**Supporting Information**

**Figure S1: Characterization of primary astrocyte cultures. (A)** Quantification of CD11B and GFAP positive cells performed by manual counting in cultures that were plated after shaking overnight and imaged by confocal microscopy. **(B)** Representative image of primary astrocyte culture showing abundant GFAP (red) positive astrocytes after enrichment by shaking. White arrows indicate CD11B (green) positive microglia; DAPI (blue) was used for nuclei labeling. Scale bar, 50 μm.

**Figure S2: Analysis of cell death in $p47^{PHOX}$ siRNA treated astrocytes.** Representative confocal micrographs of PI and Hoechst positive astrocytes 48 hours after transfection with $p47^{PHOX}$ siRNA. Control cultures were treated with media only. Scale bar, 50μm.

**Figure S3: Inhibition of aNF-κB reduces ROS production in response to IR injury.** Confocal analysis of unfixed frozen retinal cross-sections stained with the superoxide indicator dye DHE (red) 24 hours post-IR. Unfixed retinal sections were analyzed by confocal microscopy immediately after DHE staining. DAPI (blue) was used for nuclei labeling. Scale bar, 50 μm.

**Figure S4: Caspase-3 activation in co-cultures of primary astrocytes and RGCs. (A)** Astrocyte-RGC co-cultures stained for NeuN (green) and active-caspase-3 (red) in control and 24 hours post OGD treatment. **(B)** Astrocyte-RGC co-culture stained for beta-III tubulin (green) and active-caspase-3 (red) in control and 24 hours post OGD treated cultures. Arrows indicate RGCs double-labeled for NeuN and activated caspase-3. Scale bar 50μm.

**Figure S5: Primary RGC cultures treated with ACM.** Representative confocal micrographs of primary RGCs stained with AnnexinV/PI death detection kit in Control ACM and OGD ACM treated cultures. Membrane labeling by Annexin V (green) and nuclear labeling by PI (red) and Hoechst (blue). Scale bar, 50μm.

**Figure S6: $p47^{PHOX}$ specific labeling in retinal astrocytes.** Representative confocal micrographs of retinal whole mounts from naive WT and TG retinas stained for $p47^{PHOX}$ and GFAP. Control retinas were treated with monoclonal Cy3 conjugated GFAP and Alexa Fluor 488 conjugated goat anti-rabbit secondary antibodies. Scale bar, 50μm.

Figure S1

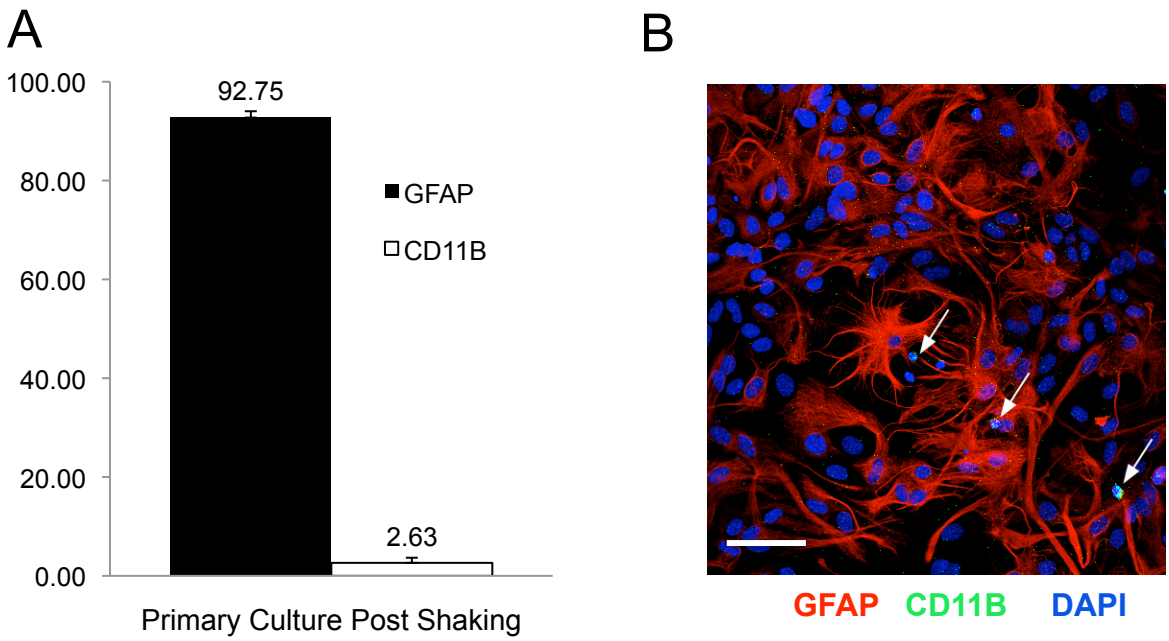
A
100.00
80.00
60.00
40.00
20.00
0.00
92.75
2.63
GFAP
CD11B
Primary Culture Post Shaking
B
GFAP
CD11B
DAPI

Figure S2

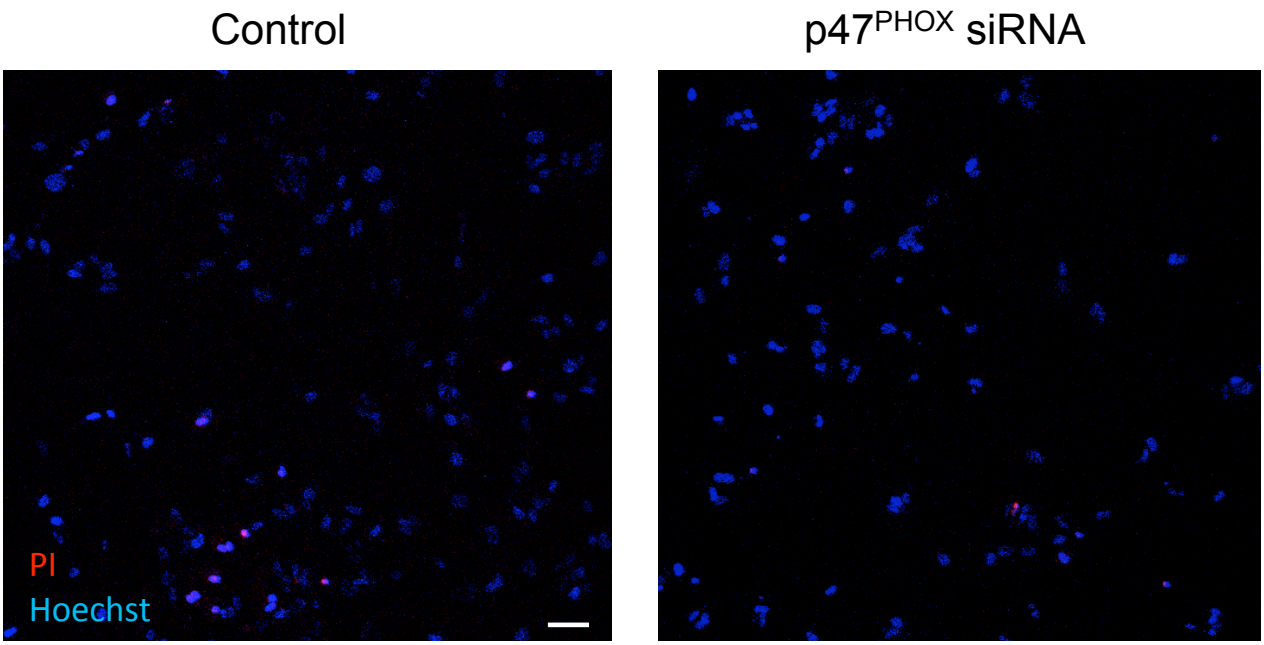

Figure S3

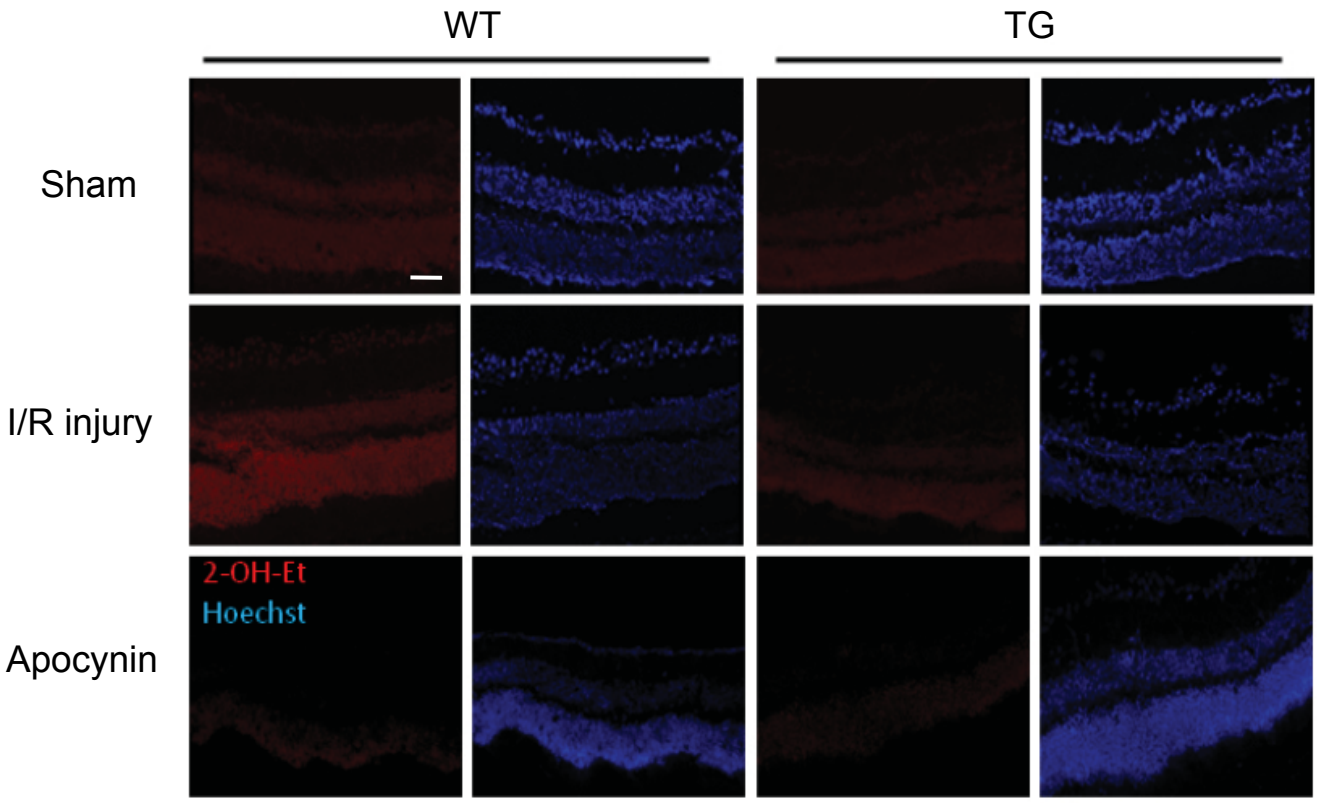

Figure S4

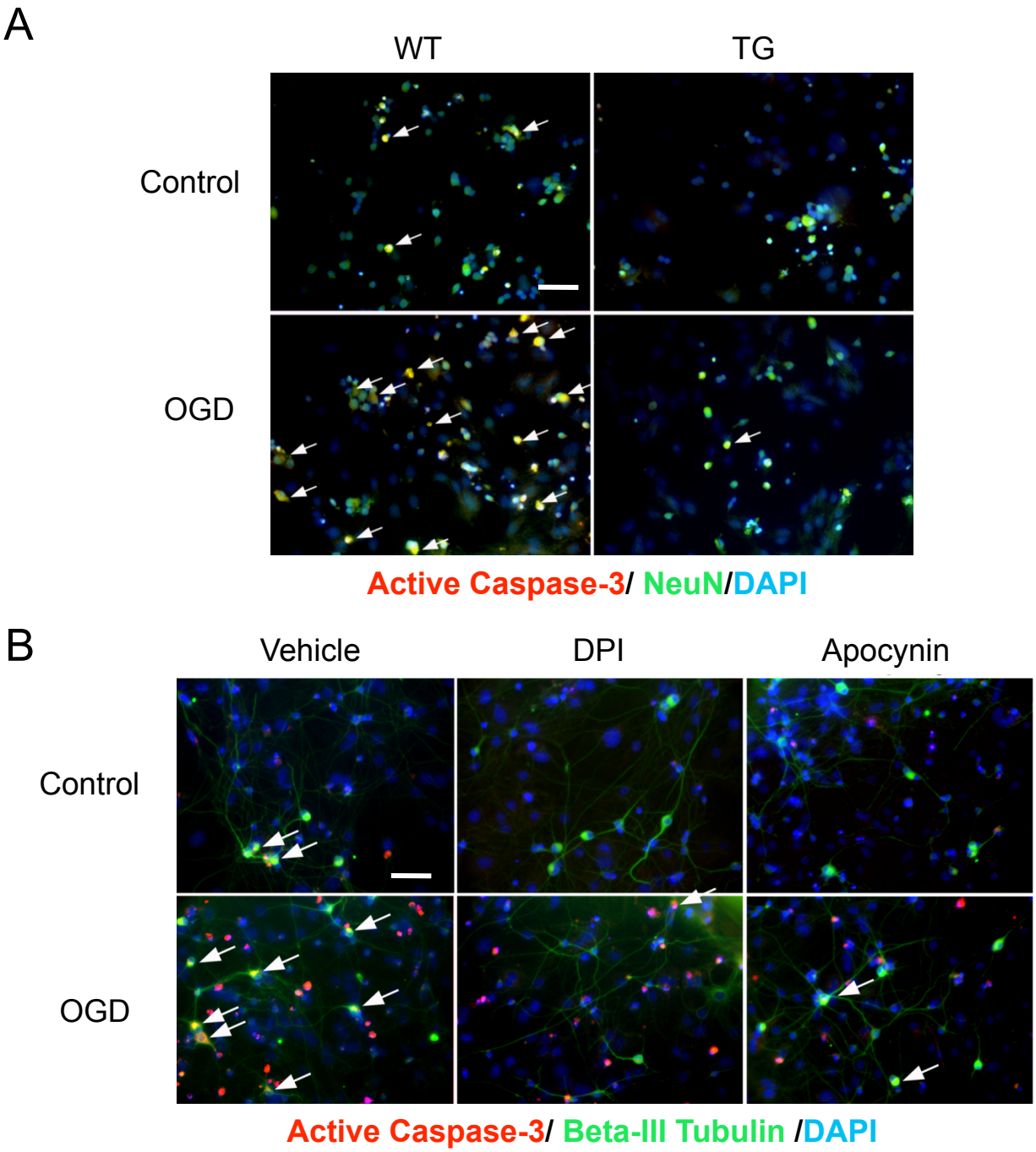
A
WT
TG
Control
OGD
Active Caspase-3/ NeuN/DAPI
B
Vehicle
DPI
Apocynin
Control
OGD
Active Caspase-3/ Beta-III Tubulin /DAPI

Figure S5

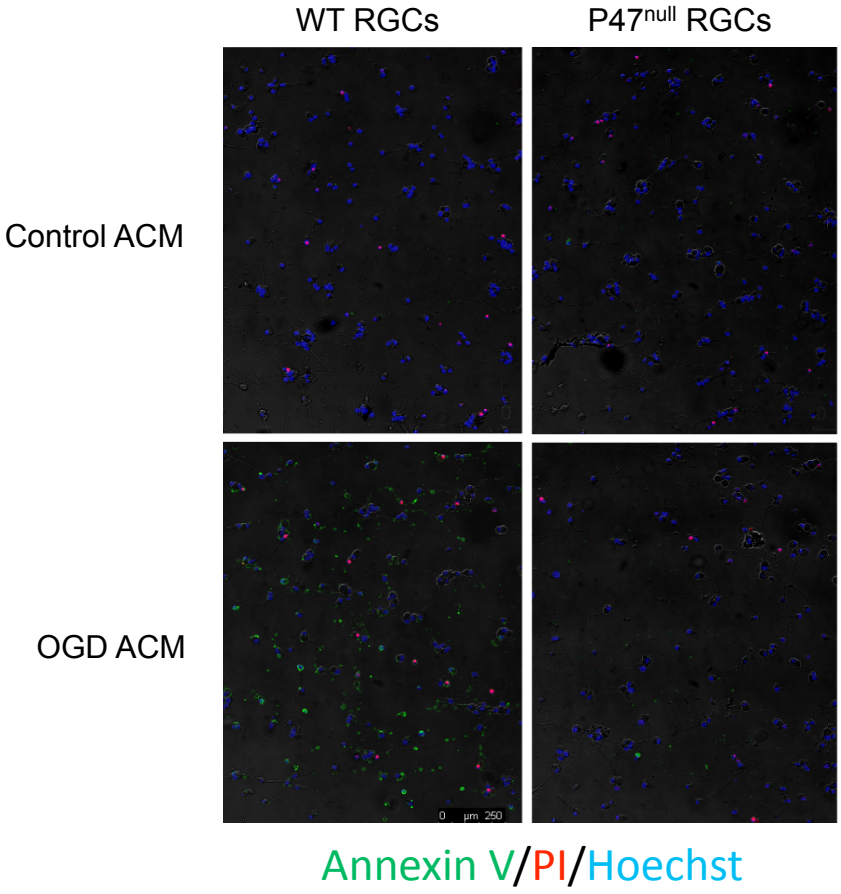
WT RGCs
P47null RGCs
Control ACM
OGD ACM
Annexin V/PI/Hoechst

Figure S6