

## Supplementary Materials

**Supplementary Table S1: Group Summaries for RNA Sequencing**

Group 1		13-week-young naïve		
Samples	Sample Number	RIN	Concentration	
1	YNR1	9.2	2298	pg/μl
2	YNR2	9.2	3469	pg/μl
3	YNR3	9.7	3859	pg/μl
4	YNR4	9.8	2498	pg/μl

Group 2		40-week-old naïve		
Samples	Sample Number	RIN	Concentration	
1	ONR1	9.5	26187	pg/μl
2	ONR2	9.8	11981	pg/μl
3	ONR3	9.7	14769	pg/μl
4	ONR4	9.9	12499	pg/μl

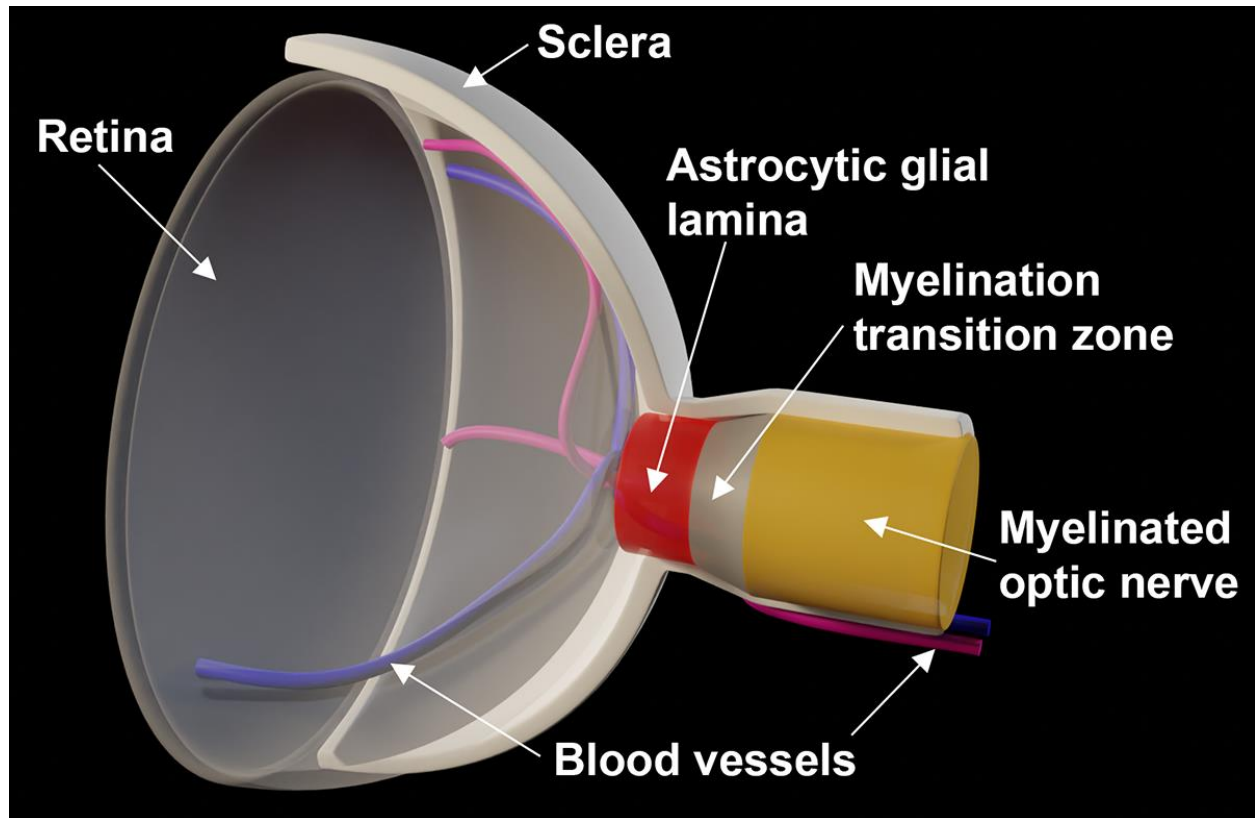
Group 3		4-week saline injection group		
Samples	Sample Number	RIN	Concentration	
1	4SR1	9.2	1170	pg/μl
2	4SR2	9.5	600	pg/μl
3	4SR3	9.3	543	pg/μl
4	4SR4	9.3	3115	pg/μl

Group 4		4-week bead injection group		
Samples	Sample Number	RIN	Concentration	
1	4BR1	9.1	2363	pg/μl
2	4BR2	9	4175	pg/μl
3	4BR3	9.2	3718	pg/μl
4	4BR4	9.3	3380	pg/μl

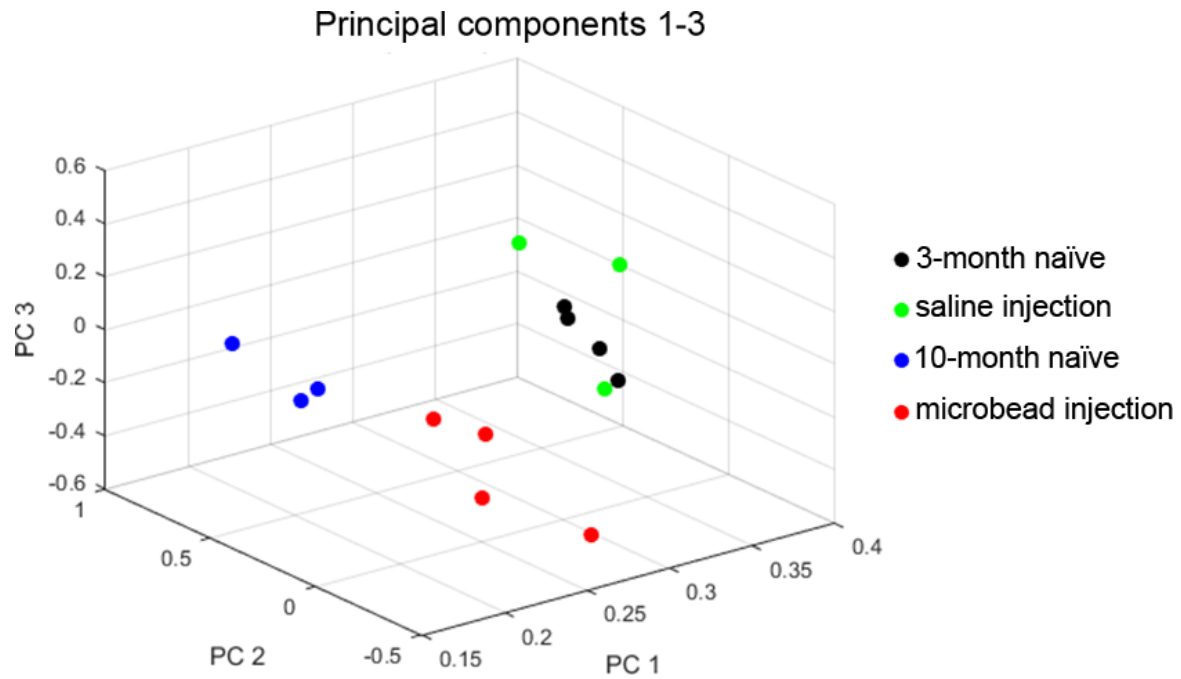
**Supplementary Table S2: Primer sequences**

	Forward	Reverse
Abca1	5'-gcttgttggcctcagttaagg-3'	5'-gtagctcaggcgtacagagat-3'
Abca7	5'-aattacacctatcgacggagaca-3'	5'-tgacggacagccactagga-3'
Clcf1	5'-gactcgtgggggatgttagc-3'	5'-ctaagctgcggagttgatgct-3'
Dock1	5'-caggaagcataaatacctcgcc-3'	5'-cagctcatccgattgtctttgt-3'
Emp1	5'-ttggtgctactggctggtct-3'	5'-cattgccgtaggacagggag-3'
Fbln5	5'-gcttgtcgtggggacatgat-3'	5'-tggggtagttggaagctggta-3'
Gapdh	5'-ggttgtctcctcgacttcaa-3'	5'-cctgttgctgtagccgtattcat-3'
Gfap	5'-cacgaacgagtccttagagc-3'	5'-atggtgatgcggttttcttc-3'
Gulp1	5'-acagaagtgtgagagatgctg-3'	5'-gcagttgtgtgaacctcctt-3'
H2-T23	5'-acagtcccgaaccagagtag-3'	5'-ccacgtagccgacaatgatga-3'
Lamp1	5'-cagcactctttgaggtgaaaaac-3'	5'-acgatctgagaaccattcgca-3'
Lgals3	5'-ggagaggggaatgatgttcct-3'	5'-tcctgcttcgtgttacacaca-3'
Megf10	5'-gaagaccccaacgtatgcag-3'	5'-cggtgcagcttgtgtagtaga-3'
Mfge8	5'-agatgcgggtatcaggtgtga-3'	5'-ggggctcagaacatccgtg-3'
Oaz1	5'-ccactgcttcgccagagag-3'	5'-ccccggaccaggttacta-3'
Park2	5'-tcttccagtgaaccaccgtc-3'	5'-ggcaggagtagccaagtt-3'
Pink1	5'-ttcttcgccagtcggtag-3'	5'-ctgcttcctcgtatcagcc-3'
Psmb8	5'-atggcggtactggatctgtgc-3'	5'-cgcgagaaaactgtagtgtcc-3'
Ptx3	5'-cctgcgatcctgctttgtg-3'	5'-ggtgggatgaagtccattgtc-3'
Srgn	5'-ctcgcttcgtcctggttt-3'	5'-cctcgatgcagttcgaaaaa-3'
Stat3	5'-caataccattgacctgccgat-3'	5'-gagcgactcaaactgcctt-3'
Tgm1	5'-tctgggctcgttgtgtgg-3'	5'-aaccagcattccctctcgga-3'

Supplementary Figure S1: Schematic of the optic nerve

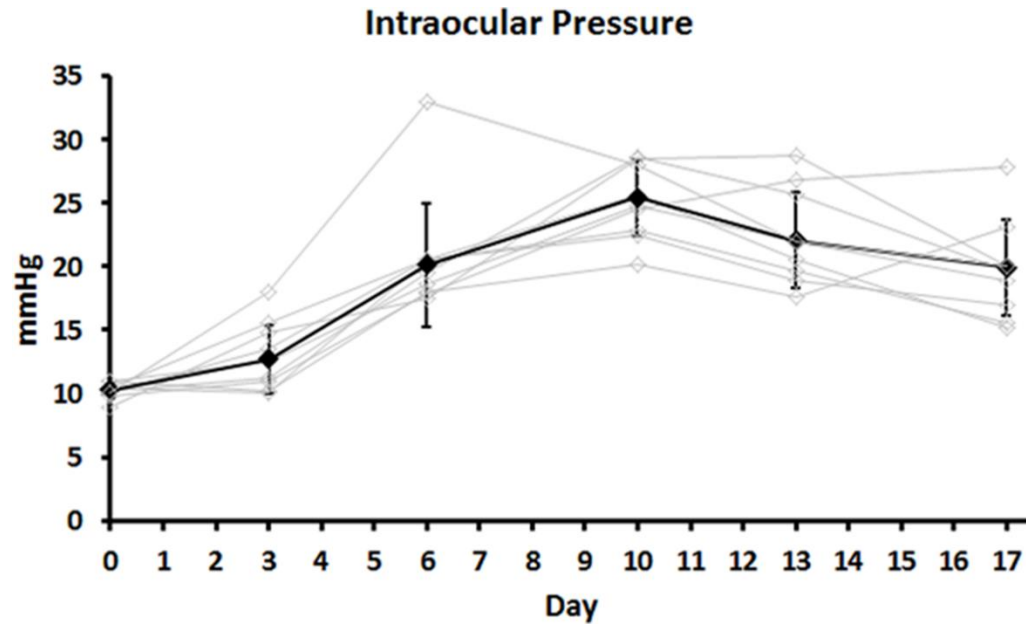


## Supplementary Figure S2: Principal Component Analysis



Scatter plot of the first 3 components, Principal Component Analysis of differentially expressed genes in microbead-injected nerves (red symbols), saline-injected nerves (green), young naïve nerves (black), and aged naïve nerves (blue).

Supplementary Figure S3: Intraocular pressure (IOP) after microbead injection



IOP curves after microbead injection into the anterior chambers of B6.*hGFAPpr::EGFP* mice. Thin grey lines represent individual eyes, and the bold black line shows the population average. Error bars represent the standard deviation.