

Review of: "Notch signaling determines cell-fate specification of the two main types of vomeronasal neurons of rodents."

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The paper by Katreddi and coworkers is an interesting paper that has the potential to reveal the gene regulatory network controlling the cell fate of vomeronasal sensory neurons (VSNs) in mice. The paper represents Delta-like4 (DII4)-Notch1 signaling is involved in the establishment of the dichotomy of two main types of VSNs. The study adds not only important details on the molecular mechanisms in the development of VSNs, but also a new example of Notch-mediated cell fate decision for establishing binary cellular diversification.

(1) To clarify the cell fate change in VSNs with GOF and LOF experiments in Notch signaling, I would add colocalization experiments with apical (Gai2) and basal (Gao) markers. Since I am interested in whether VSNs having converted their cell fates can normally differentiate into mature neurons, I would add colocalization experiments with mature markers such as OMP.

(2) The authors performed single-cell RNA sequencing analysis using adult vomeronasal organ (VNO), but examined conditional cell lineage tracing experiments using neonatal one. To determine whether Notch signaling is also involved in the cell fate choice of VSNs in adult neurogenesis, it would be better to add tamoxifen-induced GOF and LOF experiments for adult VNO.