

## **Supplementary material of:**

### **A Slc38a8 mouse model of FHONDA syndrome faithfully recapitulates the visual deficits of albinism without pigmentation defects**

Ana Guardia<sup>1,2</sup>, Almudena Fernández<sup>1,2,7</sup>, Davide Seruggia<sup>1,2,6</sup>, Virginie Chotard<sup>3</sup>, Carla Sánchez-Castillo<sup>4</sup>, Oksana Kutsyr<sup>5</sup>, Xavier Sánchez-Sáez<sup>4</sup>, Esther Zurita<sup>1,2</sup>, Marta Cantero<sup>1,2</sup>, Alexandra Rebsam<sup>3</sup>, Nicolás Cuenca<sup>4</sup>, Lluís Montoliu<sup>1,2,7</sup>

1. Department of Molecular and Cellular Biology, National Centre for Biotechnology (CNB-CSIC), 28049 Madrid, Spain.

2. Centre for Biomedical Network Research on Rare Diseases (CIBERER-ISCI), 28029 Madrid, Spain.

3. Sorbonne Université, INSERM, CNRS, Institut de la Vision, F-75012 Paris, France.

4. Department of Physiology, Genetics and Microbiology, University of Alicante, San Vicente del Raspeig Road W/N, 03690, Alicante, Spain

5. Department of Optics, Pharmacology and Anatomy, University of Alicante, San Vicente del Raspeig Road W/N, 03690, Alicante, Spain

6. Current address: St. Anna Children's Cancer Research Institute (CCRI), Vienna, Austria, and CeMM Research Center for Molecular Medicine of the Austrian Academy of Sciences, Vienna, Austria

7. Corresponding authors: National Centre for Biotechnology (CNB-CSIC), Darwin 3, 28049 Madrid, Spain. Tel. +34915854844, emails: [montoliu@cnb.csic.es](mailto:montoliu@cnb.csic.es) and [afernandez@cnb.csic.es](mailto:afernandez@cnb.csic.es)

### **Supplementary Figure 1**

BLASTP (NIH/NCBI) alignment of SLC38A8 human (A6NNN8 UniProtKB, 434 amino acids) and Slc38a8 (Q5HZH7 UniProtKB, 431 amino acids) mouse proteins. The p.200Q (human) and p.197Q (mouse) amino acid residues are highlighted in bold and indicated with a vertical arrow.

### **Supplementary Figure 2**

Identification of FHONDA mutant founder (F0) mice after genome editing with CRISPR-Cas9 tools. **A.** Detection of FHONDA mutant founder (F0) mice by PCR. Three positive founder mice are shown, including #A8578, the mouse that carries the p.199Pro\* mutant allele eventually selected for this study. Larger bands correspond to insertions and smaller bands correspond to deletions. **B.** Detection of FHONDA mutant founder (F0) mice by T7 Endonuclease I assay, which detects indels (insertions/deletions). Five positive founder mice are shown, including #A8578. **C.** Germline transmission test of FHONDA mouse mutant founder (F0) #A8578. The deleted product (smaller band) is found in numerous F1-derived animals.

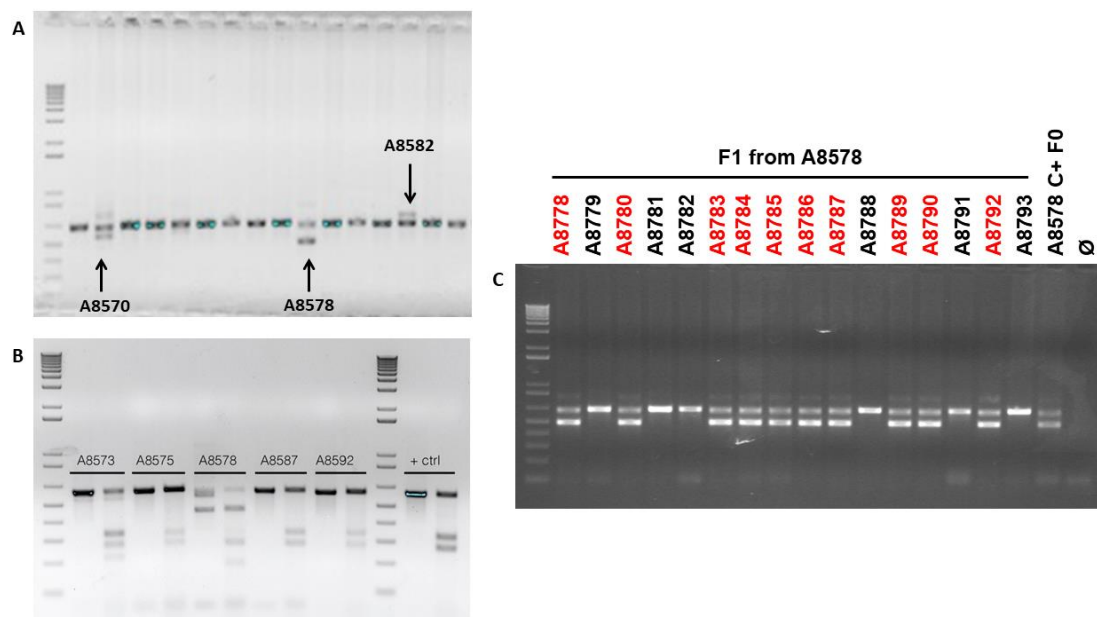
### **Supplementary Figure 3**

Number of pigmented melanosomes per RPE cell, counted from electron microscope images, in adult (2-3 months old) wild-type pigmented C57BL/6J, FHONDA *Slc38a8* heterozygous "HET" (+/-) and FHONDA *Slc38a8* homozygous mutant "HOM" (-/-). Mean  $\pm$  SEM, N=18-20 RPE cells, 1-factor ANOVA with Bonferroni correction for multiple comparisons. No statistically significant differences were detected.

## Supplementary Figure 1

Human	MEGQTPGSRGLPEKPHPATAAATLSSMGAVFILMKSALGAGLLNFPWAFSKAGGVVPAFL	60
	· ·         · ·       ·   · · · ·       ·                             ·       · · ·	
Mouse	MEGQPRGSRGPLEKPLPAATHPTLSSLGAVFILLKSALGAGLLNFPWAFYKAGGMLPTFL	60
Human	VELVSLVFLISGLVILGYAAAVSGQATYQGVVRGLCGPAIGKLCEACFLNLLMISVAFL	120
	·                         ·         ·                   ·         ·	
Mouse	VALVSLVFLISGLVILGYAASVSGQTTYQGVVRELCPAMGKLCEICFLTNLLMISVAFL	120
Human	RVIGDQLEKLCDSLLSGTTPAPQPWYADQRFTLPLLSVLVILPLSAPREIAFQKYTSILG	180
	· · · ·             ·   ·           ·         ·         ·         ·	
Mouse	RVIGDQLEKLCDSLL---PDAPQPWYAAQNFTLPLISMLVIFPLSALREIALQKYTSILG	177
	↓	
Human	TLAACYLALVITVQYYLWPPQGLVRESHPSLSPASWTSVFSVFPTICFGFQCHEAAVSIYC	240
	·   · · · · ·         · ·	
Mouse	TLAACYLALVITVQYYLWPPQGLIRQPGPLLSPSPWTSVFSVFPTICFGFQCHEAAVSIYC	237
Human	SMRKRSLSHWALVSVLSLLACCLIYSLTGVYGFLLTFGTEVSADVLMSYPGNMVIIVARV	300
	· · · ·         ·                     ·   ·                     ·                     · ·	
Mouse	SMWNQSLSHWTLVSVLSLLACCLVYTLTGVIYGFLLTFGPEVSADILMSYPGNDTAIIIVARV	297
Human	LFAVSIVTVYPIVFLGRSVMQDFWRRSCLGGWGPSALADPSGLWVRMPLTILWVTVTLA	360
	· · · · · · ·     · ·           ·       ·                   ·	
Mouse	LFAVSIVTVYPIVFLGRSVMQDFWKKS yatrgppvladpsgpwvrlpl tflwvvvtlt	357
Human	MALFMPDLSEIVSIIGGISSFFIFIFPGLCLICAMGVEPIGPRVKCCLEVWGVVSVLVGT	420
	·           ·         ·                             · · · ·                     ·     ·	
Mouse	MALFLPDLSEIISIIGGVSSFFIFIFPGLCLICAVDTEPMGPRVKCCLEAWGILSVLVGT	417
Human	FIFGQSTAAAVWEM	434
	·   · · · ·	
Mouse	FIFGQSTAVAMVEL	431

## Supplementary Figure 2



Supplementary Figure 3

