

Supplementary Materials

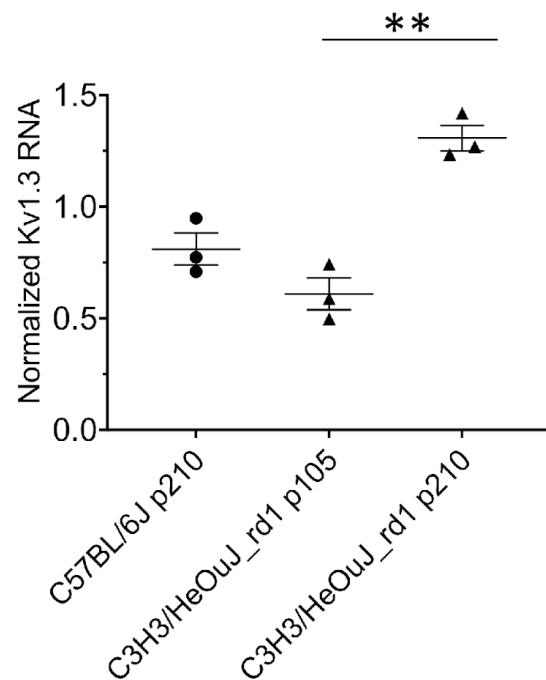


Figure S1. Kv1.3 expression increases during degeneration in *C3H3/HeOuJ rd1* mouse model. Kv1.3 channel RNA levels in OBCs from *C57BL/6J* mice (p 210) and *C3H3/HeOuJ rd1* mice (p105) (p210), **p=0.015.

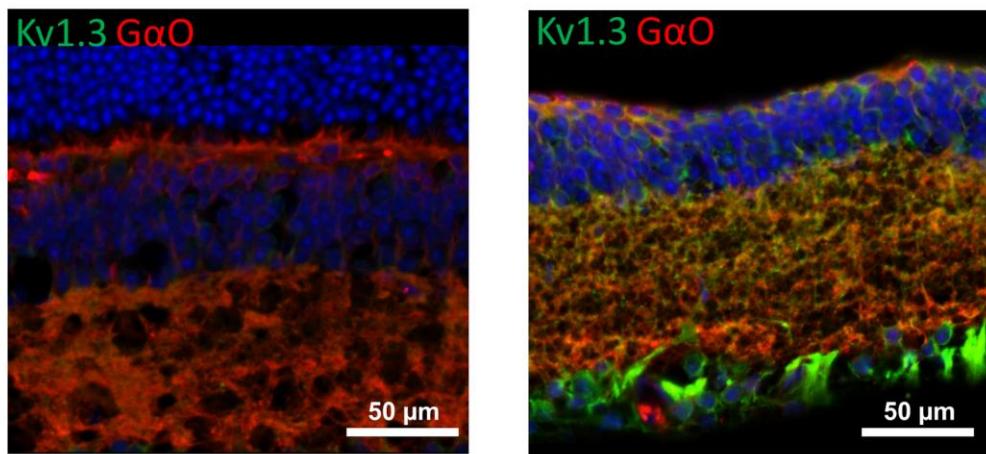


Figure S2. Kv1.3 expression increases during degeneration in OBCs. Anti-Kv1.3 immunolabeling (green) on retinal cryosection of C57BL/6J mice at p210 (left), FVB *rd1* mice at p210 (right). OBCs were identified by anti-GαO immunolabeling (red). Images were taken as single optical sections (770 nm) on a Zeiss LSM880 confocal microscope (40×, NA: 1.3).

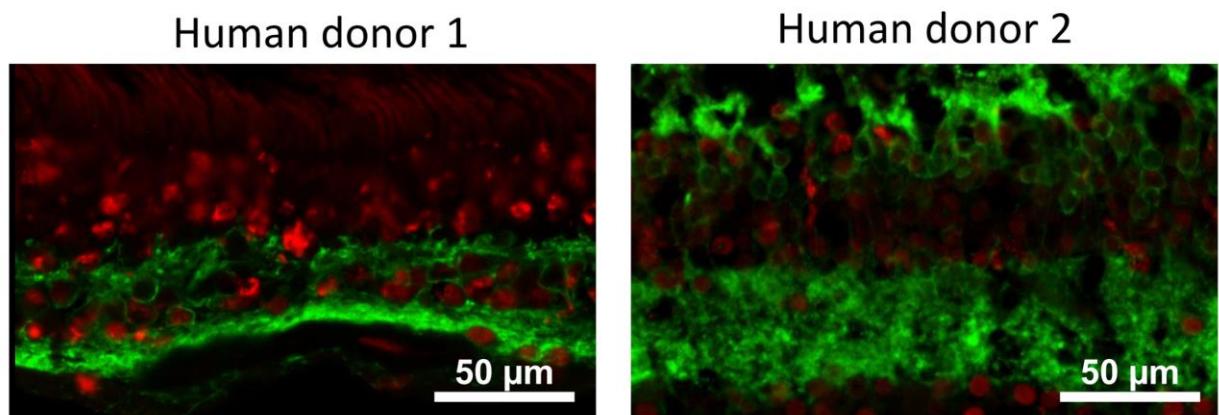


Figure S3. TUNEL+ (red) OBCs (green) in the human retina at 0 days of culture from 2 different donors (donor 1 left, donor 2 right). OBCs were stained with anti-G α O immunolabeling. Images were taken as single optical sections (770 nm) on a Zeiss LSM880 confocal microscope (40 \times , NA: 1.3).

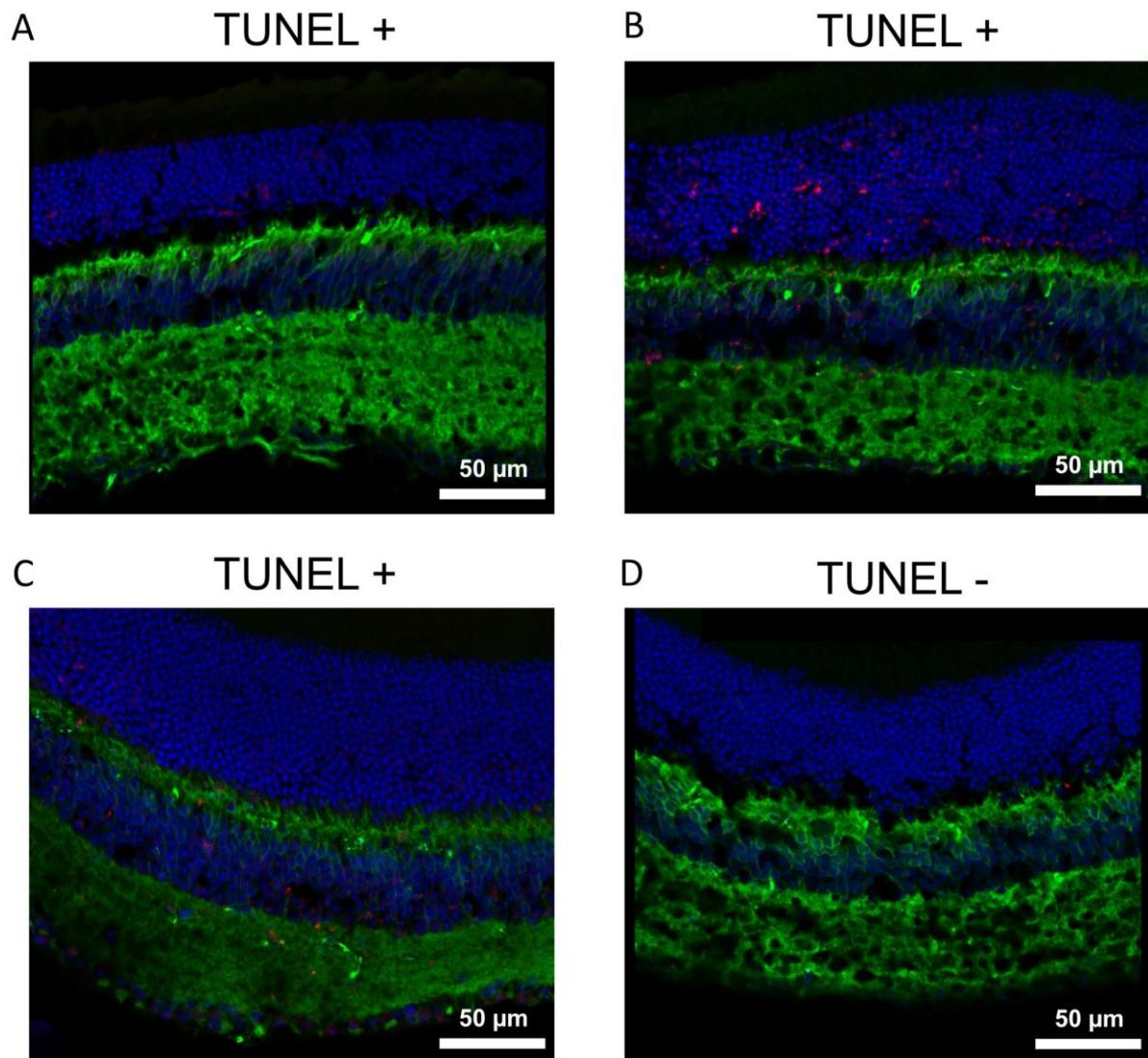


Figure S4. (A)(B)(C) TUNEL+ (red) OBCs (green) in *C57BL/6J* retina slice from 3 biological samples; (D) TUNEL - staining as a negative control on *C57BL/6J* retina slice. OBCs were stained with anti- $\text{G}\alpha\text{O}$ immunolabeling. Images were taken as single optical sections (770 nm) on a Zeiss LSM880 confocal microscope (40 \times , NA: 1.3).

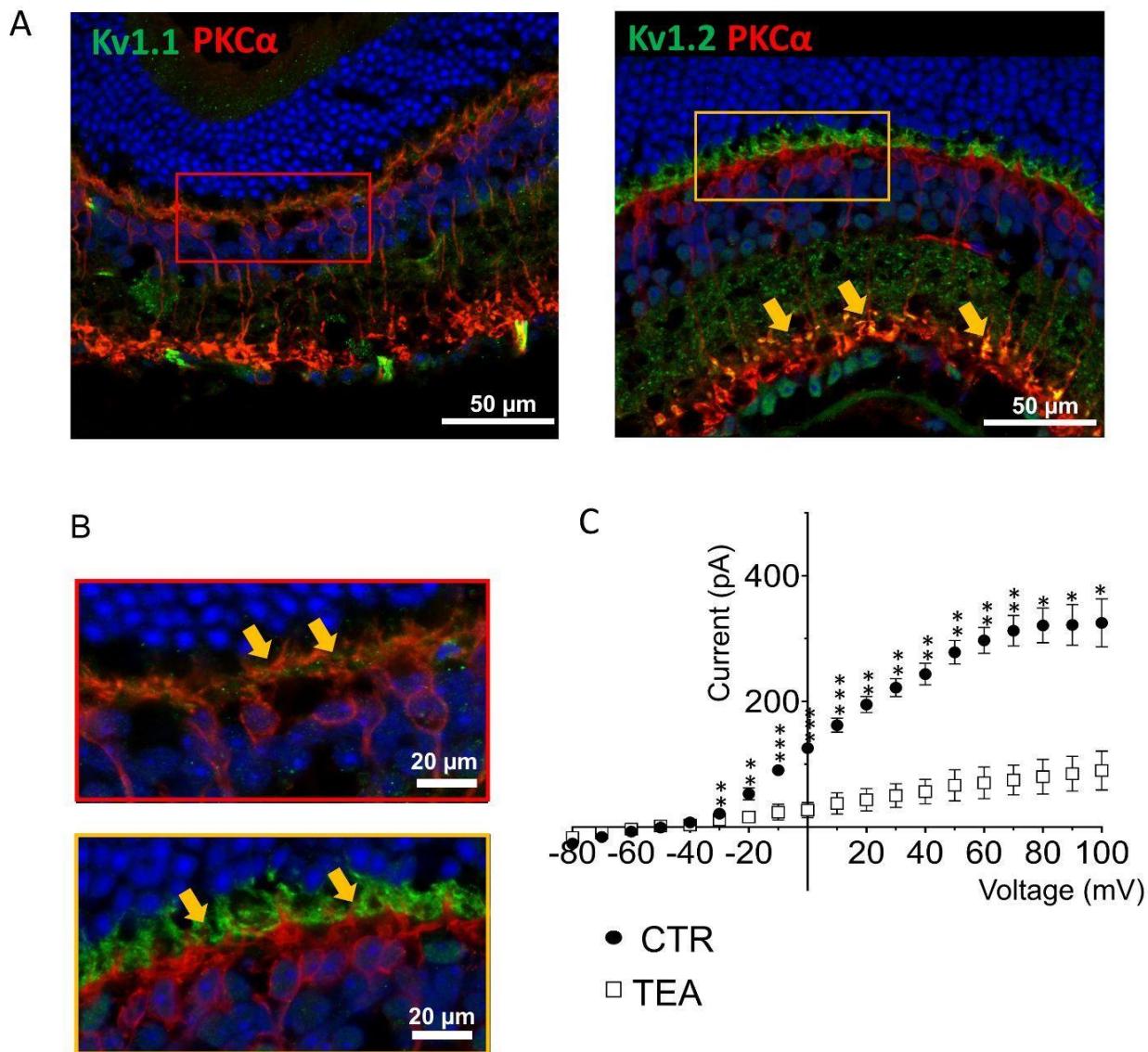


Figure S5 Kv1.1 and Kv1.2 are localized in the OBCs dendrites and axon terminals in the healthy mouse retina. (A) anti-Kv1.1 immunolabeling (green) (left) and anti-Kv1.2 (right) on retinal cryosection of C57BL/6 mice at p210. OBCs were identified by anti-PKC α immunolabeling (red). Images were taken as single optical sections (770 nm) on a Zeiss LSM880 confocal microscope (40 \times , NA: 1.3); (B) Magnification of figure A with Kv1.1 (top) and Kv1.2 (bottom); Kv1.1 is expressed in OBC dendrites and Kv1.2 in OBC dendrites and axon terminals. (C) I/V relationship (step protocol from -80 mV to 100 mV, Δ = 10 mV) in control condition (CTR, n= 3) and with the bath application of the potassium channel blocker 10 mM TEA (n=3) (-30 mV, **p=0.0144; -20 mV, **p=0.0037 ; -10 mV ***p=0.00033 ; 0mV ***p=0.00075 ; 10mV **p=0.0030 ; 20mV, **p=0.0037 ; 30mV, **p=0.0066 ; 40mV, **p=0.0094 ; 50mV, **p=0.0091 ; 60mV, **p=0.0089; 70mV, **p=0.0135 ; 80mV, *p=0.0210 ; 90mV, *p=0.0267 ; 100mV, *p=0.0375);

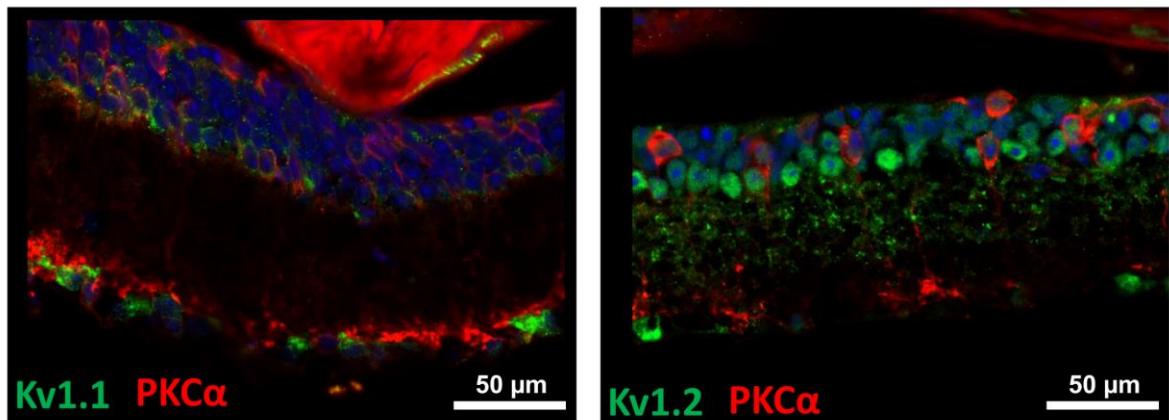


Figure S6. Kv1.1 and Kv1.2 channels expression in OBCs in *FVB rd1* retina. anti-Kv1.1 (left) and anti-Kv1.2 (right) immunolabeling (green) on retinal cryosection of *FVB rd1* mice at p210 (left). ON-RBCs were identified by anti-PKC α immunolabeling (red). Images were taken as single optical sections (770 nm) on a Zeiss LSM880 confocal microscope (40 \times , NA: 1.3).