



**Extended data Figure 2-4. An example  $\Delta C_i$  response with strong adaptation.**

Raster and PSTH plots of M/T cell response to static high concentration (orange), static low concentration (blue), and low to high (black). Bar graph on right shows peak response amplitudes on the third sniff cycle for each stimulus. Error bars indicate standard deviation. This example illustrates the importance of comparing the same sniff cycle after stimulus onset. The response to H adapts strongly, such that the 3<sup>rd</sup> sniff cycle response is significantly lower than the 1<sup>st</sup> sniff response. Even though the 3<sup>rd</sup> sniff response to LH is also lower than the 1<sup>st</sup> sniff response to H, it is significantly larger than the 3<sup>rd</sup> sniff response to H. Thus, it still contains information about change and by our definition is a  $\Delta C_i$  response.