FREELY MOVING ELECTROPHYSIOLOGY

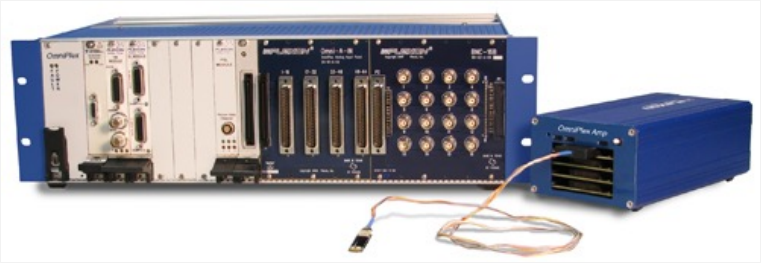
PHARMACOLOGY & OPTOGENETICS

In vivo brain Electrophysiology

neuroservices ALLIANCE X OptoPath™

OptoPath™ Facility and Skills

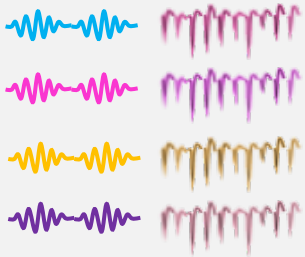
5 Recording systems

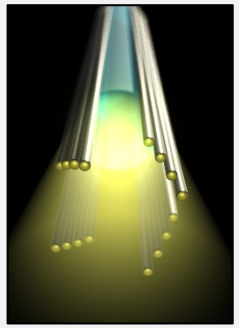


128 Channels - Dedicated Space

Surface Electrodes
EEG-ECoG

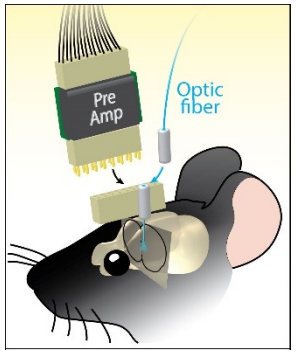
Deep Electrodes
LFP & Single Units



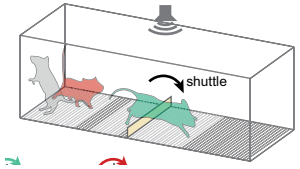


Electrodes, Tetrodes, Polytrodes, Optrodes

Freely moving Electrophysiology

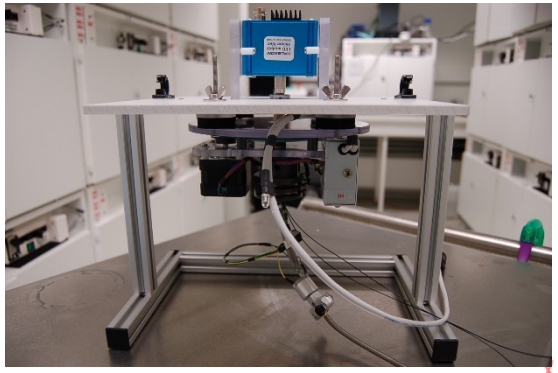


Pavlovian Conditioning



Avoidance Paradigm

Pharmacology & Optogenetic coupling



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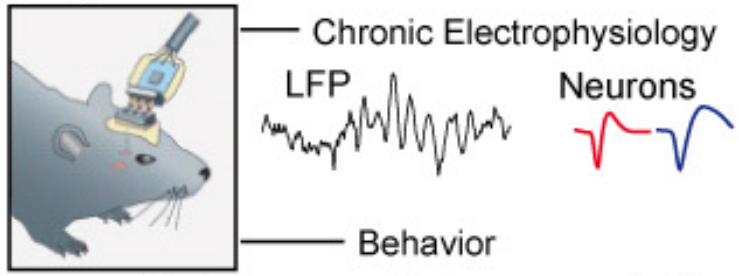
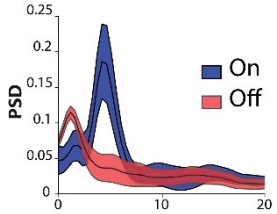
EEG/ECoG/LFP



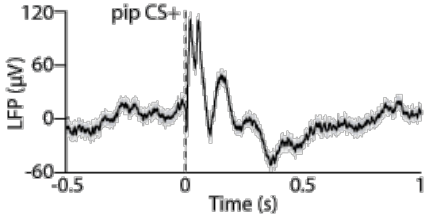
SINGLE UNITS

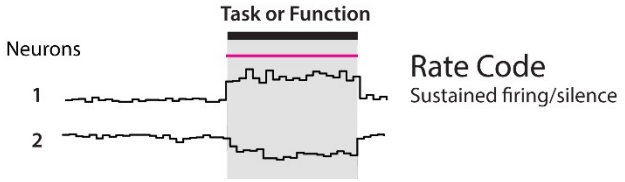
Static Approach

Power Spectrum



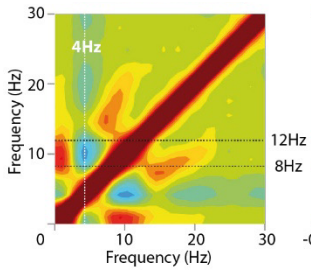
Evoked Potentials



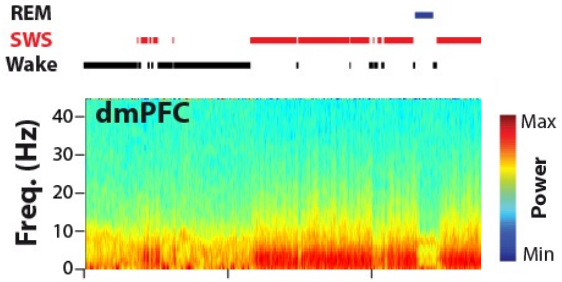


Dynamic Approach

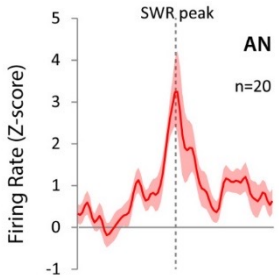
Synchronization

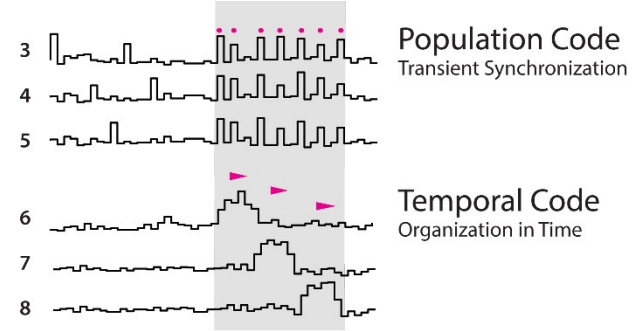


Brain states



Neuron-LFP Coupling





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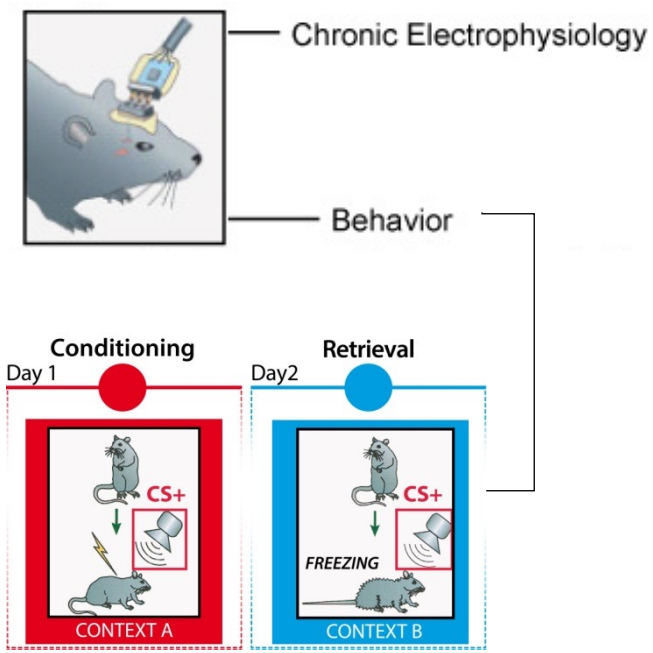
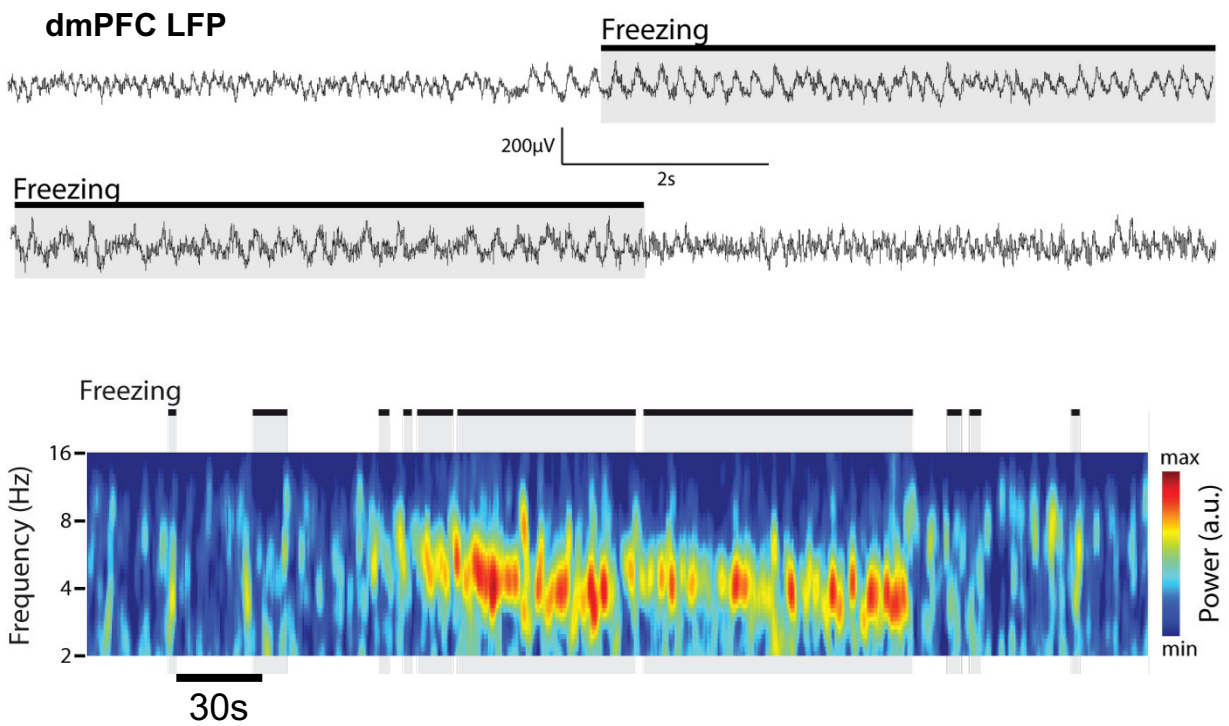
4Hz: a Biomarker of Fear

MODEL

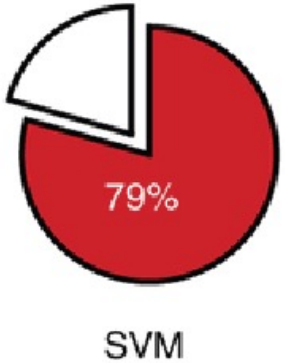


OSCILLATIONS & FREEZING



Karalis … Herry 2016 Nature Neuroscience

MARKER



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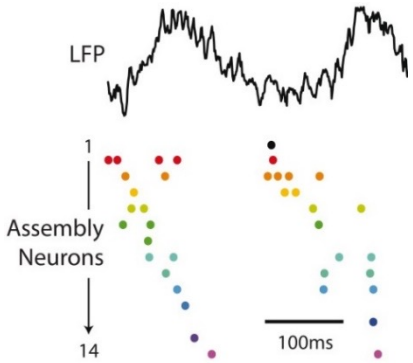
4Hz: Manipulating fear

4 Hz
=
LFP Marker



4 Hz ascending phase
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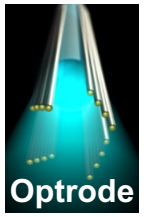
Neuronal Coding Marker

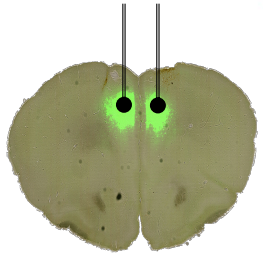
Dejean… Herry 2016 Nature

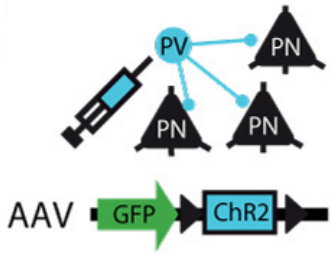
TECHNIQUE



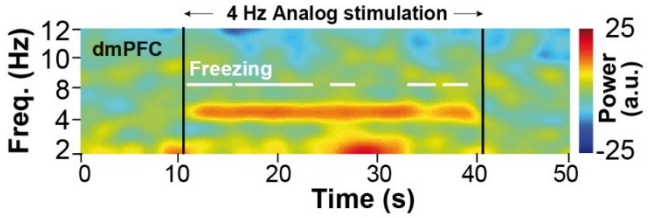
Or

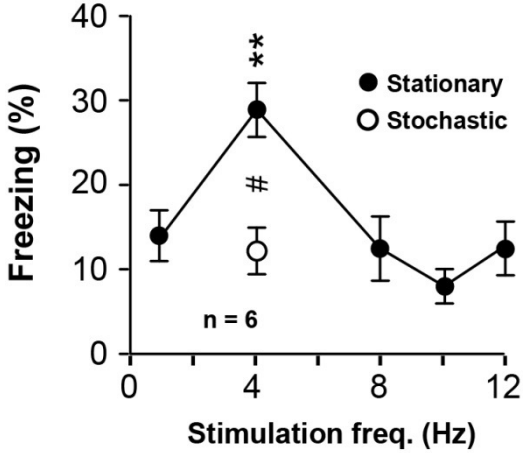
Electrical DBS electrode





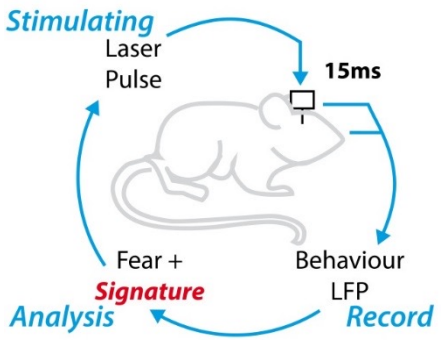
MIMICK

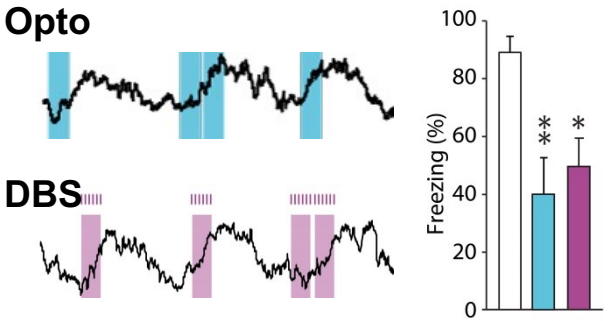




Karalis … Herry 2016 Nature Neuroscience

COUNTERACT





Dejean, Herry, Patent

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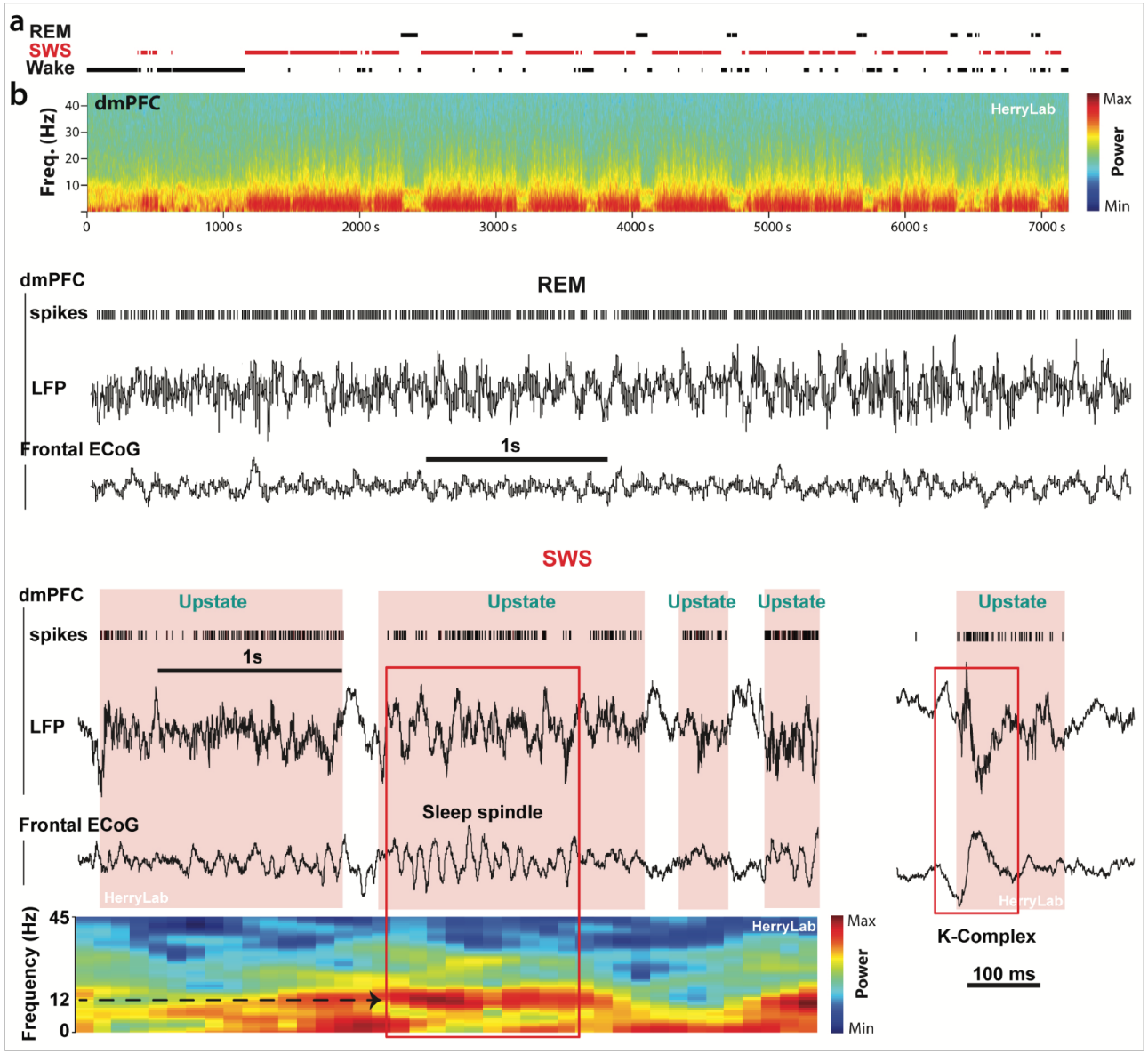
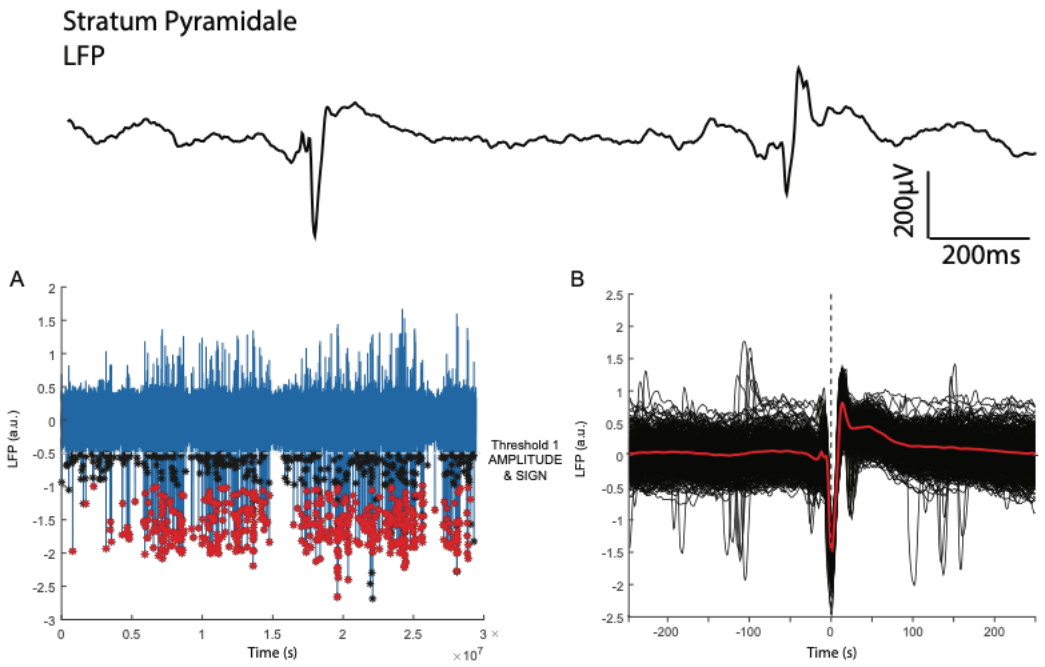
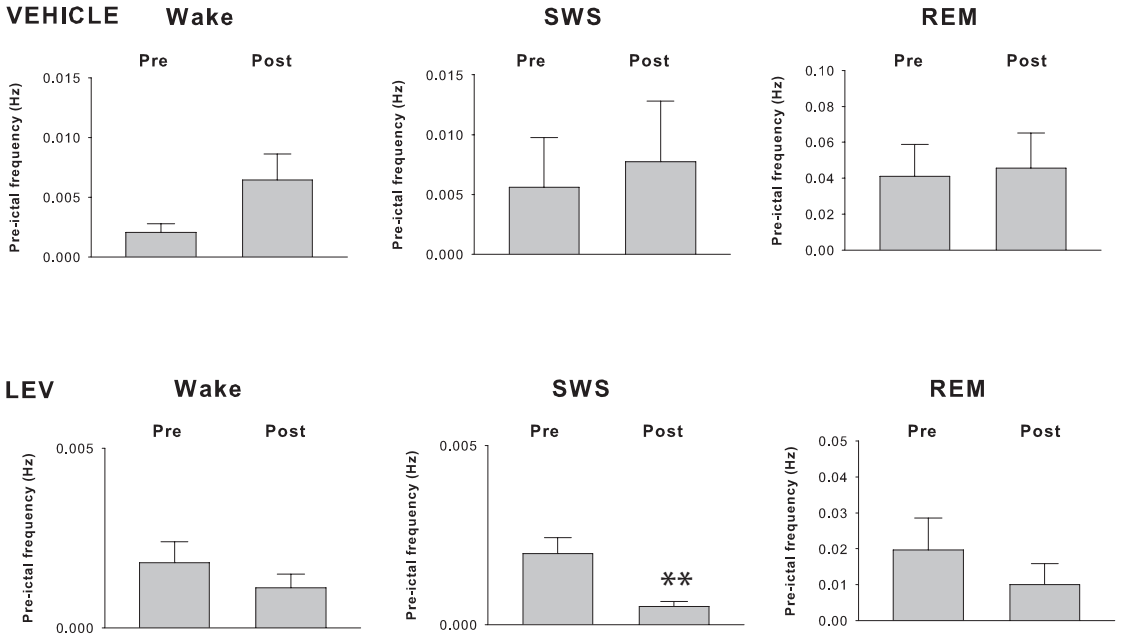
Spindle recordings during SWS



Pre-Ictal spikes analyses during SWS





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