

Immuno marker	BC type(s)	Reference(s)
NK3R	1, 2	1, 2
Syt2	2, (6)	3, 4
HCN4	3a	5
PKARIIβ	3b	5
SCGN	2, 3a/b, 4, 5a/b, 6, (8)	6
CaBP5	3a/b, 5a/b, RBC	1, 2
PKCα	RBC	7
Recoverin	2	8
Calsenilin	4	9
Transgenic mouse line	BC type(s)	Reference(s)
MitoP	1, (3a/b, 4)	8, 10, 11
CLM1	(1, 7, 8), 9	4, 12-14
CLM12	2	4, 12
5-HTR2a	4, (3b, RBC)	15, 16
5-HTR3a	5a/b	4, 17
Igfbp5	XBC?	18
Grm6-tdTomato	6, 7, 8, RBC	19, 20
GUS8.4	7, (RBC)	21, 22
Pcp2	(2, 6), RBC	16

Supplemental Table S2 – Immunomarkers and transgenic lines for mouse bipolar cells

Bipolar cell types in brackets indicate weak or unclear labelling. (RBC, rod bipolar cell; NK3R, Neurokinin 3 receptor; Syt2, Synaptotagmin II; HCN4, hyperpolarization activated cyclic nucleotide-gated potassium channel 4; PKARIIβ, Protein kinase regulatory subunit II beta; SCGN, Secretagogin; CaBP5, Calcium binding protein 5; PKCα, Protein kinase C alpha; CLM, Clomeleon; 5-HTR, serotonin receptor 5; Igfbp5, Insulin-like growth factor-binding protein 5; Grm6, metabotropic glutamate receptor 6; GUS, α-gustducin; Pcp2, Purkinje cell protein 2)

- Haverkamp, S., Ghosh, K.K., Hirano, A.A. & Wässle, H. Immunocytochemical description of five bipolar cell types of the mouse retina. *J Comp Neurol* 455, 463-76 (2003).
- Ghosh, K.K., Bujan, S., Haverkamp, S., Feigenspan, A. & Wässle, H. Types of bipolar cells in the mouse retina. *J Comp Neurol* 469, 70-82 (2004).
- Fox, M.A. & Sanes, J.R. Synaptotagmin I and II are present in distinct subsets of central synapses. *J Comp Neurol* 503, 280-96 (2007).
- Wässle, H., Puller, C., Müller, F. & Haverkamp, S. Cone contacts, mosaics, and territories of bipolar cells in the mouse retina. *J Neurosci* 29, 106-17 (2009).
- Mataruga, A., Kremmer, E. & Müller, F. Type 3a and type 3b OFF cone bipolar cells provide for the alternative rod pathway in the mouse retina. *J Comp Neurol* 502, 1123-37 (2007).
- Puthussery, T., Gayet-Primo, J. & Taylor, W.R. Localization of the calcium-binding protein secretagogin in cone bipolar cells of the mammalian retina. *J Comp Neurol* 518, 513-25 (2010).
- Haverkamp, S. & Wässle, H. Immunocytochemical analysis of the mouse retina. *J Comp Neurol* 424, 1-23 (2000).
- Schubert, T. et al. Development of presynaptic inhibition onto retinal bipolar cell axon terminals is subclass-specific. *J Neurophysiol* 100, 304-16 (2008).
- Haverkamp, S. et al. Type 4 OFF cone bipolar cells of the mouse retina express calsenilin and contact cones as well as rods. *J Comp Neurol* 507, 1087-101 (2008).
- Misgeld, T., Kerschensteiner, M., Bareyre, F.M., Burgess, R.W. & Lichtman, J.W. Imaging axonal transport of mitochondria in vivo. *Nat Methods* 4, 559-61 (2007).
- Breuninger, T., Puller, C., Haverkamp, S. & Euler, T. Chromatic bipolar cell pathways in the mouse retina. *J Neurosci* 31, 6504-17 (2011).
- Berglund, K. et al. Imaging synaptic inhibition throughout the brain via genetically targeted Clomeleon. *Brain Cell Biol* 36, 101-18 (2008).

SUPPLEMENTARY INFORMATION

13. Haverkamp, S. et al. The primordial, blue-cone color system of the mouse retina. *J Neurosci* 25, 5438-45 (2005).
14. Duebel, J. et al. Two-photon imaging reveals somatodendritic chloride gradient in retinal ON-type bipolar cells expressing the biosensor Clomeleon. *Neuron* 49, 81-94 (2006).
15. Lu, Q., Ivanova, E. & Pan, Z.H. Characterization of green fluorescent protein-expressing retinal cone bipolar cells in a 5-hydroxytryptamine receptor 2a transgenic mouse line. *Neuroscience* 163, 662-8 (2009).
16. Lu, Q., Ivanova, E., Ganjawala, T.H. & Pan, Z.H. Cre-mediated recombination efficiency and transgene expression patterns of three retinal bipolar cell-expressing Cre transgenic mouse lines. *Mol Vis* 19, 1310-20 (2013).
17. Haverkamp, S., Inta, D., Monyer, H. & Wässle, H. Expression analysis of green fluorescent protein in retinal neurons of four transgenic mouse lines. *Neuroscience* 160, 126-39 (2009).
18. S.H., unpublished observations
19. Kerschensteiner, D., Morgan, J.L., Parker, E.D., Lewis, R.M. & Wong, R.O. Neurotransmission selectively regulates synapse formation in parallel circuits in vivo. *Nature* 460, 1016-20 (2009).
20. Dunn, F.A. & Wong, R.O. Diverse strategies engaged in establishing stereotypic wiring patterns among neurons sharing a common input at the visual system's first synapse. *J Neurosci* 32, 10306-17 (2012).
21. Wong, G.T., Ruiz-Avila, L. & Margolskee, R.F. Directing gene expression to gustducin-positive taste receptor cells. *J Neurosci* 19, 5802-9 (1999).
22. Huang, L. et al. G protein subunit G gamma 13 is coexpressed with G alpha o, G beta 3, and G beta 4 in retinal ON bipolar cells. *J Comp Neurol* 455, 1-10 (2003).