Names Matter: Commentary on Luis Puelles' Article

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Since I receive considerable attention in the article of Puelles [2017] regarding my recent commentary on some of his work [Wullimann, 2017], I think it appropriate to respond briefly. My recent commentary was twofold in nature. One aspect involved discussing possible factual weaknesses in the proposal by Watson and Puelles [2017] for a revised quadripartite (or tetrapartite) model of amniote embryonic pallial domains. However, I never claimed to be able to falsify the new Watson-Puelles hypothesis but thought it worthwhile to communicate these arguments, which I will not repeat here.

What Puelles [2017] calls my “semantic” preoccupation was the second issue in my commentary and is only relevant in case the new hypothesis of Puelles [2017] is correct. I reject the statement that I ever wanted to stay with a tripartite model, in particular with one that is factually wrong. I always followed a quadripartite model (medial, dorsal, lateral, ventral pallium). In my newly suggested schema [Wullimann, 2017], I proposed that the previous ventral

pallium of the quadripartite model should be modified to include a spatially restricted ventral pallium plus newly the lateral pallium (i.e., olfactory pallium), while the old lateral pallium (identified now by Puelles [2017] as a claustrinsular complex) should be called the ventrolateral dorsal pallium in order to prevent confusion and contradiction with the globally accepted view that the lateral pallium is the olfactory pallium. Thus, I count not three but four or even five parts of the pallium, which correspond in nature, but not in name, to those proposed by Watson and Puelles [2017].

I still see no good argument for why the claustrinsular pallium should continue to be called the lateral pallium, because it does not include the olfactory cortex and clearly bears more affinity to the dorsal pallium (e.g., six-layered insular cortex) than to more ventral pallial regions. I was therefore glad to see a concession in the present paper to the effect that the lateral pallium of Puelles [2017] is now equated with the claustrinsular pallium and the ventral

pallium with the olfactory-amygdaloid pallium (their Fig. 3), with the latter, thus, newly including the true lateral (olfactory) pallium. As a compromise, I suggest using these clear descriptive names in the future. At the risk of being too “semantic”, I restate that historically grown names do matter and, thus, we should not redefine the lateral (olfactory) pallium and use the term in a completely new context.

References

- Puelles L (2017): Comments on the updated tetrapartite pallium model in the mouse and chick, featuring a homologous claustrinsular complex. *Brain Behav Evol* 90:171–189.
- Watson C, Puelles L (2017): Developmental gene expression in the mouse clarifies the organization of the claustrum and related endopiriform nuclei. *J Comp Neurol* 525:1499–1508.
- Wullimann MF (2017): Should we redefine the classic lateral pallium? *J Comp Neurol* 525:1509–1513.