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Supplemental Information

Presynaptic Expression of LRIT3

Transsynaptically Organizes the Postsynaptic

Glutamate Signaling Complex Containing TRPM1

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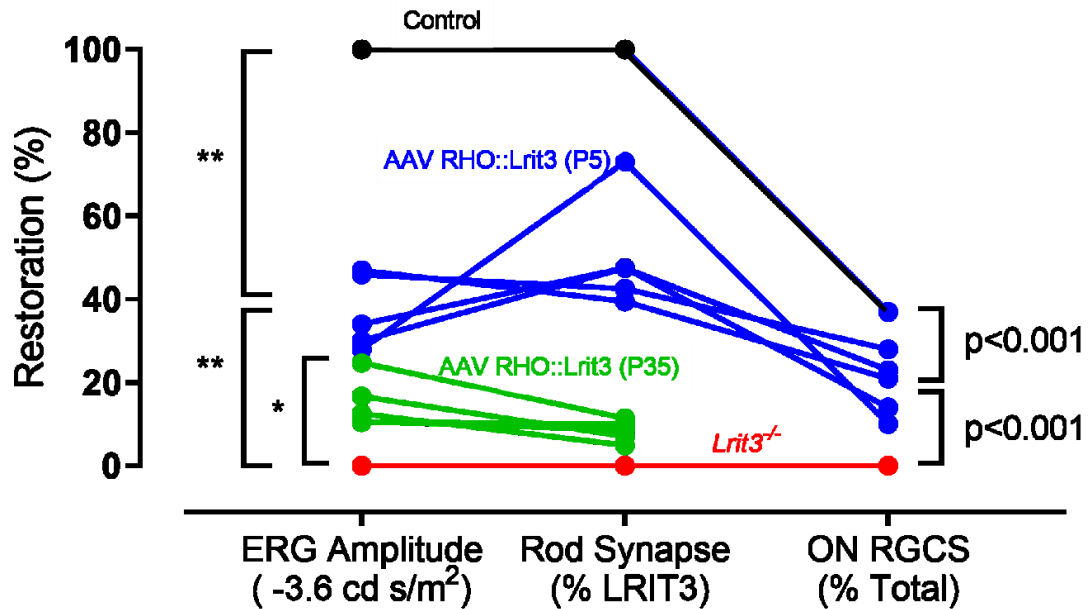


Figure S1 related to Figures 1,3,4,5. Relationship between ERG b-wave amplitude, rod synapse rescue and ON RGC numbers. The rescue of the scotopic ERG b-wave correlates with the percent of rod photoreceptors transduced with rAAV RHO::Lrit3 at P5 (blue symbols and lines) and P35 (green symbols and lines) and for the P5 animals the number of ON RGCs. The RGC data is the percent of all RGCs that are ON RGCs. Statistics were done on the actual values for the b-wave amplitudes and ON RGCs proportions. For the ERG data a test for the P5 RHO::LRIT3 (n=5) vs WT (n=3) was done. For AAV RHO::LRIT3 vs *Lrit3*^{-/-} a one sample t-test comparing the b-wave to 0 was done, because the *Lrit3*^{-/-} mice have no b-wave. For the proportions of ON RGCs in the WT, *Lrit3*^{-/-} and AAV RHO::LRIT3 Fishers exact test comparing actual proportions of ON RGCs was used. The AAV RHO::LRIT3 treatment of *Lrit3*^{-/-} retinas significantly increased the ERG scotopic b-wave, but did not restore it to the WT. Similarly, this treatment increased the proportion of ON RGCs present, but not to the WT levels. Both these observations are consistent with the restoration of LRIT3 to approximately 50% of the rods in these mice.

Table S1 related to Figure 4. Cell types recorded in control, *Lrit3*^{-/-} and rAAV RHO::*Lrit3* treated *Lrit3*^{-/-} retinas.

Genotype/Stimulus	ON	ON/OFF	OFF	dON	dON/OFF	NR	Total
Scotopic							
Control	101	63	34	0	0	78	276
<i>Lrit3</i> ^{-/-}	0	0	17	10	1	349	377
RHO:: <i>Lrit3</i> in <i>Lrit3</i> ^{-/-}	87	9	18	16	13	333	476
Photopic							
Control	82	100	24	0	0	4	210
<i>Lrit3</i> ^{-/-}	0	0	142	0	4	231	377
RHO:: <i>Lrit3</i> in <i>Lrit3</i> ^{-/-}	7	2	147	1	12	307	476