Supplementary Movie 1: Imaging GCs labeled with dTomato (and GCaMP3, not visualized here) using multiphoton microscopy. A stack of 400 optical sections (1 μm steps) starting at ~40 μm from the surface going up to ~440 μm deep. Apical dendrites with spines appear in the early part of the movie, with deeper sections revealing GC somata. Field of view is approximately 300 μm X 300 μm.

Supplementary Movie 2: Movie showing the response of GCs to ethyl tiglate. Initial frames show resting fluorescence in gray scale, followed by relative changes in fluorescence (ΔF) color-coded such that greater increases are represented by redder colors. Duration of odor presentation is shown by red dot at top right, and the time is indicated at bottom right with 0 s corresponding to onset of odor stimulus. The reddest colors correspond to around 25% change in fluorescence from rest. Field of view is 300 μm x 300 μm.

Supplementary Movie 3: Movie showing the response of GCs to ethyl tiglate in the presence of bicuculline applied to the surface of the olfactory bulb (see Methods). Initial frames show resting fluorescence in gray scale, followed by relative changes in fluorescence (ΔF) color-coded such that greater increases are represented by redder colors. Duration of odor presentation is shown by red dot at top right, and the time is indicated at bottom right with 0 s corresponding to onset of odor stimulus. The reddest colors correspond to around 25% change in fluorescence from rest. Field of view is 300 μm x 300 μm.

Supplementary Movie 4: Movie showing the response of apical dendrites of GCs to ethyl tiglate. Initial frames show resting fluorescence in gray scale, followed by relative changes in fluorescence (ΔF) color-coded such that greater increases are represented by redder colors. Duration of odor presentation is shown by red dot at top right, and the time is indicated at

bottom right with 0 s corresponding to onset of odor stimulus. Note that most responses appear as small puncta because of the nature of optical sectioning. The reddest colors correspond to around 25% change in fluorescence from rest. Field of view is 150 μm x 150 μm.