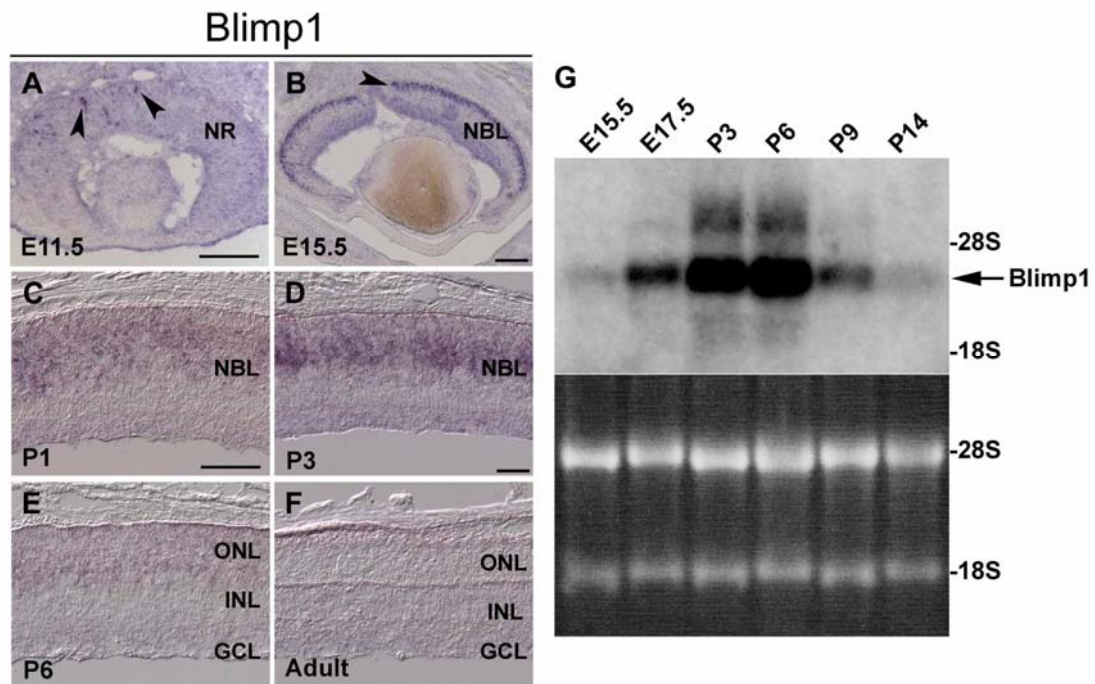


## Supplemental Figures

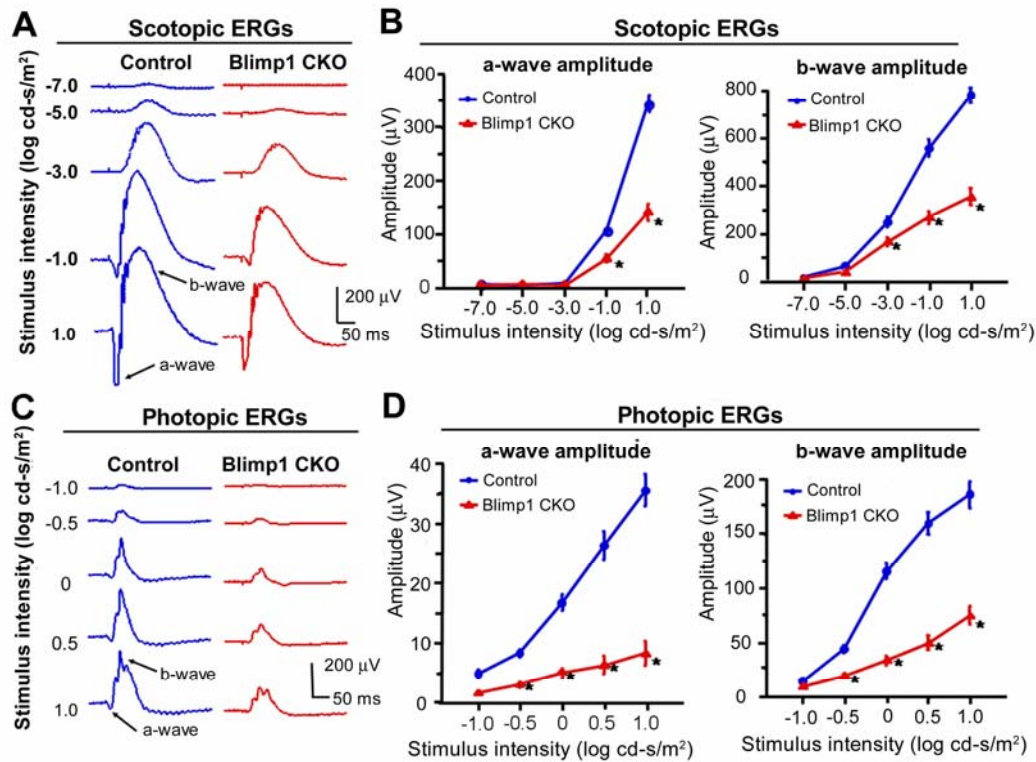


### Figure S1. Spatial and temporal expression of *Blimp1* in the mouse retina.

(A-F) *In situ* hybridization at six developmental stages (E11.5-adult) shows that *Blimp1* is expressed in developing photoreceptor precursors. Black arrowheads represent *Blimp1*-positive cells (A, B).

(G) Northern blot analysis from total retinal RNA labeled by the *Blimp1* cDNA probe. 28S and 18S ribosomal RNA bands were shown.

Scale bars represent 100  $\mu\text{m}$  (A, C-F) and 20  $\mu\text{m}$  (B). NR, neural retina; NBL, neuroblastic layer; ONL, outer nuclear layer; INL, inner nuclear layer; GCL, ganglion cell layer.



**Figure S2. ERGs recorded from 8 weeks-old *Blimp1* CKO and control mice.**

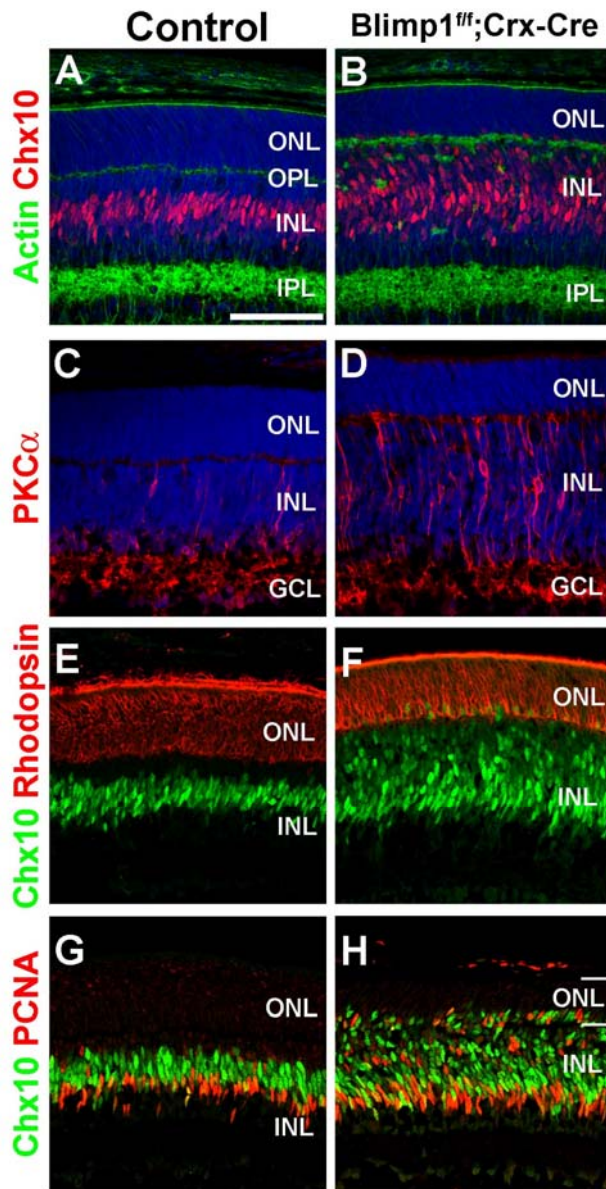
(A) Scotopic ERGs elicited by five different stimulus intensities. (-7.0 to 1.0 log cd-s/m<sup>2</sup>).

(B) Amplitude of the dark-adapted a-wave and b-wave as a function of the stimulus intensity. Mean of five eyes.

(C) Photopic ERGs elicited by five different stimulus intensities (-1.0 to 1.0 log cd-s/m<sup>2</sup>).

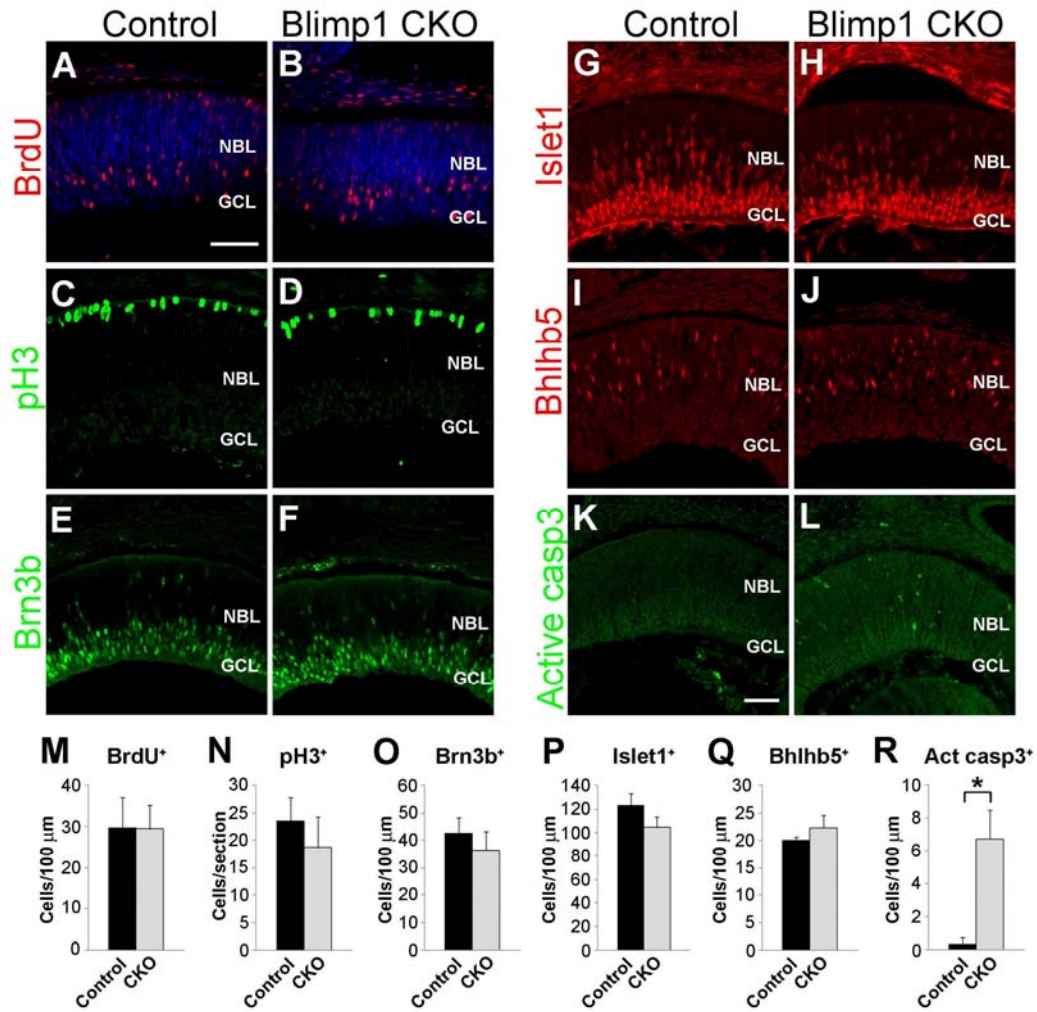
(D) Amplitude of the light-adapted ERG a-wave and b-wave as a function of the stimulus intensities. The bars represent the standard error of the means (SEMs).

Asterisks show the differences are statistically significant ( $p < 0.05$ ).

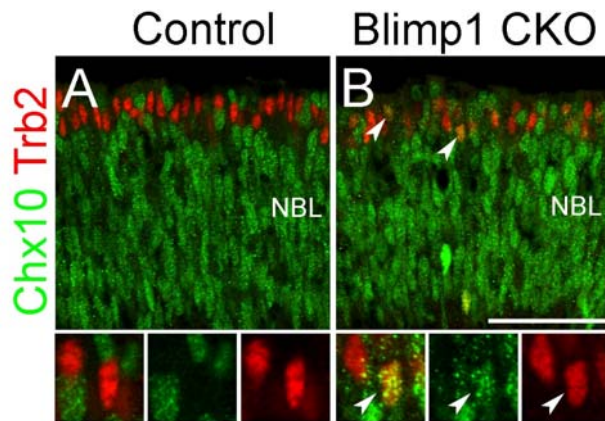


**Figure S3. Cell composition is impaired in the developing *Blimp1 Crx-Cre* CKO retina.**

(A-H) Retinal sections of control (A, C, E, G) and *Blimp1 Crx-Cre* CKO (B, D, F, H) were stained with anti-Chx10 (bipolar cell marker; red in A, B), PKC $\alpha$  (Bipolar cell marker; red in C, D), Rhodopsin (rod photoreceptor marker; red in E, F), and PCNA (cell proliferation marker; red in G, H) antibodies. Similar to the *Blimp1 Dkk-3-Cre* CKO, we observed a reduction of photoreceptor precursors, and excess bipolar-like cells and proliferating cells in the *Blimp1 Crx-Cre* CKO retina. Scale bars represent 50  $\mu$ m. ONL, outer nuclear layer; INL, inner nuclear layer; GCL ganglion cell layer; OPL, outer plexiform layer.

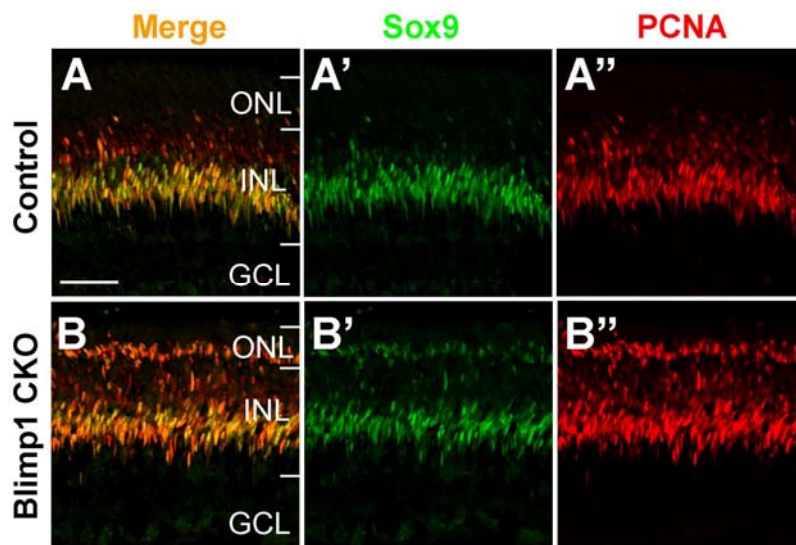






**Figure S5. Increase of aberrant cone photoreceptor precursors in the *Blimp1* CKO retina at E15.5.**

Retinal sections of control (A) and *Blimp1* CKO (B) were stained with anti-Chx10 (green, progenitor marker at this stage) and anti-Trb2 (red, cone photoreceptor maker) antibodies at E15.5. Trb2 and Chx10 double-positive cells increased in the *Blimp1* CKO retina. Scale bars represent 50 μm. NBL, neuroblastic layer.



**Figure S6. Excess Sox9-positive cells in the *Blimp1* CKO retina at P6.**

Retinal sections of control (A) and *Blimp1* CKO (B) were stained with anti-Sox9 (green, retinal progenitor and Müller glial cell maker) and anti-PCNA (red, cell proliferation marker) antibodies. Excess Sox9-positive cells were observed in the *Blimp1* CKO retina. A large portion of the Sox9 and PCNA signals overlap in both the control and *Blimp1* CKO retinas. Scale bars represent 50 μm. ONL, outer nuclear layer; INL, inner nuclear layer; GCL, ganglion cell layer.

Table S1. Up-regulated genes in the *Blimp 1* CKO retina at P6

Probe Set ID	Symbol	Name	P6 Control	P6 CKO	Fold change
1425341_at	Kcnk3	potassium channel, subfamily K, member 3	10	102	9.8
1420561_at	Trpc7	transient receptor potential cation channel, subfamily C, member 7	14	107	7.5
1439435_x_at	Pgk1	phosphoglycerate kinase 1	372	2672	7.2
1451534_at	Scgn	secretagogin, EF-hand calcium binding protein 13	143	858	6.0
1433991_x_at	Dbi	diazepam binding inhibitor	796	4179	5.3
1422104_at	Vsx1	visual system homeobox 1 homolog (zebrafish)	52	265	5.1
1442715_at	EST	unknown	22	114	5.1
1418532_at	Fzd2	frizzled homolog 2 ( <i>Drosophila</i> )	46	211	4.6
1436461_at	EST	unknown	25	101	4.0
1421780_a_at	Capb5	calcium binding protein 5	55	218	4.0
1439987_at	Grik1	glutamate receptor, ionotropic, kainate 1	162	639	4.0
1455147_at	EST	unknown	92	355	3.9
1426461_at	Ugp2	UDP-glucose pyrophosphorylase 2	27	105	3.9
1426163_x_at	Rpl7	ribosomal protein L7	690	2614	3.8
1438951_x_at	Nup54	nucleoporin 54	100	377	3.8
1418790_at	Fezf2	Fez family zinc finger 2	177	651	3.7
1437967_at	EST	unknown	39	141	3.6
1417550_a_at	Gsg1	germ cell-specific gene 1	249	876	3.5
1424454_at	Tmem87a	transmembrane protein 87A	40	138	3.5
1453267_at	Zfhx3	zinc finger homeobox 3	63	220	3.5

Table S2. Down-regulated genes in the *Blimp1* CKO retina at P6

Probe Set ID	Symbol	Name	P6 Control	P6 CKO	Fold change
1420425_at	Blimp1	PR domain containing 1, with ZNF domain	1596	42	37.6
1434774_at	Rhbdf2	rhuboid 5 homolog 2	131	12	10.9
1450329_a_at	Arr3	Arrestin 3, retinal	225	32	7.0
1430110_at	D230044M03Rik	putative gap junction protein connexin Cx43.4	147	26	5.8
1425256_a_at	Dixdc1	DIX domain containing 1	108	22	5.0
1444095_a_at	LOC100048701	unknown	202	43	4.7
1450765_a_at	Pde6h	phosphodiesterase 6H, cGMP-specific, cone, gamma	620	150	4.1
1455714_at	Vstm2l	V-set and transmembrane domain containing 2-like	843	215	3.9
1424256_at	Rdh12	retinol dehydrogenase 12	784	227	3.5
1425306_at	BC027072	unknown	924	268	3.4
1436952_at	Klf9	Kruppel-like factor 9	142	42	3.3
1444142_at	OTTMUSG00000002042	unknown	163	49	3.3
1458506_at	Gm626	FERM and PDZ domain containing 2	348	108	3.2
1451753_at	Pknox2	plexin A2	293	92	3.2
1451763_at	Cnga1	cyclic nucleotide gated channel alpha 1	631	199	3.2
1424963_at	Rpl1	retinitis pigmentosa 1	2917	944	3.1
1444790_at	1810005K13Rik	heat shock factor binding protein 1-like	167	55	3.0
1417616_at	Stegahnac2	Stegahnac2	150	50	3.0
1425176_at	C1qf3	C1q-like 3	348	116	3.0
1454492_at	8430418B16Rik	unknown	228	76	3.0

Table S3 Primer sequences used for Q-PCR analysis and ChIP assay

	<b>Gene</b>	<b>Primer-1</b>	<b>Primer-2</b>	
Q-PCR	Arr3	ATGTGGACACTGTGGAGCCCATTTGA	ATCACGGCCATAGCGAAAAGCACA	
	Bhlhb4	TTGGACTGAATGGGAACTGGTCGCT	GCCACAGAGGAAAACCAGGCAACAT	
	Bhlhb5	AGTGAGAAGCTGCTCCCATTCCTT	TTGCCAAGGCTGAATGTCCGGTTT	
	Blimp1	AGCATGACCTGACATTGACACC	CTCAACACTCTCATGTAAGAGGC	
	Crx	CTTAAGATCAATCTGCCTGAGTCC	AGAGATGGGCTGTAAGAATCTGAG	
	Chx10	ACACACAGCCACCTTCTTGGAAGT	TCGGTCACTGGAGGAAACATCTTCG	
	GAPDH	ACCACAGTCCATGCCATCAC	TGGACCACCCTGTTGTGTGA	
	Islet1	AGCAGCAGCAACCCAACGACAAAA	ACTTTCCAGGGCGGCTGGTAACTTT	
	Lhx3	CGACATTGGCACAGCAAGTGTCTCA	TCCCGAAGCGCTTAAAGAAGTCGT	
	Lhx4	TAGTGACAGTGAGCTGAGCTTCCGA	AACGTCCCCCACGTTGCCATAAAT	
	Mash1	TTTGAAGCAGGATGGCAGCAGAT	TCTTAGTGAAGGTGCCCTGTAGGT	
	Math3	AGCTGACCCCGGAAAGAGAATCTA	TTGTGTGTTGACCAGCTCCACCAT	
	NeuroD1	GTGTCCCGAGGCTCCAGGGT	GGGACCTTGGGGCTGAGGCT	
	Nrl	GCTGTGCCTTTCTGGTTCTGA	GCTCCCGCTTTATTTGGAAT	
	Otx2	TCTGGAAGCTCTGTTTGCCAA	GCGGCACCTAGCTCTTCGATT	
	Prox1	TACCGAGCCCTCAACATGCACTACA	ATCTTTGCCCGCGATGATGGCATT	
	Rbp3	CGTGGGCTACCTACGAGTGGAC	TCCCATGTCTGGCCACCTCCA	
	Sag	AGCCTGCTCAAGAACTGGGAGACA	AGCTGGCTGCAACATCACTGAACA	
	Scgn	TGGAAGGCCCAGAAGTGGATGGATT	TGACATCGCAATGGCGAAGCAGAA	
	Six6	ACACAGGTGGGCAACTGGTTCAAA	ACCTGCTGCTGGAGTCTGTTTTTGG	
	Thrb	AAGCCTTTTCCTCAAGTGCAGTCGC	TCACAGGTGATGCAGCGATAGTGGT	
	Vsx1	ACCCTGGCTTCTGGGGATGCATAAA	AACTCCCAGAGTCCTGCCAACTTGT	
	ChIP assay	Chx10-A	CCAGAGGAAAACAGGACTAACCAGAA	CCATGCTCACATCGTCGTAGTTATC
		Chx10-B	AGGAGGGAAAAGCTGGGTGTAGTTTA	GACTATGAGCTACCATTTGGGAAGG
		Chx10-C	GAGACCAGGTTCCGTGACTGTAATC	TCTCCCCACCTCTCTTTTTCTACC