Review of: "The expression of prosaposin and its receptors, GRP37 and GPR37L1, are increased in the developing dorsal root ganglion"

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Potential competing interests: The author(s) declared that no potential competing interests exist.

This study demonstrated the distribution of PSAP and its receptors in the rat dorsal root ganglion during development. They also investigated the distribution of sortilin, a transporter of a wide variety of intracellular proteins containing PSAP. Although this study involved a considerable amount of work, there are several concerns with the research background, experimental design, methods and results.

Major comments:

1. There was no statistical analysis in this study. Besides, I can see no detail of any randomization and blinding.
2. The Methods section needs to indicate the total number of animals used in this study and in each series of experiments.
3. Only male rats were used in this study. The authors should comment on why they chose not to also study female rats.
4. There were no specific antibodies to mark neurons, SGCs and Schwann cells in this study. How did the author know the distribution of PSAP, GPR37, and GPR37L1?
5. Were the antibodies preabsorbed with the antigen to ensure specificity of the labeling? This too is a necessary control.
6. According to the results section, immunofluorescence assay was used to investigate the distribution and expression level of PSAP, GPR37, and GPR37L1, however, there was no statistical analysis of the IF results. In addition, there was no objective experiment like PCR or WB to investigate the expression level of PSAP, GPR37, and GPR37L1.
7. According to the results, the expression levels of PSAP in “large” and “small” neurons were different. How did the author define the size of neurons? Was it based on the cell diameter?
8. Although PSAP was observed in lysosome-like structures in the neurons, it is not appropriate to draw a conclusion in the Discussion part that “The present study showed that PSAP exists primarily in the lysosomes of nerve cells and satellite cells in the DRG”. There was no evidence to prove it in this study.
9. The author only investigated the distribution of PSAP and sortilin in the study, the conclusion in the Discussion part “PSAP is uptaken with the help of sortilin, which accumulates in the outer cell membrane

of satellite cells” cannot be drawn based on the above findings alone. Additional experiments are needed to explain the relationship of PSAP and sortilin.

Minor comments:

1. Both Methods 2.4 and 2.5 described immunofluorescence, why not fused to one point.
2. In Result 3.5, there was a spelling mistake in line two, “PR37-IR” needed to turn into “GPR37-IR”.
3. In Fig 4, what is the basis for white line you drew to show the boundary of neuron and SGC?
4. In Fig 6, how did the author count the neurons? The author needs to explain it in the Method part.