Cell-type specific entrainment during rhythmic visual flicker stimulation

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Conclusions

- Rhythmic visual stimulation in the gamma frequency range preferentially recruits fast-spiking interneurons in V1.
- Slower visual flicker stimulation recruits both excitatory and inhibitory neurons.
- 40Hz visual rhythmic stimulation primarily recruits, both, PV and Sst interneurons.
- Gamma-phase locking does not propagate to the superficial layers of V1.
- No evidence of entrainment of cells in higher brain regions such as the hippocampus.
- Synaptically stimulating computational models of PV and Pyramidal cells with inhomogeneous Poisson spike trains produces similar results to experimental observations.

→ Low-pass filtering properties of pyramidal cells prevent the propagation of high-frequency oscillations throughout the cortex.

References

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