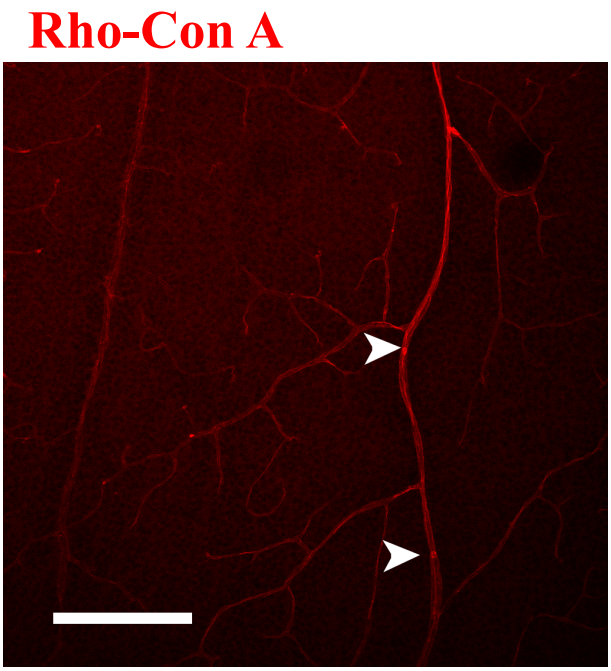
Electronic Supplementary figure 1

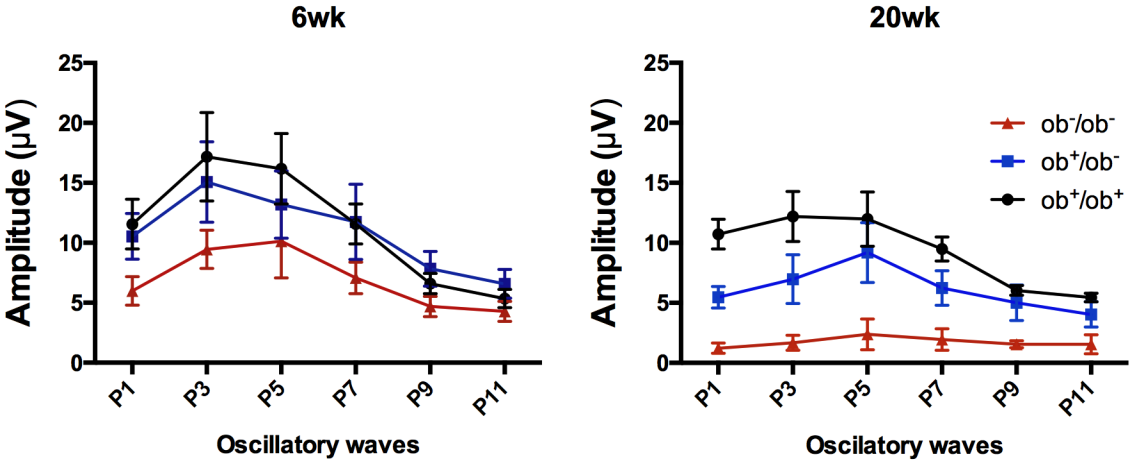
a



ESM Figure 1
(a) Representative immunofluorescence image of leukostasis where Rhodamine-Concanavalin A (Rho-Con A) labeled cells were found in retinal vessels (white arrowheads). Scale bar = 50μm.

Electronic Supplementary figure 2

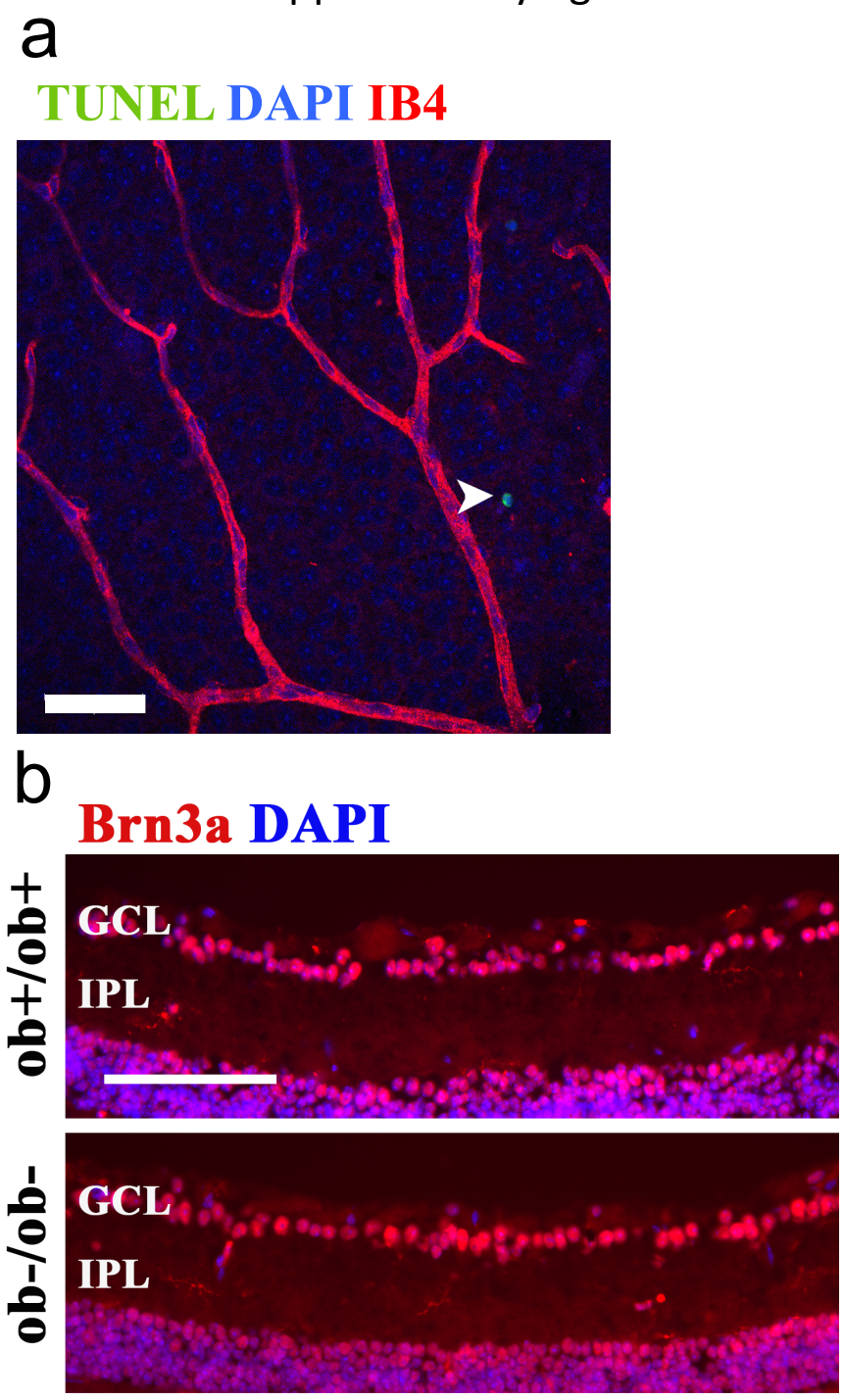
a



ESM Figure 2

Line graphs show oscillatory potential (OP) from scotopic electroretinograms recorded at maximum light level (2.87 log(cd x s/m^2)) of 6- and 20 weeks aged mice phenotypes ob^+/ob^+, ob^+/ob^- and ob^-/ob^-. The first three oscillatory waves P1, P3 and P5 were found in the ascending b-wave. The OP wave P7 was in the descending b-wave, P9 and P11 were in the tail of the b-wave (which begins the c-wave). There were stronger responses in the recordings from 6-week-old retina. Also, the ob^+/ob^+ responses were the largest and the ob^-/ob^- responses were weakest. (Two-way ANOVA, oscillatory wave $p<0.001$, phenotype $p<0.01$, n=4 eyes). This pattern was also seen in the 20-week-old recordings, however, they became weaker with aging. In addition, the differences between the phenotypes are wider. (Two-way ANOVA, oscillatory waves were not significant, phenotype $p<0.001$, n=4 eyes)

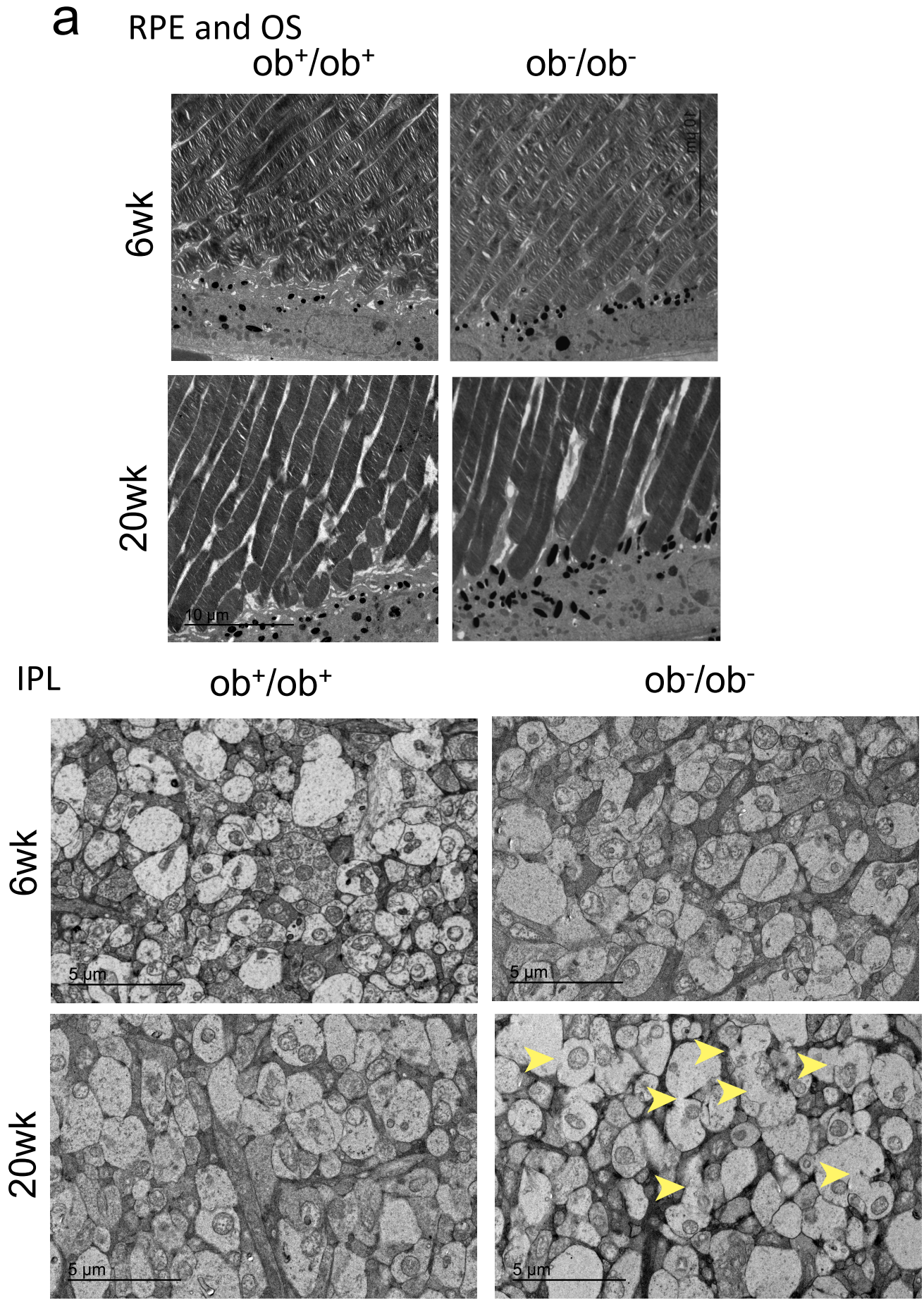
Electronic Supplementary figure 3



ESM Figure 3

(a) Representative immunofluorescence image of a TUNEL-positive ganglion cell (green). The nucleus (blue) was highlighted with the white arrowhead. The IB4 marked the blood vessels in the primary plexus (red). Scale bar = 50μm. (b) Representative immunofluorescence transverse section images of the inner retina in 6-week-old ob^+/ob^+ and ob^-/ob^- mice. The nuclei (blue) marked with Brn3a (red) were ganglion cells. A smaller number of Brn3a expressing ganglion cells were found in the diabetic eye. Scale bar = 50μm. GCL Ganglion Cell layer; IPL Inner Plexiform layer.

Electronic Supplementary figure 4



ESM Figure 4

(Top) Representative transmission electron micrographs (TEM) of the outer retina in 6- and 20-week-old ob^{+}/ob^{+}, ob^{-}/ob^{-} mice, the retinal pigment epithelium (RPE) and outer segments (OS) appeared similar and intact. Scale bar = 10μm. (Bottom) Representative TEM of the inner plexiform layer (IPL) showed that in 20-week-old ob^{-}/ob^{-}, there were many axonal abnormalities where the axons merged together into larger processes. The yellow arrowheads points to absent axon cell membrane structures. Scale bar = 5μm.