Review of: "Study on gene knockout mice and human mutant individual reveals absence of CEP78 causes photoreceptor and sperm flagella impairments"

xiaoyu yang

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Review of: Study on gene knockout mice and human mutant individual reveals absence of CEP78 causes photoreceptor and sperm flagella impairments.

The authors aimed to discover the new genetic cause of the novel disease that affect vision and male reproduction. The authors define the roles of Cep78 in inherited retinopathy and male infertility. They used CRISPR/CAS9 to knock out Cep78 gene in mice. In consistent with the human data, Cep78 knockout mice showed disturbed functions of photoreceptors. They also found that both Cep78 knockout mice and male patient carrying homozygous CEP78 mutations were infertile, which shows Cep78 knockout mice can be used an ideal model for such disease. Mechanistically, the investigators found that CEP78 binds with IFT20 and TTC21A to form a complex, which is essential for maintaining regular centriole and cilia functions. The manuscript is well-written and the data well presented. I have some suggestions in the following:

1. The authors claimed that in their case, the male patient carrying homozygous CEP78 mutation was infertile. However, in the paper by Nikopoulos et al (PMID: 27588451), the deceased male patient carrying compound CEP78 mutation (IVS3+5G>A; p,Trp212Glyfs*18) had a son. The authors should discuss about that in the Discussion section.
2. The authors showed the loss of flagella during spermatogenesis developing stages by PAS staining in figure 4B, which didn’t show the seminiferous lumen clearly. I suggest the authors to stain Ac-Tubulin to better demonstrate the flagella developing defects in Cep78 KO mouse testis.
3. The authors are suggested to analyze the expression pattern of Cep78 in testicular cells and multiple tissues.
4. I suggest the authors to check the grammar and spelling carefully. There are lots of mistakes in the draft. E.g. Figure 3A, right panel, the Y axis should be “litter size”.