Supplementary Data

Long-Term Protection of Retinal Ganglion Cells and Visual Function by Brain-derived Neurotrophic Factor in Mice with Ocular Hypertension

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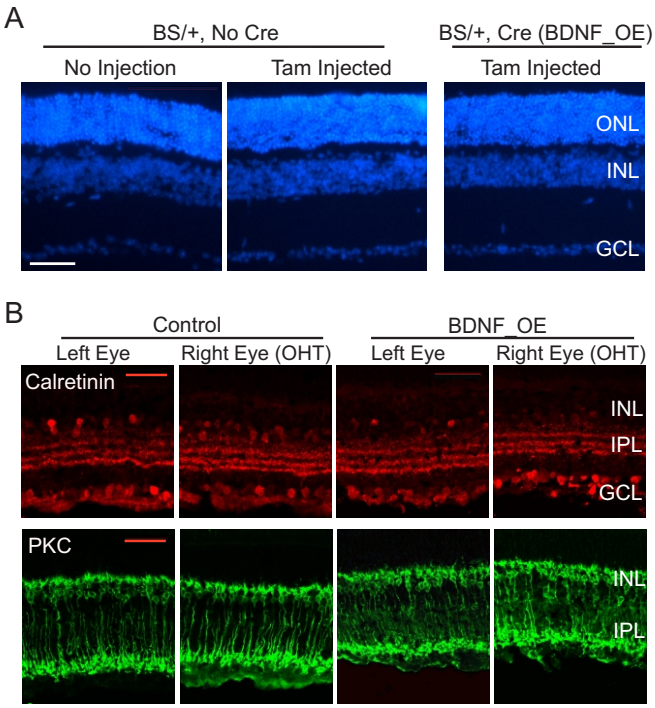
Supplementary Figure Legends

S-Fig. 1. Overexpression of BDNF did not change the overall morphology of the mouse retina. (A) Retinal sections stained with DAPI (blue) from mice injected with tamoxifen or overexpressing BDNF. (B) Retinal sections immuno-stained by PKCα (green) and calretinin (red) antibodies. ONL: outer nuclear layer; INL: inner nuclear layer; GCL: ganglion cell layer. Scale bar: 50 μm. This figure is related to Figs. 1-2.

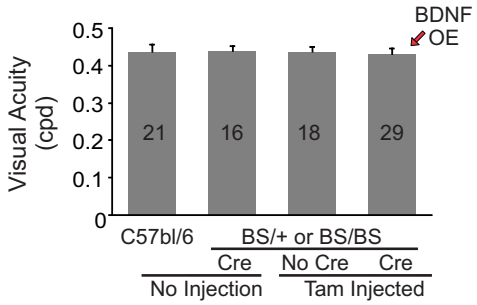
S-Fig. 2. Visual acuity was comparable in BS/+, BS/BS, BS/+::Cre transgenic mice with or without tamoxifen injection. Red arrow marks the BS/BS or BS/+::Cre transgenic mice injected with tamoxifen, i.e. BDNF_OE mice. Sample numbers are given in the bar graph. This figure is related to Fig. 3.

S-Fig. 3. Overexpression of BDNF reduced the dendritic degeneration of ON RGCs in mice with sustained ocular hypertension. Left: Projected images of confocal Z-stacks for an ON RGC. Z-stack images of YFP-expressing RGCs were projected onto a two-dimensional plane to measure the field size of RGC arbors as described in Feng et al., 2013 [28]. Right: The cumulative distributions of the dendritic field sizes of ON and ON-OFF cells from control and BDNF_OE mice. This figure is related to Fig. 7.

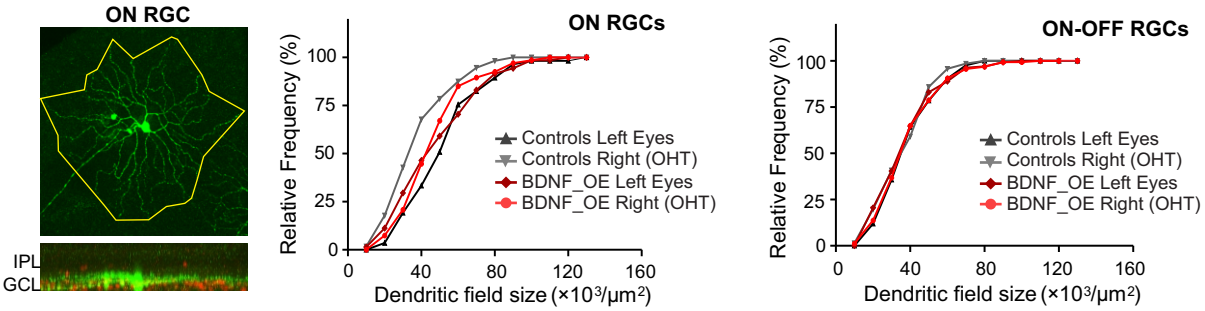
S-Fig. 1


A
BS/+, No Cre
BS/+, Cre (BDNF_OE)
No Injection
Tam Injected
Tam Injected
ONL
INL
GCL
B
Control
BDNF_OE
Left Eye
Right Eye (OHT)
Left Eye
Right Eye (OHT)
Calretinin
INL
IPL
GCL
PKC
INL
IPL

S-Fig. 2


BDNF
OE
Visual Acuity
(cpd)
0.5
0.4
0.3
0.2
0.1
0
21
16
18
29
C57bl/6
BS/+ or BS/BS
Cre
No Cre
Cre
No Injection
Tam Injected

S-Fig. 3


ON RGC
IPL
GCL
ON RGCs
Relative Frequency (%)
100
75
50
25
0
0
40
80
120
160
Dendritic field size (×10³/µm²)
Controls Left Eyes
Controls Right (OHT)
BDNF_OE Left Eyes
BDNF_OE Right (OHT)
ON-OFF RGCs
Relative Frequency (%)
100
75
50
25
0
0
40
80
120
160
Dendritic field size (×10³/µm²)
Controls Left Eyes
Controls Right (OHT)
BDNF_OE Left Eyes
BDNF_OE Right (OHT)