Supplementary Data

Conditional Loss of *Spata7* in Photoreceptors Causes Progressive Retinal Degeneration in Mice

Aiden Eblimit[1, 2*], Smriti Agrawal[1, 2*], Kandace Thomas[1, 2], Anastassov Ivan Assenov[3], Tajiguli, Abulikemu[2, 6], Graeme Mardon [2, 4, 5§], Rui Chen[1, 2§]

[1] Human Genome Sequencing Center, Baylor College of Medicine, Houston, TX 77030-3411, USA;

[2] Department of Molecular and Human Genetics, Baylor College of Medicine, Houston, TX 77030-3411, USA;

[3] Department of Biochemistry and Molecular Biology, Baylor College of Medicine, Houston, TX 77030-3411, USA;

[4] Department of Pathology and Immunology, Baylor College of Medicine, Houston, TX 77030-3411, USA;

[5] Department of Neuroscience, Baylor College of Medicine, Houston, TX 77030-3411, USA;

[6] The Key Laboratory of Plant Resources and Chemistry of Arid Zone, Xinjiang Technical Institute of Physics and Chemistry, Chinese Academy of Sciences, Urumqi, Xinjiang, China 830011

*These authors contributed equally to the manuscript

[§]**Corresponding author information:**

Rui Chen, ruichen@bcm.edu, Phone: +1- 713-798-5194, Fax: +1- 713-798-5741

Graeme Mardon, gmardon@bcm.edu, Phone: +1- 713-798-8731, Fax: +1- 713-798-5838

Supplementary Figures:

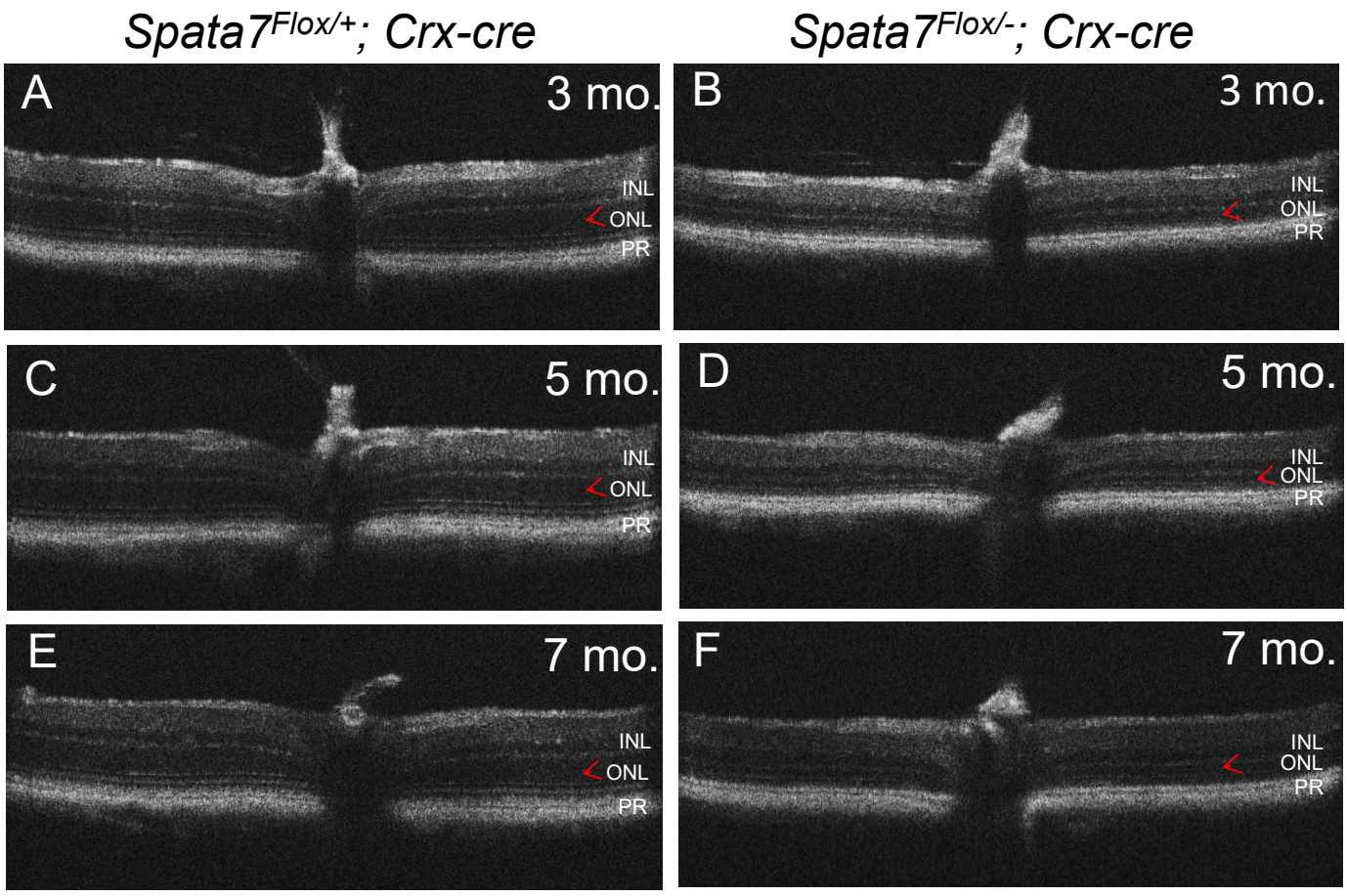
Suppl. Figure 1. *In vivo* retinal imaging of *Spata7*$^{Flox/-}$; *Crx-Cre* mouse. Live imaging of *Spata7*$^{Flox/-}$; *Crx-Cre* cKO mice by optical coherence tomography (OCT) at (A, B) 3 months, (C, D) 5 months, and (E, F) 7 months of age, reveal consistent, progressive thinning of the ONL compared to the age-matched *Spata7*$^{Flox/+}$ control retinas. The ONL is indicated by a red arrow head. ONL: outer nuclear layer; INL: inner nuclear layer; PR: photoreceptor layer.

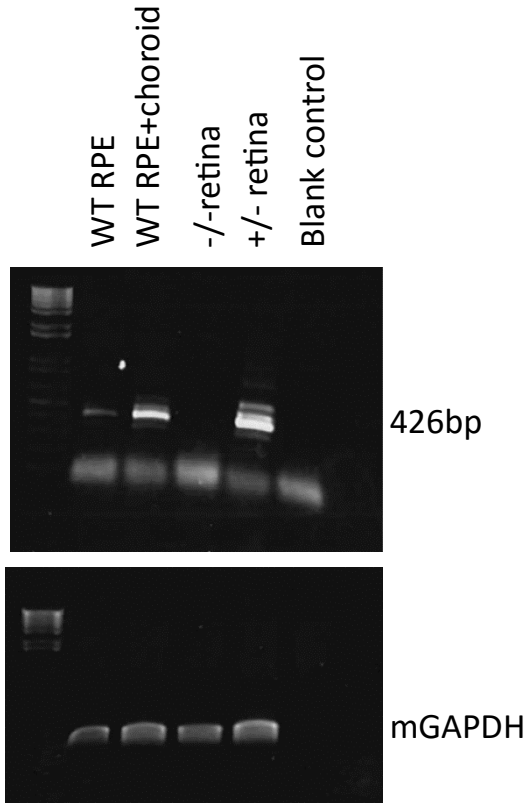
Suppl. Figure 2. *Spata7* mRNA is expressed in the RPE.

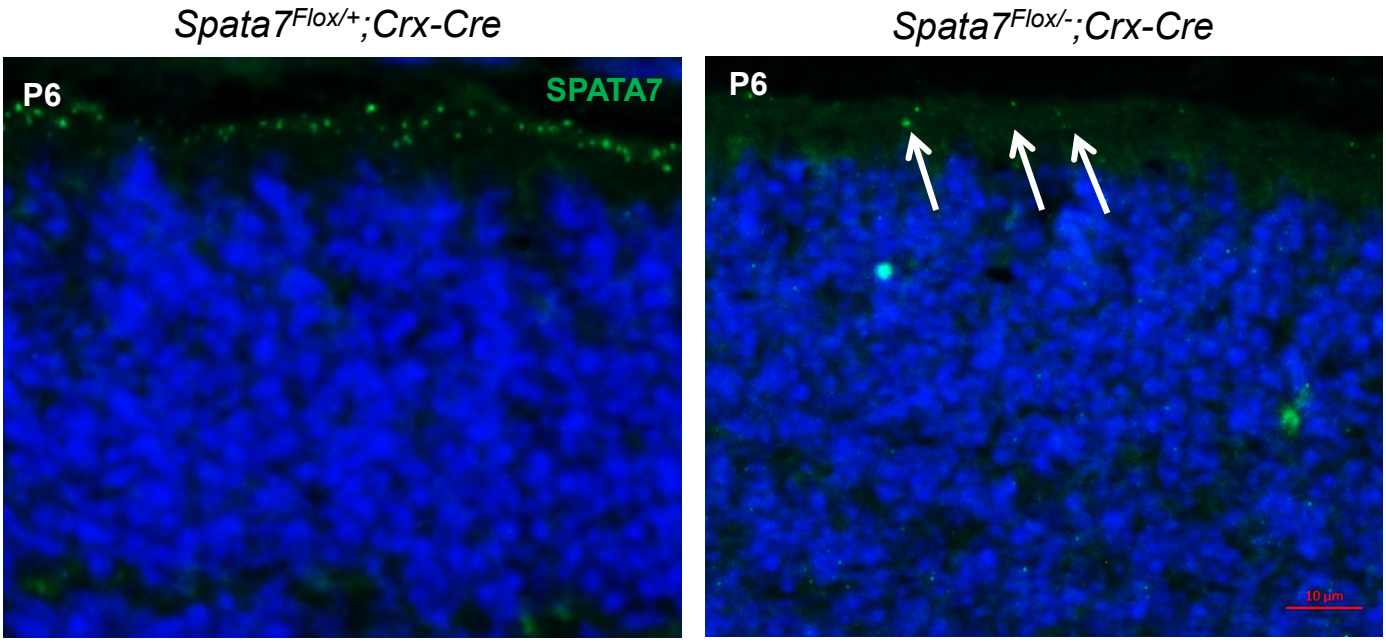
RT-PCR was performed on the RPE and the RPE+choroid isolated from adult wild-type mouse retinas, whole retinas from *Spata7*$^{+/-}$ mice, and *Spata7*$^{-/-}$ adult mice. *Spata7* is expressed in the RPE layer. Water was used as "blank control." GAPDH was used as a loading control. Primers flanking exons 1-5 were used to detect *Spata7* transcript.

Suppl. Figure 3. Expression of SPATA7 in *Spata7*$^{Flox/-;}$ *Crx-Cre* at postnatal day 6.

Examination of SPATA7 expression by immunostaining shows few SPATA7-positive cells (green) in frozen retinal sections obtained from *Spata7*$^{Flox/-;}$ *Crx-Cre* mice at post-natal day 6 (P6). Arrows indicate SPATA7-positive cells. Nuclei were counterstained with DAPI. Scale bar = 10 µm.


Spata7Flox/+; Crx-cre
Spata7Flox/-; Crx-cre
A
3 mo.
INL
ONL
PR
B
3 mo.
INL
ONL
PR
C
5 mo.
INL
ONL
PR
D
5 mo.
INL
ONL
PR
E
7 mo.
INL
ONL
PR
F
7 mo.
INL
ONL
PR


WT RPE
WT RPE+choroid
-/-retina
+/- retina
Blank control
426bp
mGAPDH


Spata7Flox/+;Crx-Cre
P6
SPATA7
Spata7Flox/-;Crx-Cre
P6
10 µm