Supporting Information

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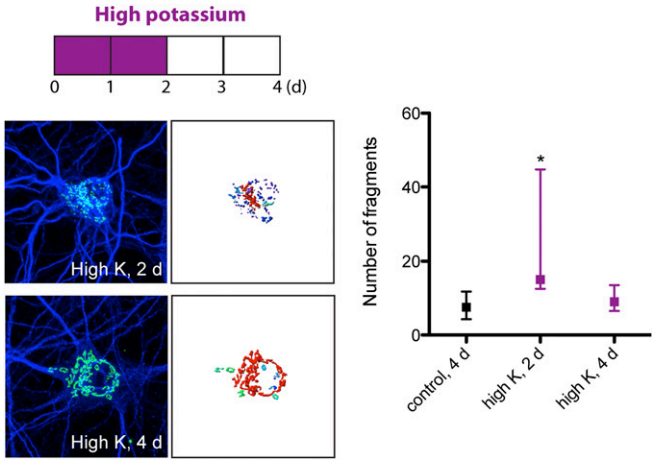

Fig. S1. Neurons were cultured in normal medium for 14 d, then changed to hyperexcitable conditions (high K) for 2 d, and finally returned to normal medium for 2 d. Immunostaining with anti-GM130 (green) and anti-MAP2 (blue) with 3D reconstruction of anti-GM130 signal. Quantification of the number of distinct Golgi fragments from reconstructed anti-GM130 fluorescent signal. Data shown are median and IR (control, $n = 12$; high K, 2 d, $n = 12$; high K, 4 d, $n = 13$).

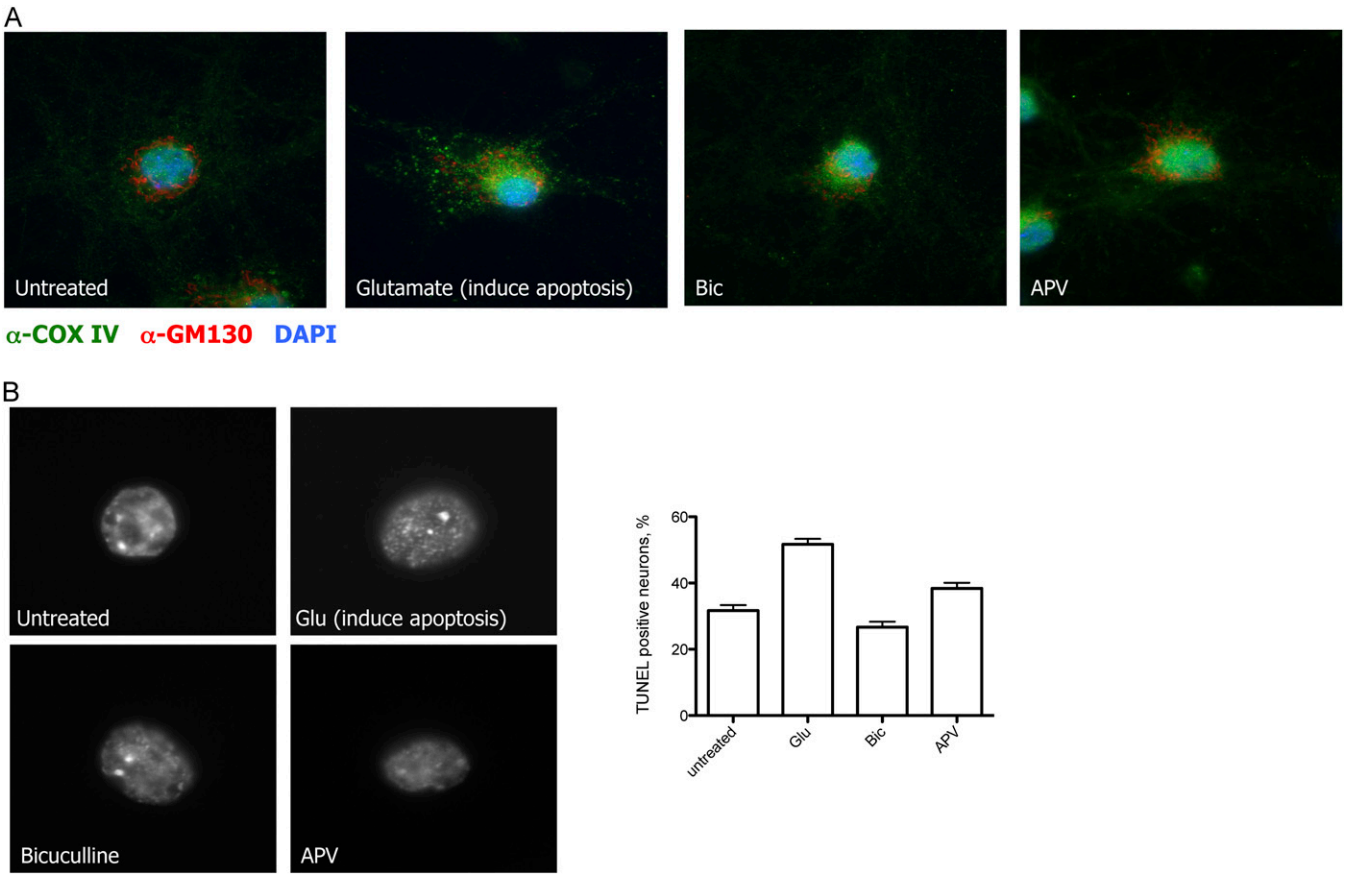

Fig. S2. Bicuculline or APV treated neurons do not show signs of apoptosis. Cultured hippocampal neurons were treated with glutamate (50 μM) for 15 min, bicuculline (20 μM) for 24 h, or APV (200 μM of DL-APV) for 48 h followed by incubation for additional 24 h after removal. The glutamate treatment induced apoptosis. (*A*) Immunocytochemistry with the mitochondrial marker anti-COX IV (green), the *cis*-Golgi marker anti-GM130 (red), and DAPI (blue) for DNA. Aggregate anti-COX IV staining in the mitochondria occurs during glutamate-induced apoptosis, whereas bicuculline and APV treatment does not affect mitochondrial structure. (*B*) DNA fragmentation occurs during glutamate-induced apoptosis as visualized in DAPI staining and by TUNEL assay (Millipore; $n = 3$ separate experiments with 100 neurons each).