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The thesis aims to investigate the role of cholinergic transmission in behavioral adaptation, specifically focusing on the disruption of cholinergic signaling by deleting beta2-containing nAChRs in specific neuronal types and its impact on behavioral changes.

The introduction provides comprehensive coverage of the topic, leaving no important aspect untouched. It explores the subject in detail, providing a deep understanding to the readers. Additionally, the introduction is precise, meaning that it is concise and focused, presenting the necessary information. Furthermore, the introduction includes the citation of multiple references. These references are cited with accuracy. Finally, the introduction includes graphical representations or illustrations that effectively portray and summarize essential aspects of the topic.

While the overarching hypothesis is mentioned, it appears general and lacks precise focus. However, the objectives of the study are well described. The methods section is extensive, providing all the important information about the experimental design and statistical analysis employed.

The results section is divided into three parts, and the findings are reported highly accurately and precisely. It is admirable that negative results are included in the thesis. The work presented encompasses various approaches, from molecular analysis to behavioral tasks. Specifically, the thesis demonstrates the behavioral consequences of beta2-mAChRs downregulation in the dorsal striatum, supported by a battery of behavioral tests. It is worth noting that while some graphs present individual data points, others do not, and it would be beneficial to maintain homogeneity in the graphical representation throughout the thesis.
Part two of the manuscript focuses on the specific deletion of beta2-containing nAChRs in PFC neurons, utilizing NPY/Cas9 male mice. However, the representation of social preference differs from the first part, as the time spent in the corridor is not shown, and individual mice data is not displayed.

The discussion section is well written, raising several points for debate. However, it would benefit from addressing the limitations of the study and posing open questions for further exploration. These aspects can be discussed during the oral presentation. It will be interesting to discuss the data on social preference in the first part of the manuscript and the evidence that mutant mice spend more time interacting with

objects. More insights on the rationale for choosing to delete the receptor in NPY neurons are expected during the thesis defense.

Overall, the thesis is complete and showcases the candidate's commendable work. I am eager to discuss the data further during the oral presentation, and therefore, I accept that the candidate is admitted to the oral exam.

The thesis is acceptable for the doctoral degree.

Kind regards

Camilla Bellone