Supplementary Figure 8  Verhagen et al.

Supplementary Figure 8. Schematic of the effects of sniff frequency on odor representations.

Glomeruli 2 and 3 are activated by odorant B during low-frequency (slow) sniffing, and glomeruli 1 and 2 by odorant A. Note that glomerulus 2 is activated by both odorants during slow sniffing. During high-frequency (rapid) sniffing while odorant A is present, the first sniff will evoke the same activation pattern, but subsequent sniff responses in glomeruli 1 and 2 will be attenuated. Upon the addition of odorant B during the rapid sniffing period, only glomerulus 3 (not previously attenuated by rapid sniffing) responds, evoking a difference map associated only with novel odorant features (e.g., new chemical functional groups). When the animal returns to slow sniffing, all three glomeruli will respond, evoking an additive map associated with the entire olfactory scene. This adaptive filtering allows the animal to detect newly-encountered odorant features and separate them from background features during rapid sniffing, but sample the entire olfactory scene as one coherent stimulus during slow sniffing.