Supplementary Fig. 1. Ultrastructural alteration of astrocytes in the pre-optic chiasm of *Nf1*+/-^{GFAP}CKO mice. (A, C, E) *Nf1*^{GFAP}CKO 9 month-old control mice and (B, D, F-H) *Nf1*+/-^{GFAP}CKO 9 month-old mice. Note that *Nf1*+/-^{GFAP}CKO 9 month-old mice showed optic glioma, aggregated astroglial cells, hypercellularity and optic nerve fiber irregularities in the pre-optic chiasm (B, b). High magnification micrographs showed that *Nf1*+/-^{GFAP}CKO 9 month-old mice have irregular nuclear morphology and an elongated cytoplasm that contained many organelles and glial filaments **(**D, F-H). Scale bars = (A-a, B-b) 50 μm; (A, B) 10 μm; (C, D) 2 μm; (E, F) 1 μm; (G, H) 3 μm.

Supplementary Fig. 2. Brn3a-positive RGC loss in *Nf1*+/-^{GFAP}CKO mice. Representative retinal flatmounts and sections from 9-month-old wild-type (A, E, I, M), *Nf1*+/- (B, F, J, N), *Nf1*^{GFAP}CKO (C, G, K, O) and *Nf1*+/-^{GFAP}CKO (D, H, L, P) mice. Compared to wild-type, *Nf1*+/-, and *Nf1*^{GFAP}CKO mice, *Nf1*+/-^{GFAP}CKO mouse retina showed a significant decrease in the numbers of RGC neurons. Scale bar = 20μm.