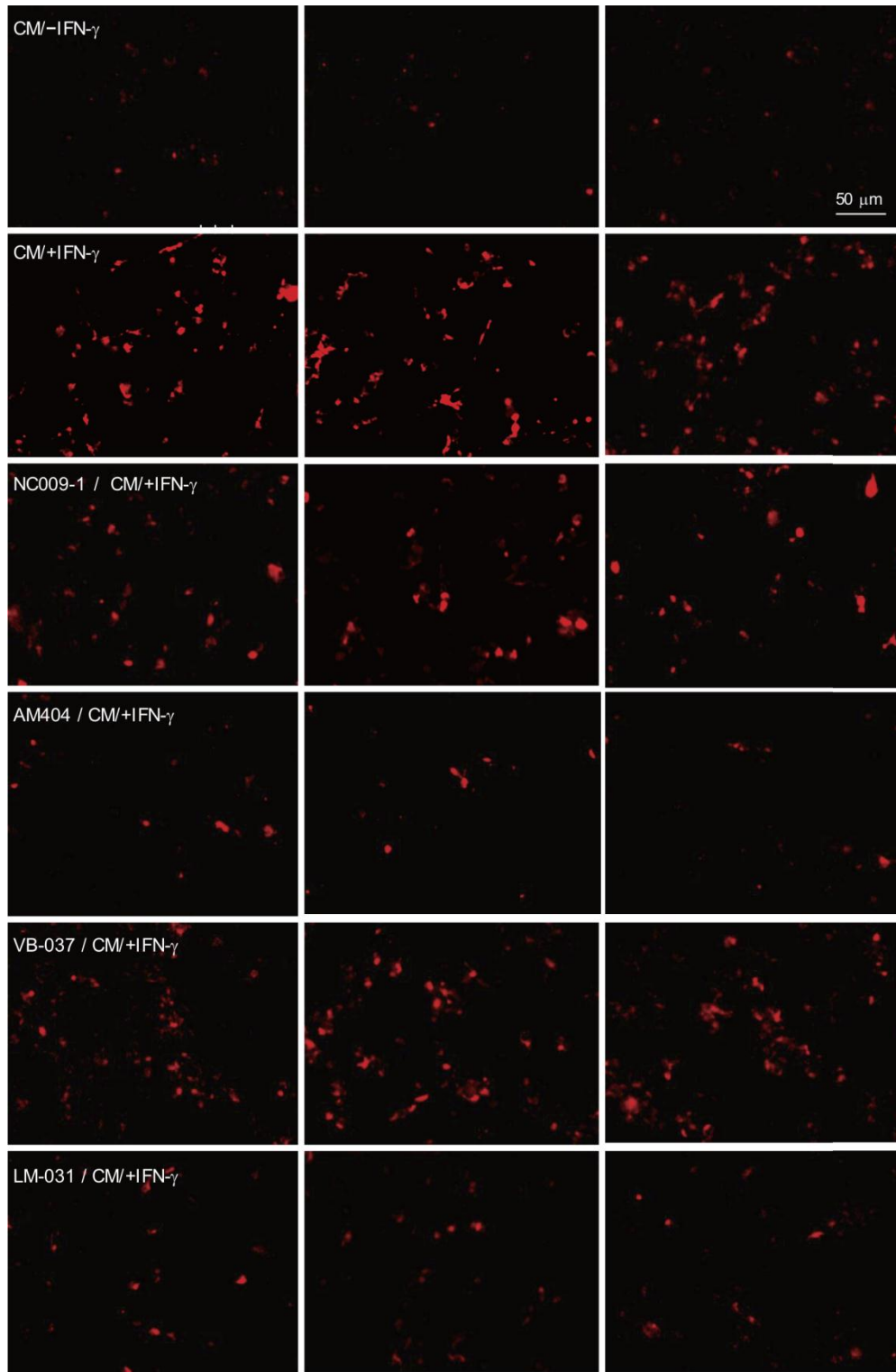




TUBB3/Hoechst 33342

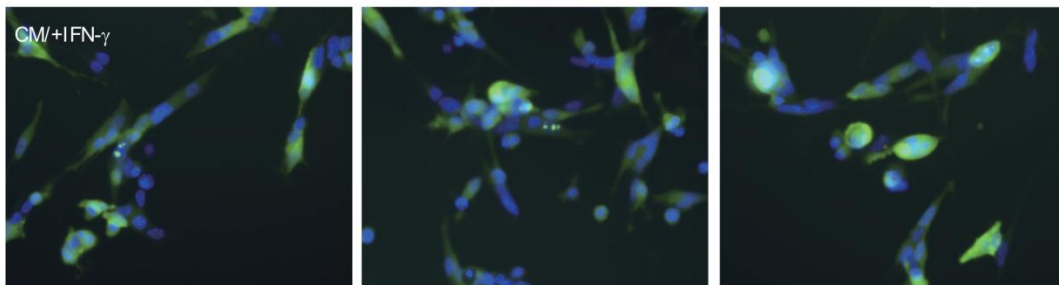
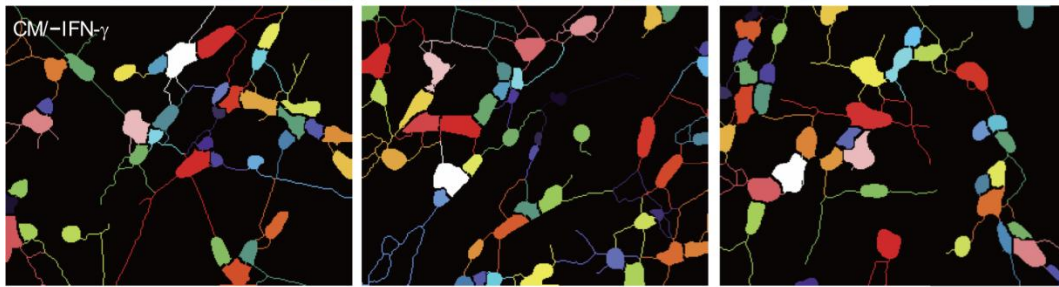
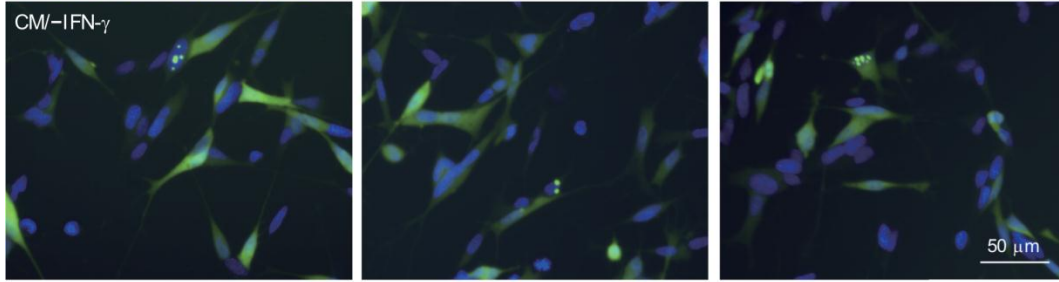


**Supplementary Figure 2. Microscopic ATXN3/Q<sub>75</sub>-GFP (green) or TUBB3 (yellow) images of differentiated ATXN3/Q<sub>75</sub>-GFP SH-SY5Y cells untreated or treated with NC009-1, AM404, VB-037 and LM-031 (10 μM) in triplicate. In TUBB3 images, image segmentation with multi-colored mask was adopted to assign each outgrowth to a cell body for quantification.**

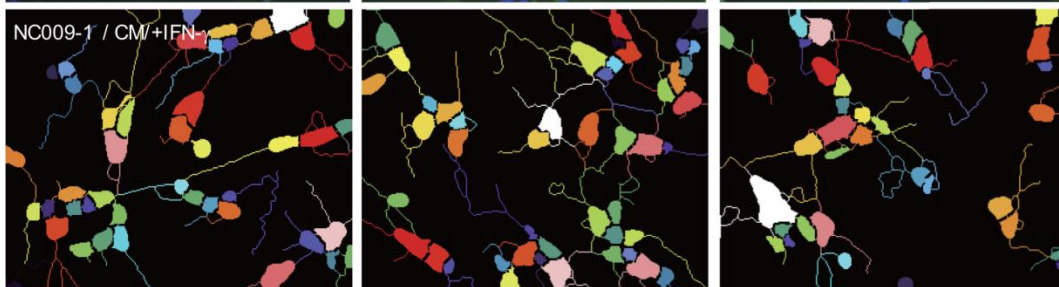
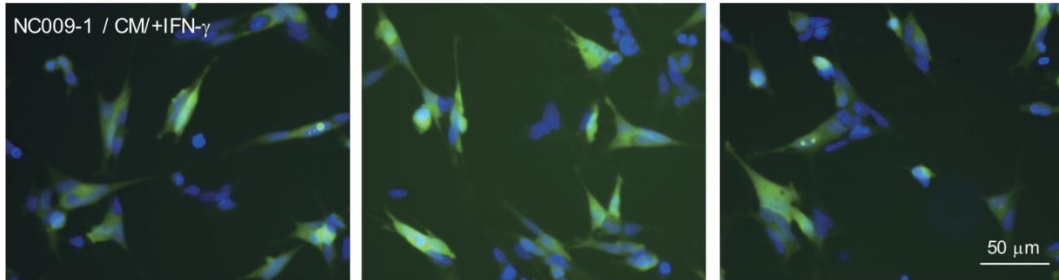


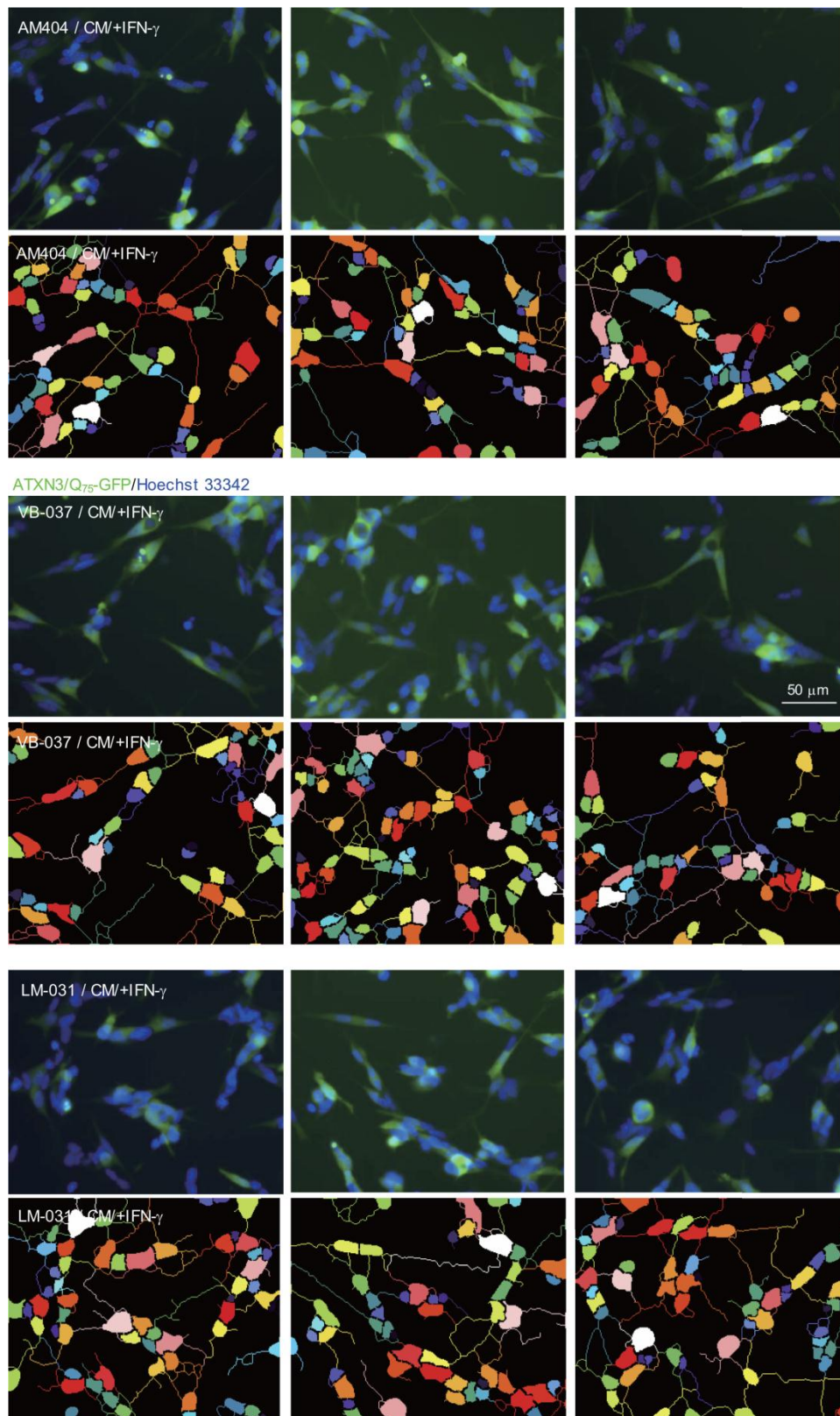
**Supplementary Figure 3.** Triplicated microscopic images showing the generation of ROS (red) in differentiated ATXN3/Q<sub>75</sub>-GFP SH-SY5Y inflamed with HMC3 conditioned medium with or without IFN- $\gamma$  stimulation, and NC009-1, AM404, VB-037 or LM-031 (10  $\mu$ M)-treated cells inflamed with IFN- $\gamma$ -stimulated HMC3 conditioned medium.

ATXN3/Q75-GFP/Hoechst 33342



ATXN3/Q75-GFP/Hoechst 33342





**Supplementary Figure 4. Triplicated microscopic images of differentiated ATXN3/Q<sub>75</sub>-GFP SH-SY5Y inflamed with HMC3 conditioned medium with or without IFN- $\gamma$  stimulation, and NC009-1, AM404, VB-037 or LM-031 (10  $\mu$ M)-treated cells inflamed with IFN- $\gamma$ -stimulated HMC3 conditioned medium. Image segmentation with multi-colored mask was adopted to assign each outgrowth to a cell body for quantification.**