The pleotropic cytokine interleukin-6 (IL-6) is implicated in retinal ganglion cell (RGC) survival and degeneration, including that associated with glaucoma. IL-6 protects RGCs from pressure-induced apoptosis in vitro. However, it is unknown how IL-6 impacts glaucomatous degeneration in vivo. To study how IL-6 influences glaucomatous RGC axonopathy, accompanying glial reactivity, and resultant deficits in visual function, we performed neural tracing, histological, and neurobehavioral assessments in wildtype (B6;129SF2/J; WT) and IL-6 knock-out mice (B6;129S2-IL6tm1kopf/J; IL-6/-) after 8 weeks of unilateral or bilateral microbead-induced glaucoma (microbead occlusion model).

IOP increased by 20% following microbead injection in both genotypes (p 0.05) and degenerating axon profiles were minimal. Preservation of RGC axons was reflected in visual function, where visual acuity decreased significantly in a time-dependent manner with microbead-induced IOP elevation in WT (p 0.05). Despite this preservation of RGC axons and visual acuity, both microbead-injected WT and IL-6/- mice exhibited a 50% decrease in anterograde CTB transport to the superior colliculus, as compared to saline-injected controls (p http://www.ncbi.nlm.nih.gov/pubmed/28620279