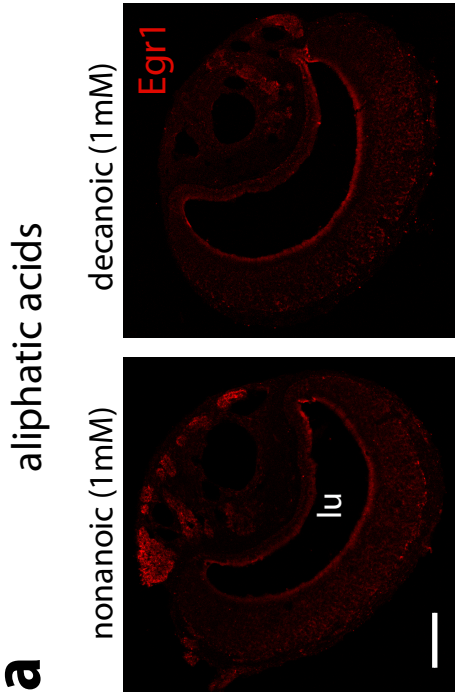
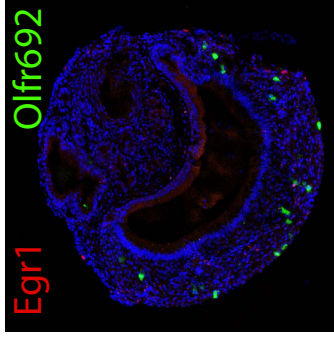


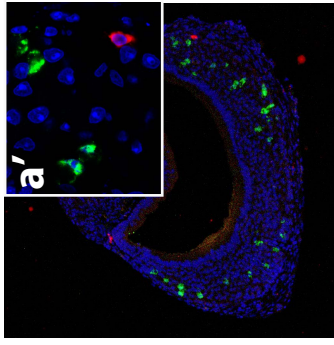
### a



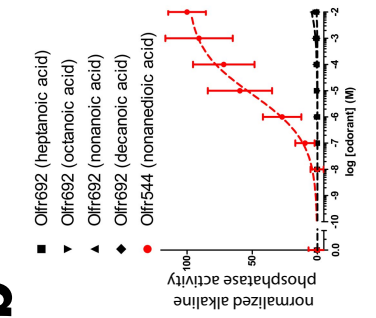
nonanoic (100mM)



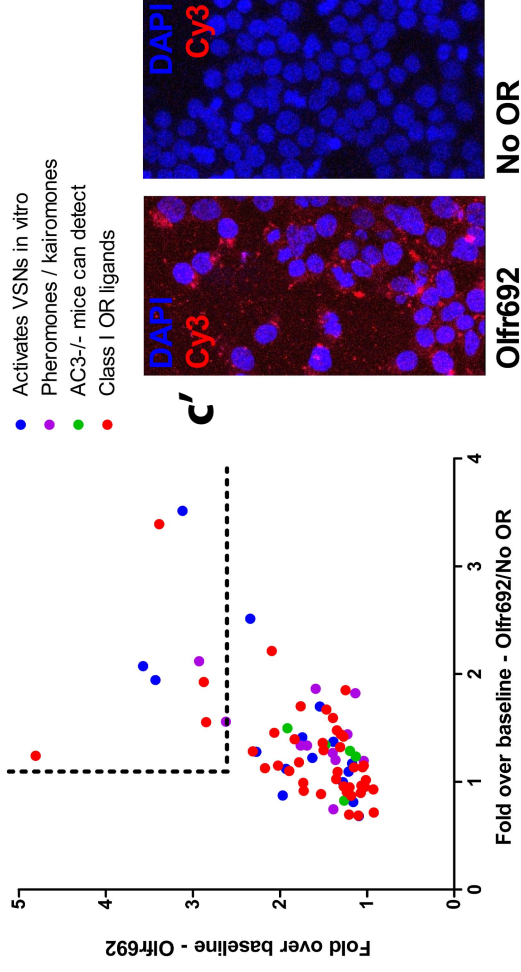
decanoic (100mM)



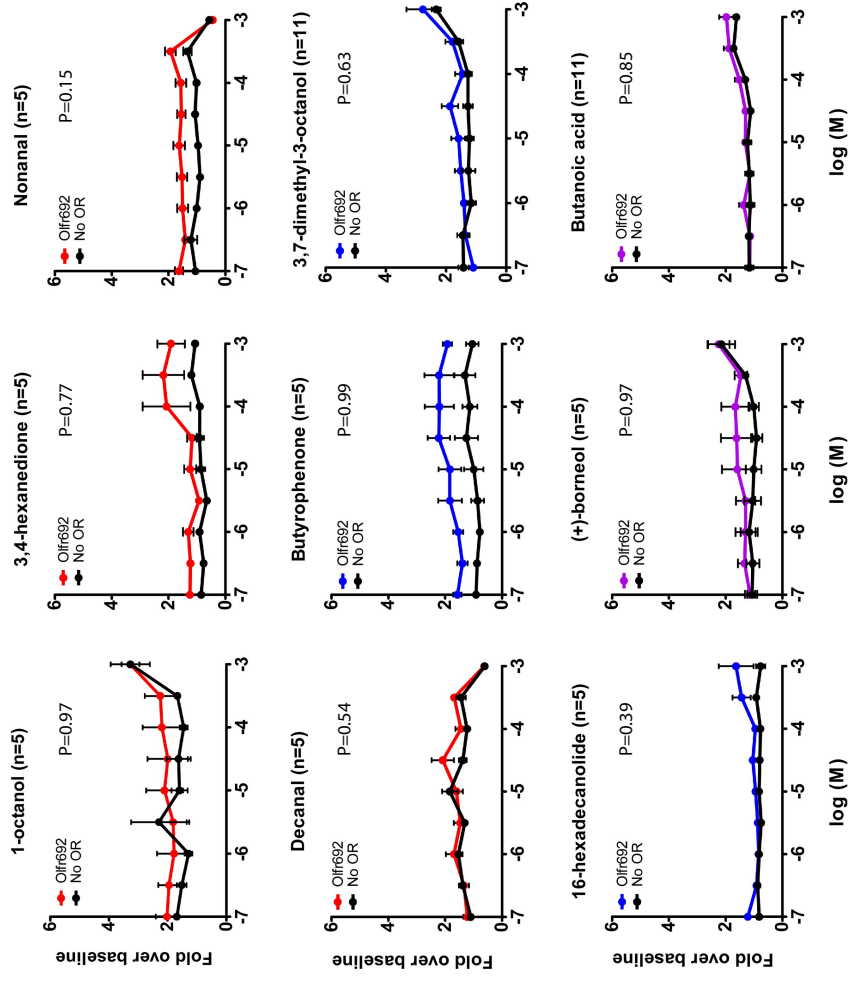
### b



### c



### d



### **Additional discussion on Figure S6.**

Class I ORs related to *Olf692* [2] have been shown to respond to short-chain aliphatic acids in heterologous cell assays [33, 49, 50]. However, in situ hybridization (ISH) for *Egr1* in **(a)** shows that nonanoic (C9) and decanoic (C10) acids presented to male C57BL/6 mice at 1 mM concentration (in mineral oil) do not activate the VNO sensory epithelium (absence of red fluorescence in the top row). On the other hand, when presented at 100 mM concentration to male C57BL/6 mice, these compounds result in a limited number of activated cells (middle row), but these do not overlap with the expression of *Olf692* (green fluorescence) in double fluorescent ISH experiments (higher magnification detail in **a'**). Octanoic (C8) acid does not activate the VNO at 100 mM (bottom row), nor does stearic acid (C18) (data not shown), similar to control *Egr1* staining in animals exposed to control odor (mineral oil).