

## **Supplementary Material**

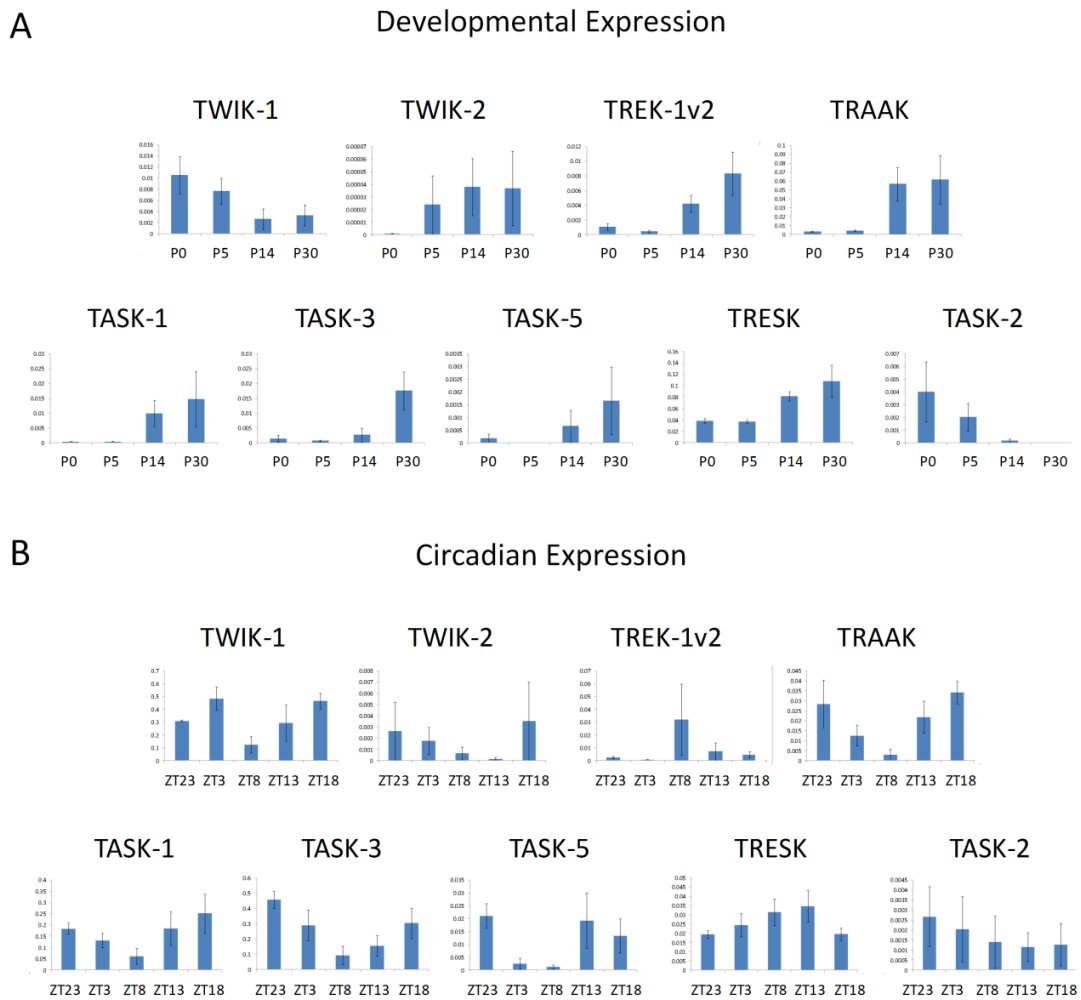
### **Expression and localisation of two-pore domain (K2P) background leak potassium ion channels in the mouse retina**

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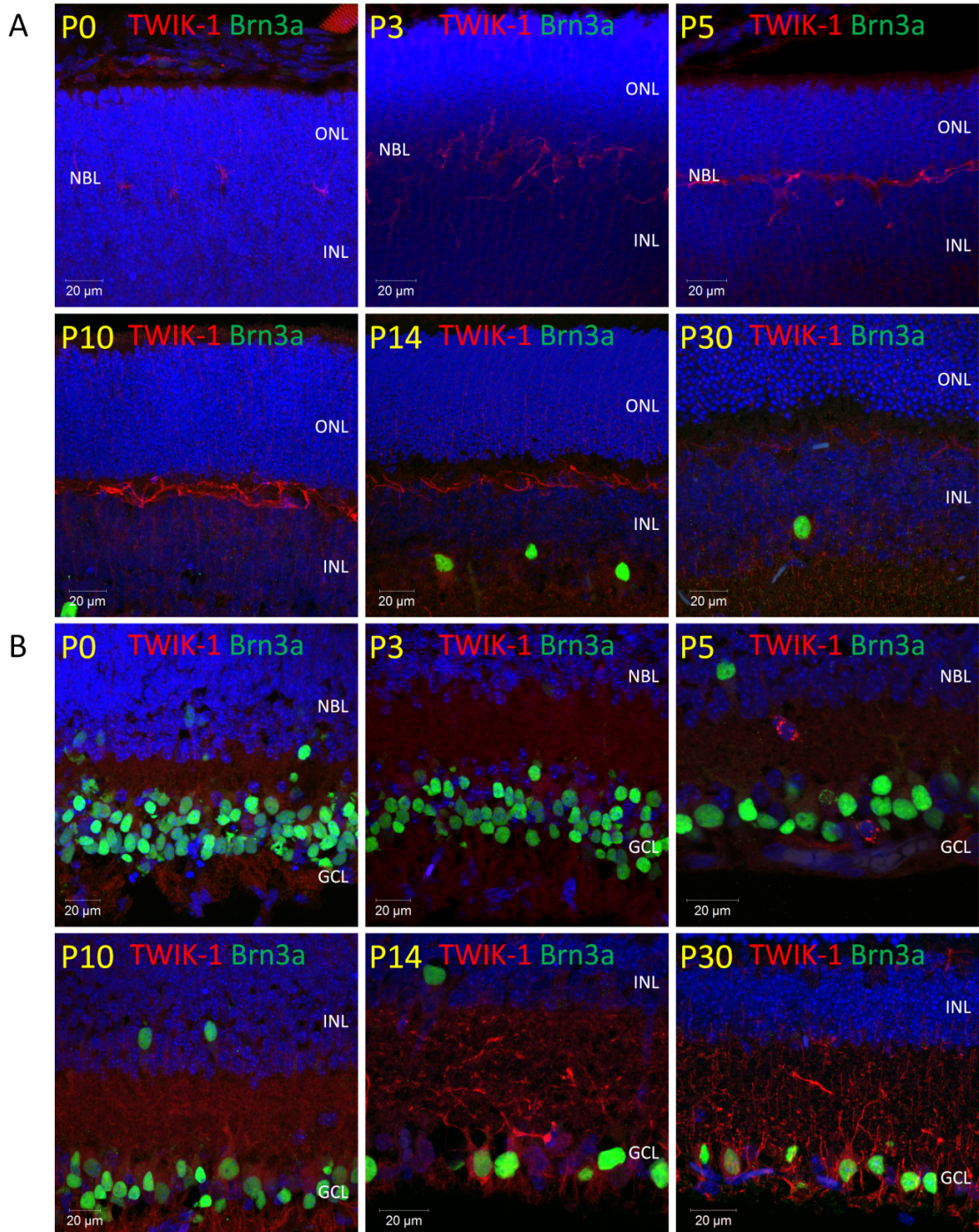
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**Figure S1. K2P channel mRNA expression throughout development and at different times of day.**



**Figure S1. K2P channel mRNA expression throughout development and at different times of day.** A) qPCR analysis of K2P channel expression in mouse retina at different developmental time points (n=5, tissue collected at Zeitgeber time ZT8, 8 hours after light onset). B) qPCR analysis of K2P channel expression in mouse retina at different times of day (n=4, mice housed under 12:12 light dark cycles). Data are shown normalised to the geometric mean expression of three housekeeping genes.

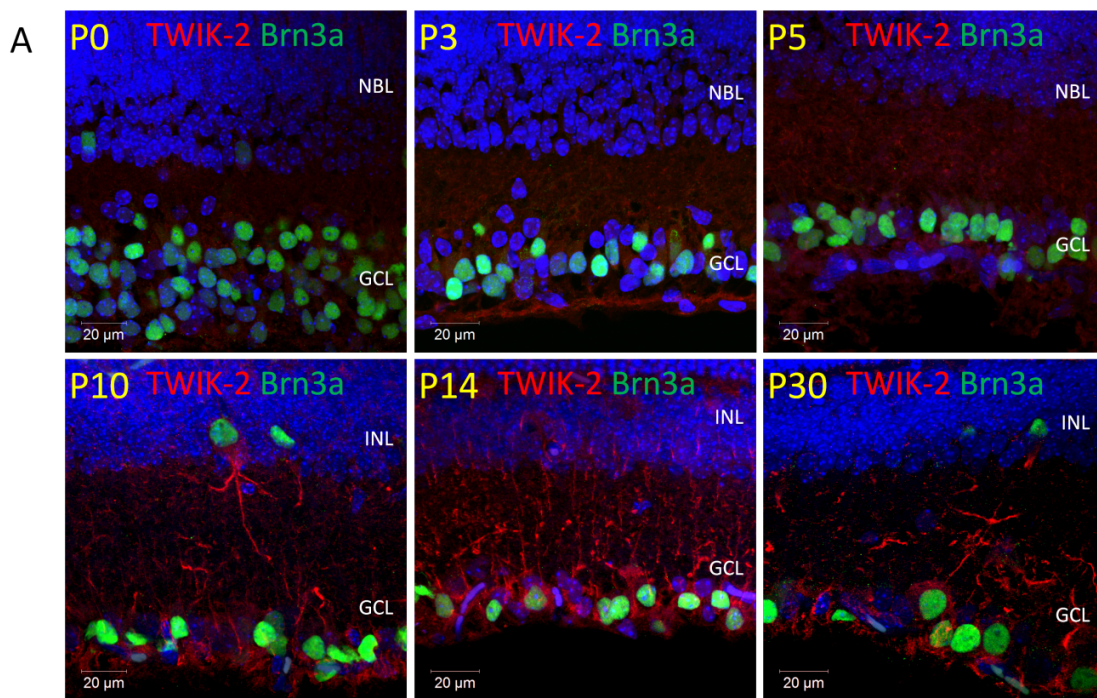
**Figure S2. Expression of the weak inward rectifying TWIK-1 K2P channel throughout postnatal development of the mouse retina**



**Figure S2. Expression of the weak inward rectifying TWIK-1 K2P channel throughout postnatal development of the mouse retina. A) Images showing levels of TWIK-1**

immunoreactivity detected in horizontal type cells of the neuroblastic cell layer and forming outer and inner nuclear layers at P0.P3, P5, P10, P14 and P30. Note the lack of TWIK-1 immunoreactivity in the outer nuclear layer at P30. B) Images showing levels of TWIK-1 immunoreactivity detected in Brn3a positive RGCs of the forming ganglion cell layer at P0.P3, P5, P10, P14 and P30. Note the upregulation of TWIK-1 immunoreactivity at P14 and P30. NBL; neuroblastic layer. ONL; outer nuclear layer, INL; inner nuclear layer, GCL; ganglion cell layer, Brn3a; brain-specific homeobox/POU domain protein 3A, DAPI nuclear counterstain is shown in blue.

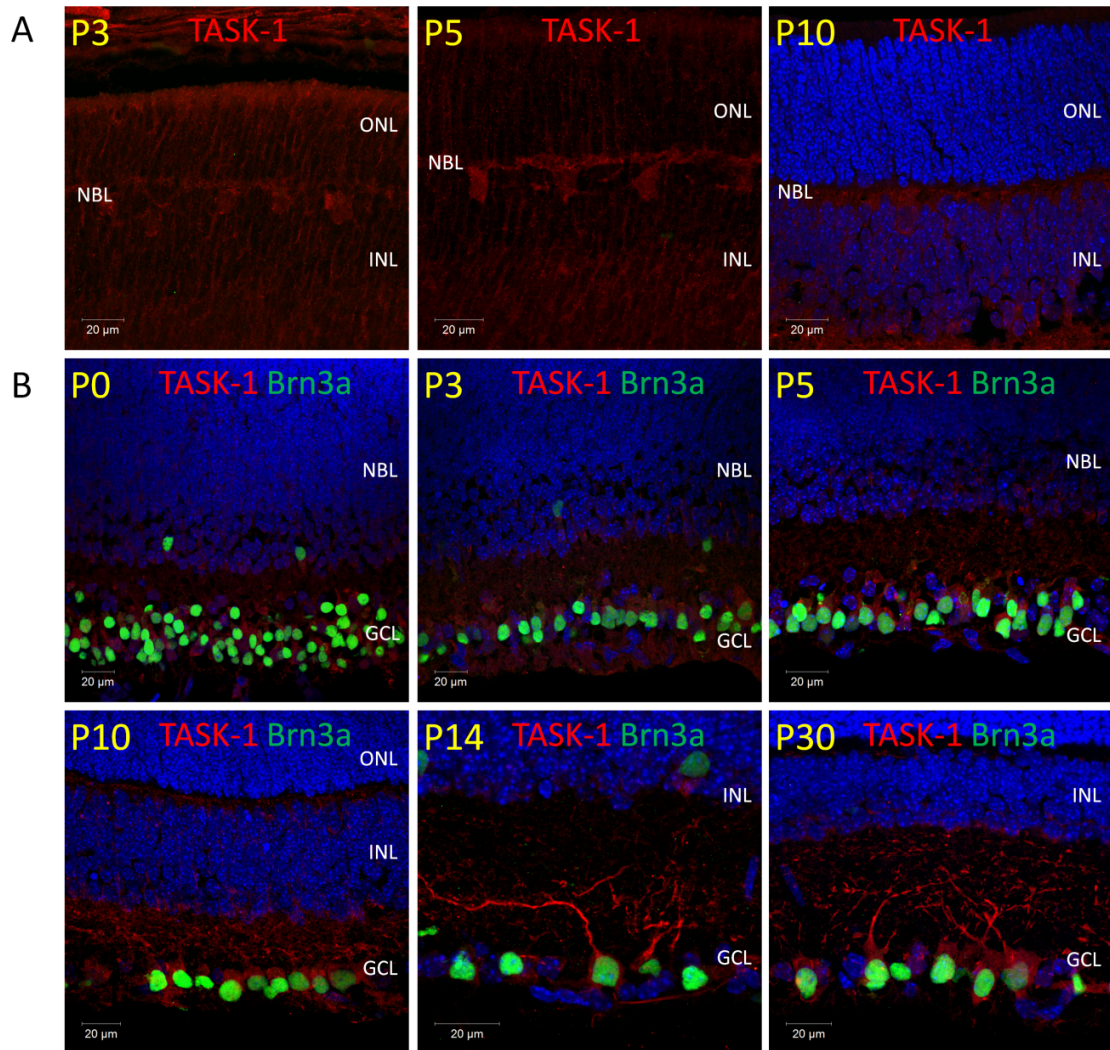
**Figure S3. Expression of the weak inward rectifying TWIK-2 K2P channel throughout postnatal development of the mouse retina.**



**Figure S3. Expression of the weak inward rectifying TWIK-2 K2P channel throughout postnatal development of the mouse retina.** A) Images showing levels of TWIK-2 immunoreactivity detected in Brn3a positive RGCs of the forming ganglion cell layer at P0.P3, P5, P10, P14 and P30. Note the upregulation of TWIK-2 immunoreactivity at P10 compared to earlier time points. NBL; neuroblastic layer. ONL; outer nuclear layer, INL; inner nuclear layer,

GCL; ganglion cell layer, Brn3a; brain-specific homeobox/POU domain protein 3A, DAPI nuclear counterstain is shown in blue.

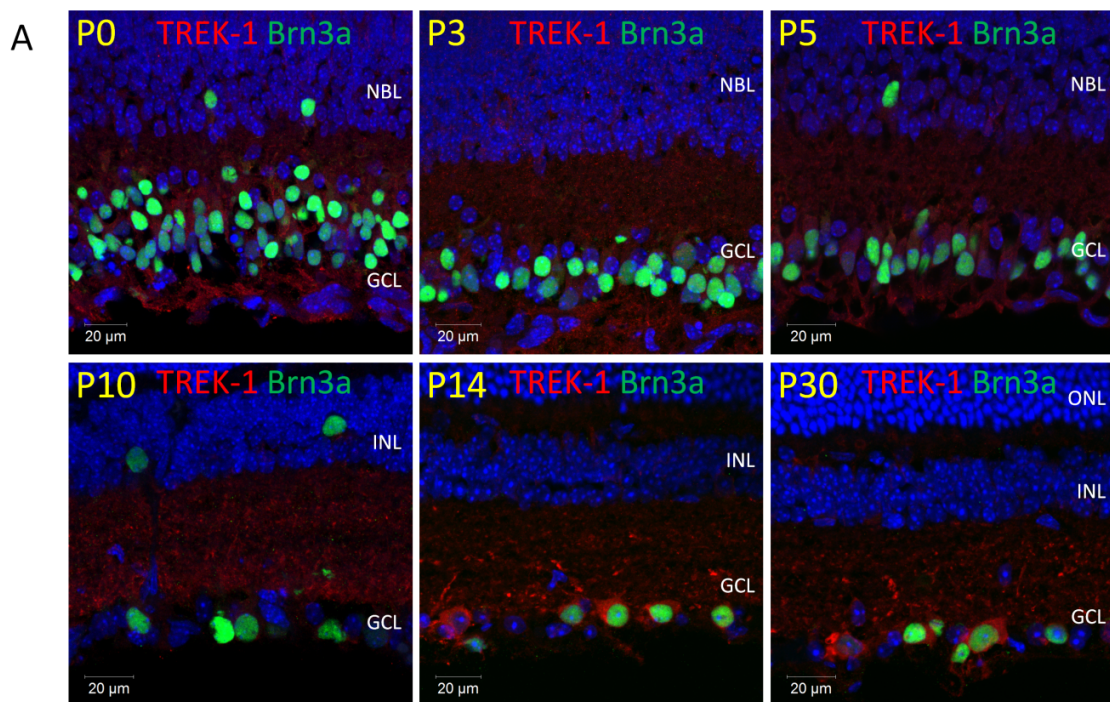
**Figure S4. Expression of the acid sensitive TASK-1 K2P channel throughout postnatal development of the mouse retina**



**Figure S4. Expression of the acid sensitive TASK-1 K2P channel throughout postnatal development of the mouse retina.** A) Images showing levels of TASK-1 immunoreactivity detected in horizontal type cells of the neuroblastic cell layer and forming outer and inner nuclear layers at P3, P5 and P10. TASK-1 immunoreactivity is not detected in the outer nuclear layer post P10. B) Images showing levels of TASK-1 immunoreactivity detected in Brn3a positive RGCs of the forming ganglion cell layer at P0, P3, P5, P10, P14 and P30. TASK-1

immunoreactivity is detected within Brn3a cells as early as P5, with a clear upregulation of detected at P14 and P30. NBL; neuroblastic layer. ONL; outer nuclear layer, INL; inner nuclear layer, GCL; ganglion cell layer, Brn3a; brain-specific homeobox/POU domain protein 3A, DAPI nuclear counterstain is shown in blue.

**Figure S5. Expression of the arachidonic acid sensitive mechanosensitive TREK-1 K2P channel throughout postnatal development of the mouse retina**



**Figure S5. Expression of the arachidonic acid sensitive mechanosensitive TREK-1 K2P channel throughout postnatal development of the mouse retina.** A) Images showing levels of TREK-1 immunoreactivity detected in Brn3a positive RGCs of the forming ganglion cell layer at P0, P3, P5, P10, P14 and P30. Note the upregulation of TREK-1 immunoreactivity at P14 and P30. NBL; neuroblastic layer. ONL; outer nuclear layer, INL; inner nuclear layer, GCL; ganglion cell layer, Brn3a; brain-specific homeobox/POU domain protein 3A, DAPI nuclear counterstain is shown in blue.