Image preprocessing:

Calcium images were extracted using imaris (Erli). Calcium oscillations were first preprocessed to remove effect of photobleaching. This was done by automatically selected peak of oscillations and fitting a linear regression line to the peaks. Assuming that calcium intensity should stay the same across oscillations, we conclude this trend is due to photobleaching and subtract the entire calcium file by this linear trend line. (Code: *detrend\_photobleaching.m*)

Network Hub Cell Analysis:

PKa and control conditions were split and threshold was chosen as mean optimal threshold.

Hub cell consistency across oscillations:

In this analysis, we look at the consistency of highly synchronized cells across oscillations. It is important to note that these ‘hub’ cells are not the same as the traditional ‘hubs’ because they are defined on only one oscillation.

Threshold was calculated using the automated scale-free-like search, first described in Briggs et al. 2023. The Optimal Threshold was calculated for each oscillation and the average threshold was used. Due to the strong difference in intra-cellular correlation between control and PKa, we calculated the optimal threshold for each condition.