

Discovery Research

ElectroEncephaloGraphy (EEG) Capabilities



Discovery Research
Suven Life Sciences Ltd
Serene Chambers, Road-5, Avenue-7, Banjara Hills,
Hyderabad-500034, India.
Contacts: info@suven.com, nvsrk@suven.com

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EEG in Rodents

Overview



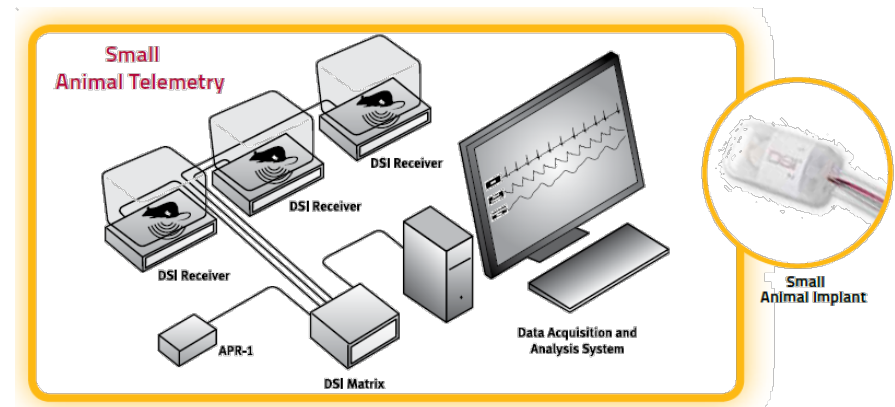
Infrastructure

- ✓ Telemetry Systems with Implantable Telemetry- Data Sciences International (DSI)
- ✓ Acquisition Platform- Ponemah
- ✓ Data Analysis Software- NeuroScore v3.2.1 with **automated sleep scoring, seizure detection and video synchronization**
- ✓ Grass S88 stimulator for stimulating specific regions of brain in anesthetized animals



Evaluations

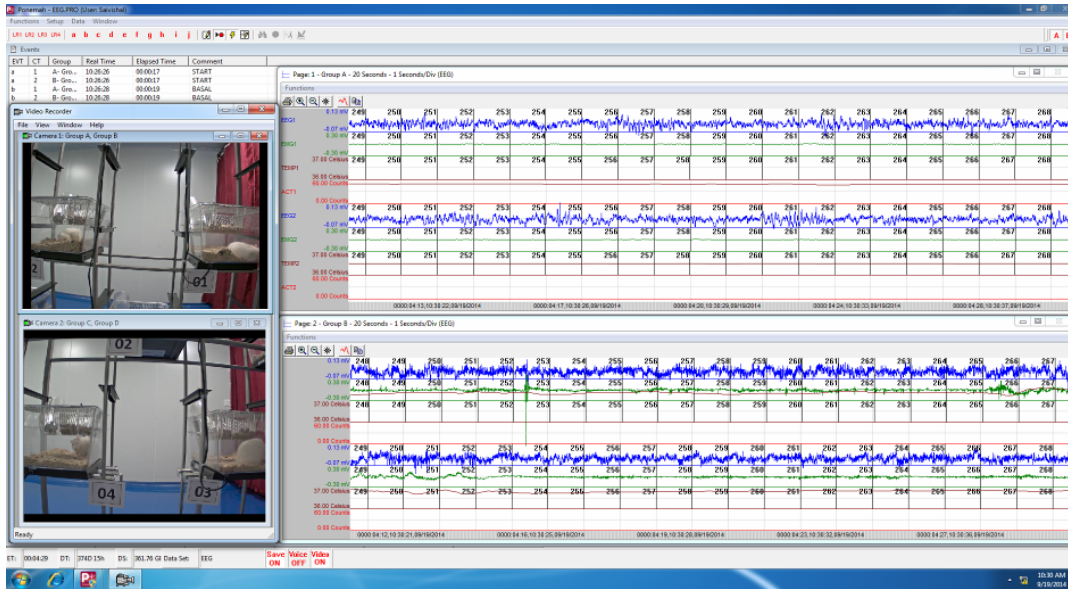
- ✓ Sleep/ wake activity
- ✓ Temperature and wake promoting activity
- ✓ Total EEG power
- ✓ Power analysis in frequency bands
- ✓ Seizure evaluation potential assessment
- ✓ Assessment of cognitive biomarkers (Theta and Gamma Activity)
- ✓ Simultaneous power analysis in animal performing behavioral task
- ✓ Orexin-SAP induced chemical lesion model for narcolepsy





EEG in Rodents

Overview: Multi-Channel Recording using Telemetry



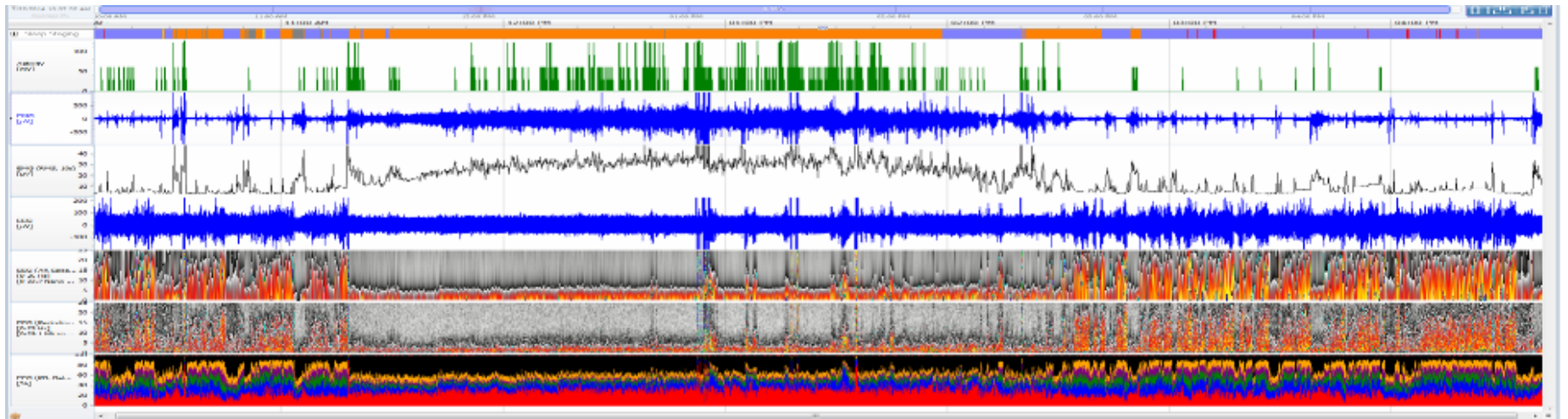
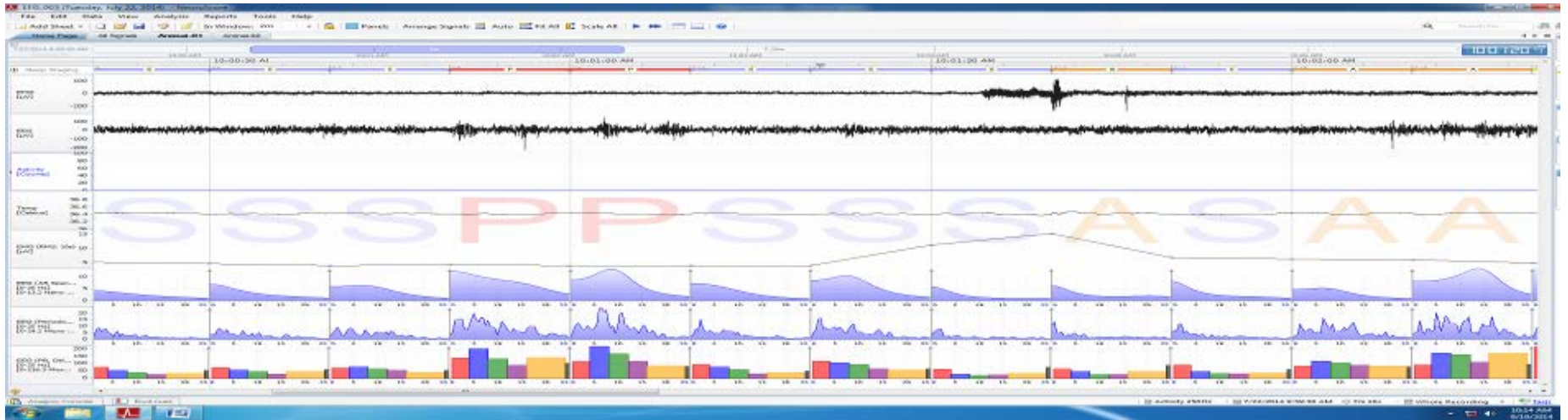
Neuroscience
EEG, EMG, Video,
Activity and
Temperature

Data Acquisition Coupled with Behavioral Monitoring



EEG in Rodents

Overview: Sleep Analysis using NeuroScore

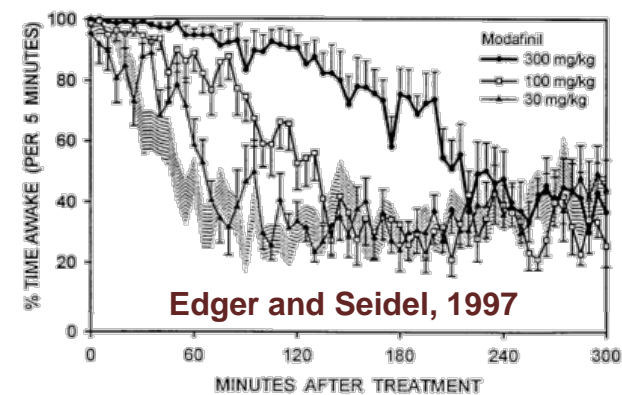
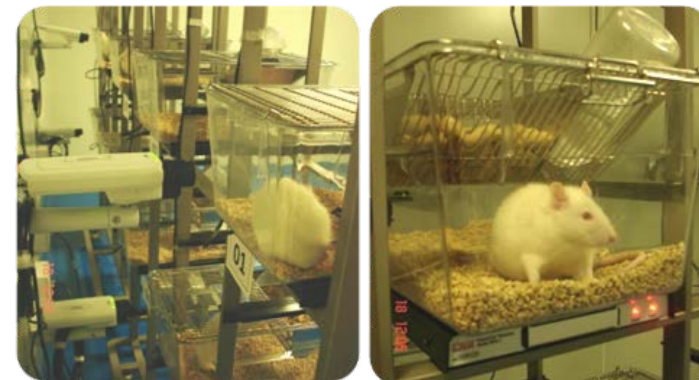
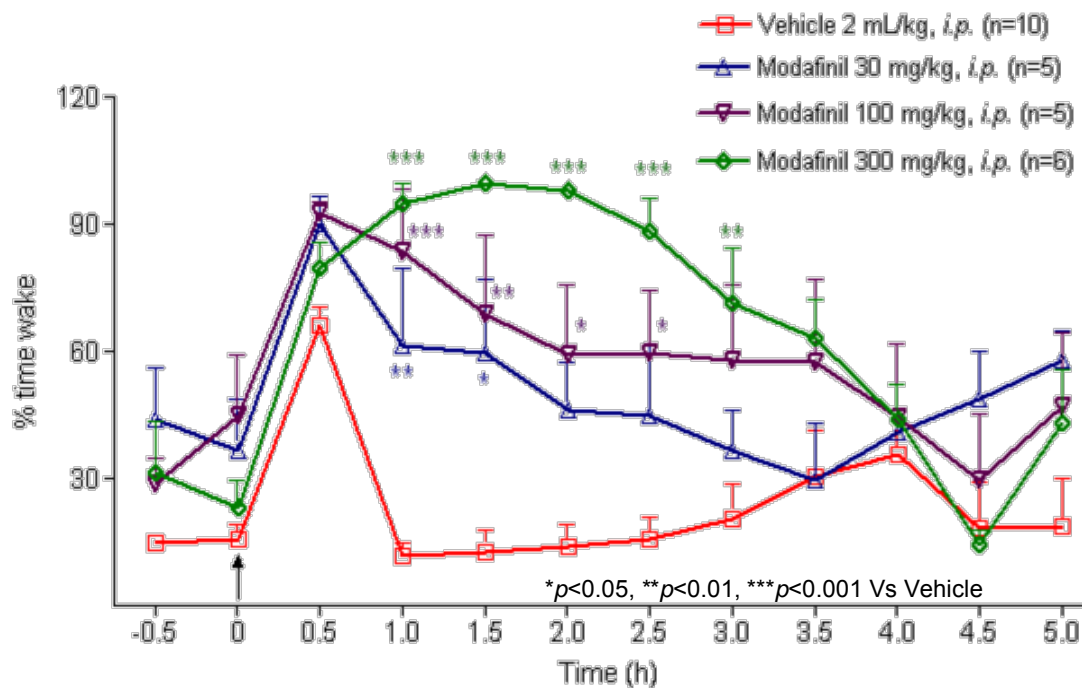


EEG in Rodents

Sleep/Wake Profile in Rats: Modafinil



Results Generated at Suven

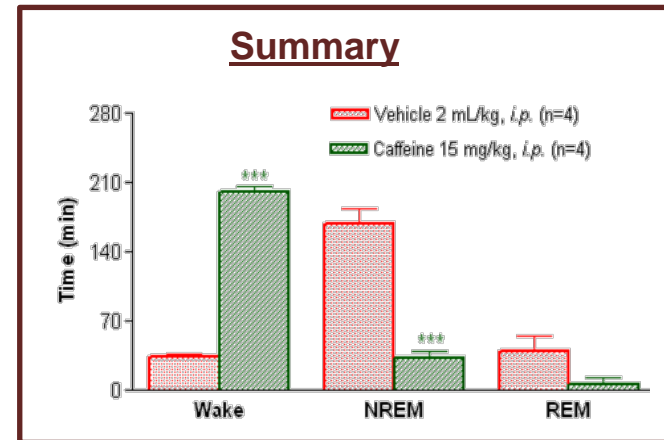
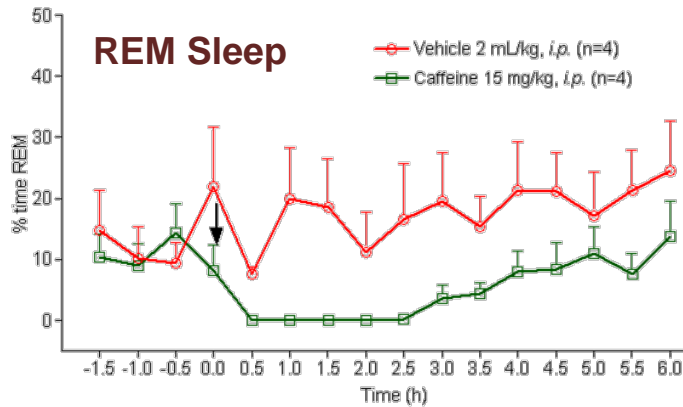
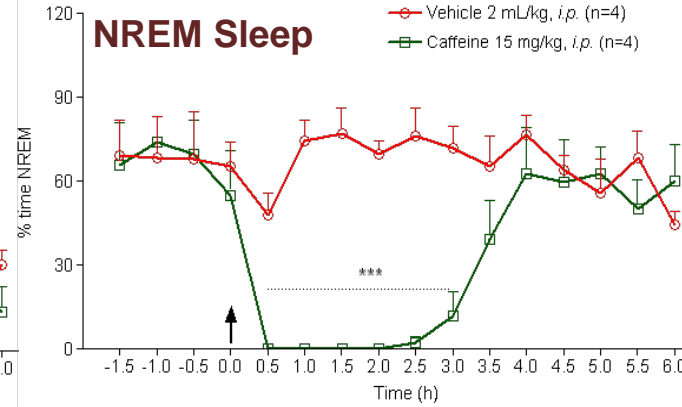
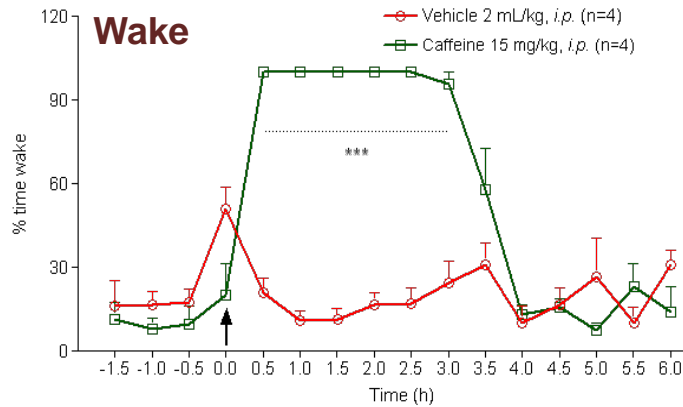


Results Generated at Suven are Comparable to Literature Report



EEG in Rodents

Sleep/Wake Profile in Rats: Caffeine



Caffeine Produced Significant Increase in Wakefulness with Significant Decrease in Slow Wave Sleep

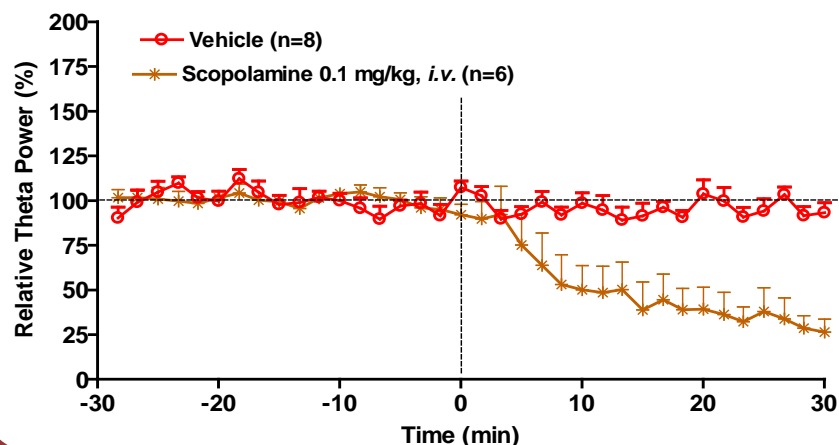
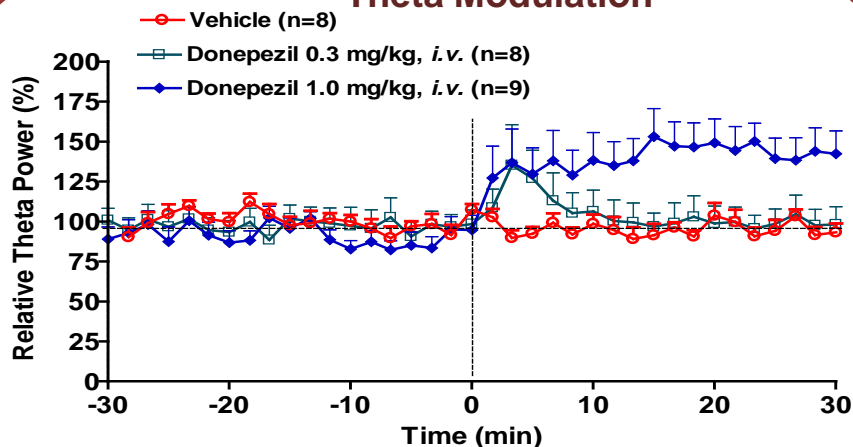
***p < 0.001 Vs vehicle

EEG in Rodents

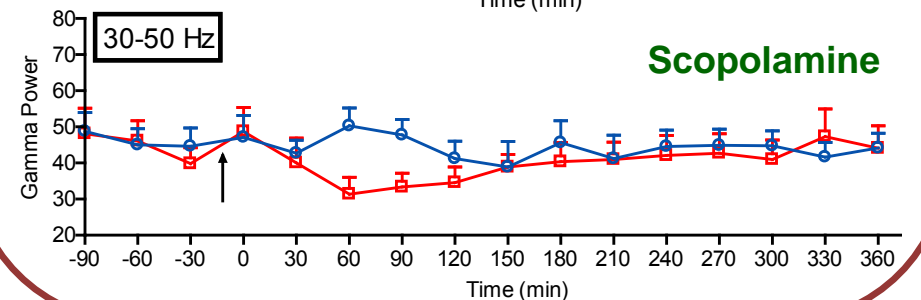
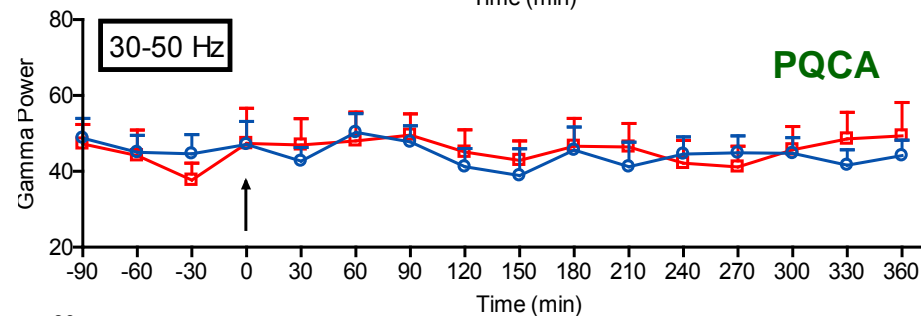
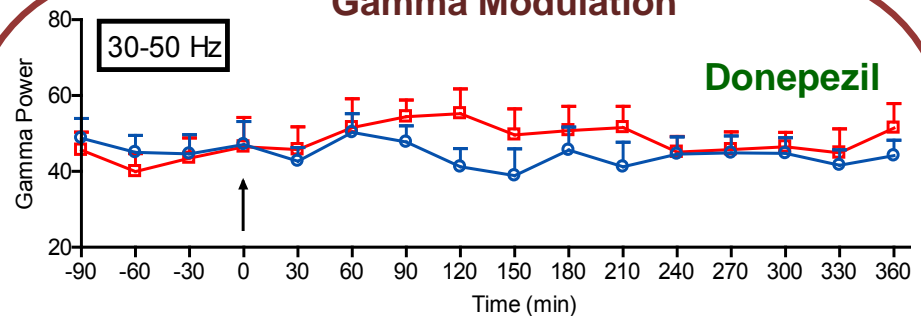
Cognitive Biomarkers in Rats



Theta Modulation



Gamma Modulation



Quantitative EEG can be effectively used as a tool for monitoring efficacy of cognitive enhancers

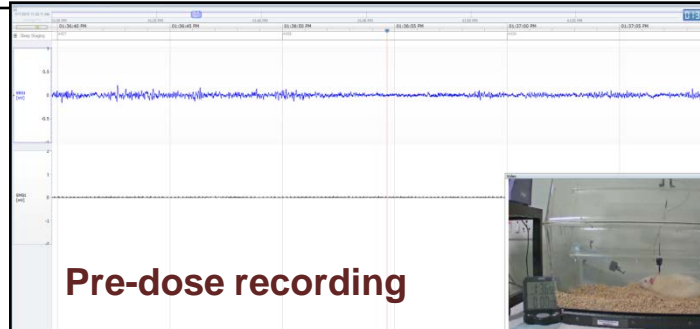
Treatments are indicated as open circle (vehicle) and open square (donepezil, PQCA or scopolamine) for gamma modulation.



EEG in Rodents

Evaluation of Seizure Inducing Potential

PTZ



Myoclonic Jerks

Clonic Convulsions

Tonic Convulsions

Seizure Summary

Total Number of Spike Trains:	5
Total Spike Train Duration:	0.2 minutes or 0.7 % of recording time
Average Spike Train Duration:	2.7 seconds
Longest Spike Train Duration:	7.1 seconds
Shortest Spike Train Duration:	1.1 seconds
Average Number of Spikes per Train:	10.6

EEG recording can evaluate the seizure inducing potential of test compound

Contacts



Venkat Jasti

Chairman & CEO

E-mail: info@suven.com

Ramakrishna Nirogi

Vice President, Discovery Research

E-mail: nvsrk@suven.com