

## Abstract View

### ARE SPIKE BURSTS AND PSEUDO-BURSTS IN THE LATERAL GENICULATE NUCLEUS (LGN) RELATED TO BEHAVIORAL EVENTS?

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Spike bursts and pseudo-bursts are thought to be important indicators of thalamic excitability and of an animal's overall level of arousal (Swadlow and Gusev, 2001). Sherman (2001) has suggested that bursting in the LGN is an alternative mode of firing, separate and distinct from 'tonic' mode, and that bursting may be used as a "wake up" call to direct attention to relevant stimuli. In this study we examined the presence of bursts and pseudo-bursts under three behavioral conditions. Single LGN cells were recorded while monkeys made visually-guided saccades to a target presented in the LGN cell's receptive field (RF), to a target presented outside the LGN cell's RF, or to one of two targets, equidistant from the fixation point, presented inside and outside the LGN cell's RF. Bursts were defined as a series of spikes having interspike intervals of 4 ms or less preceded by a period of silence lasting at least 100 ms. Pseudo-bursts were defined as at least 2 spikes separated by 4 ms or less following at least one spike in the preceding 100 ms. Bursts and pseudo-bursts were observed in 100% of cells and in 100% of the behavioral conditions, and were seen in all three LGN relay cell classes. Mean number of bursts and pseudo-bursts did not vary significantly with either fixations or saccades across conditions. In spite of the fact that LGN relay cells burst in the awake state, bursting appears to be linked less to behavioral conditions than to the animal's level of arousal, at least under conditions where stimuli and task demands are routine.

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