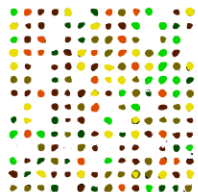




Impairment of Hippocampal Oscillatory Activity in Early Epileptogenesis

Alberto E. Musto, MD. PhD., Tabitha M. Quebedeaux, Chris Holdgraf, Carmen Canavier PhD. and Nicolas G. Bazan MD. PhD.

Neuroscience Center of Excellence, LSUHSC, New Orleans, LA. USA.



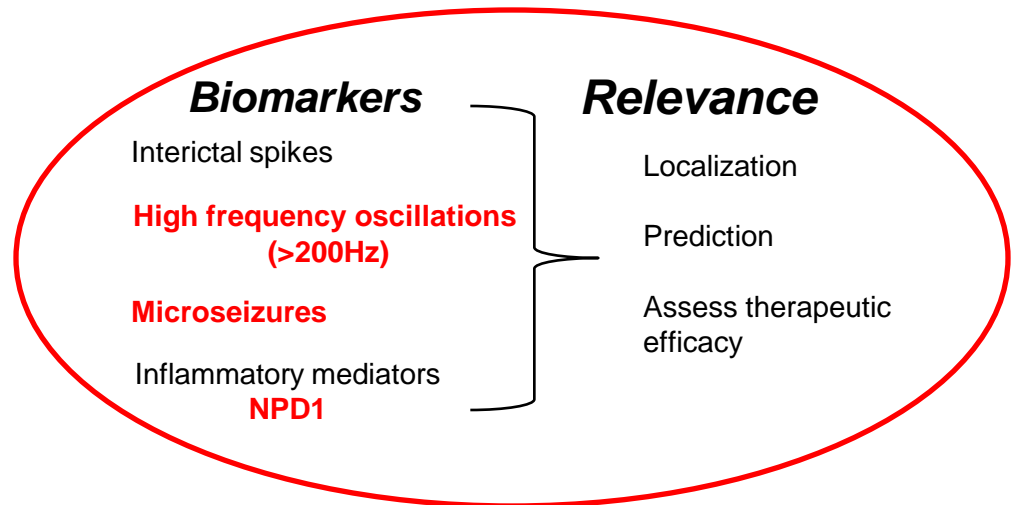
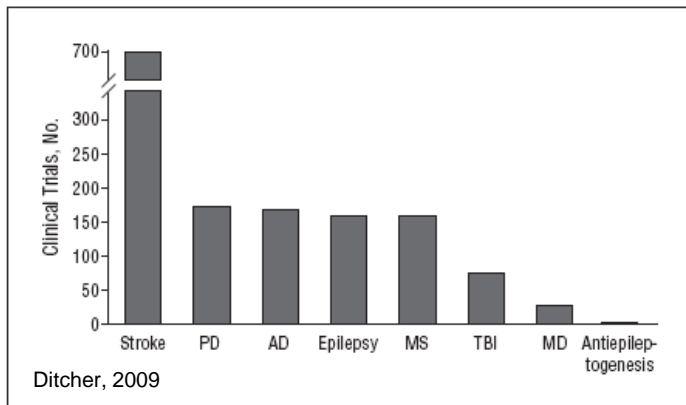
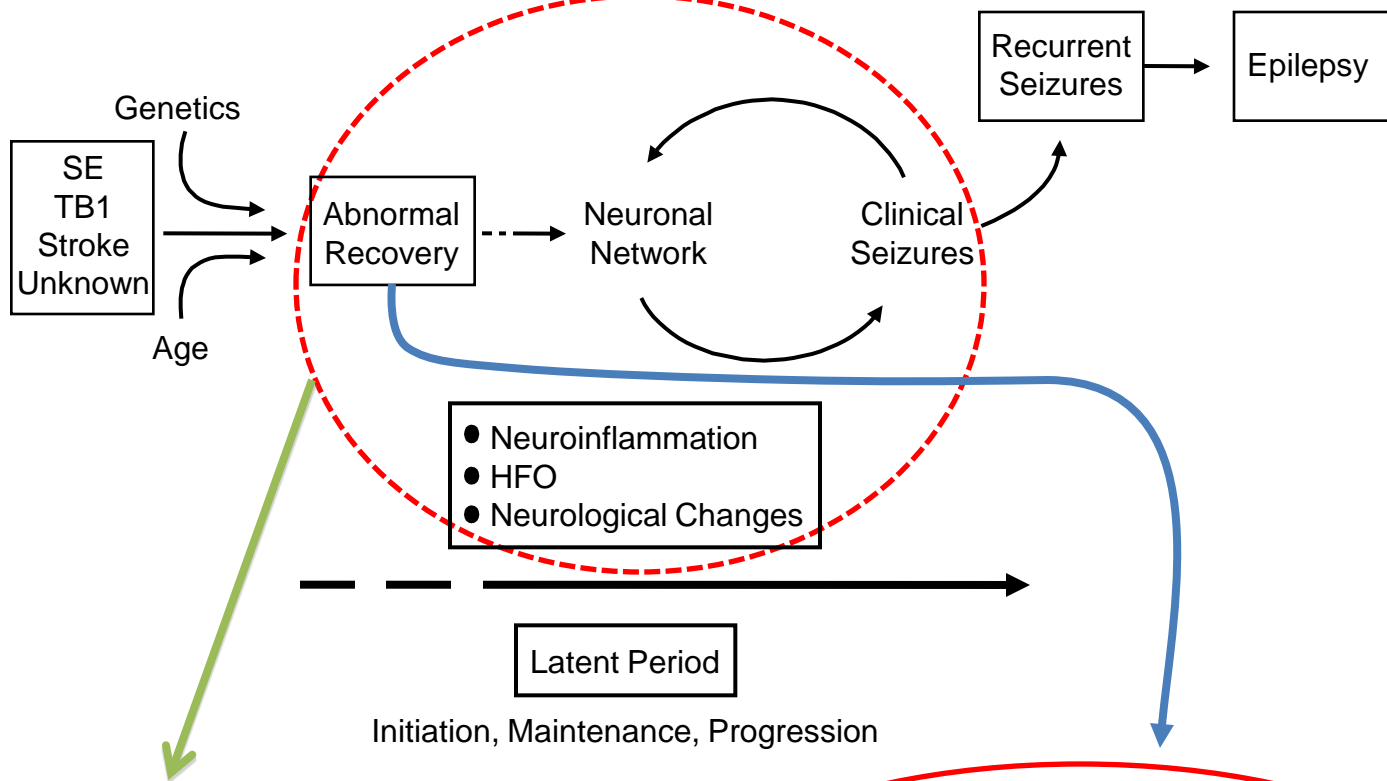
**2009
Southeast IDeA
Regional Meeting**

<http://www.scepscoridea.org/SoutheastIDeAMeeting>

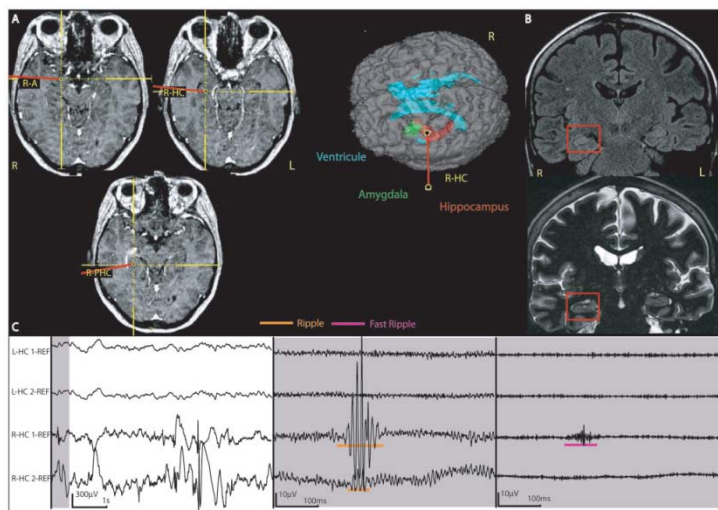
Charleston, SC 2009

Background

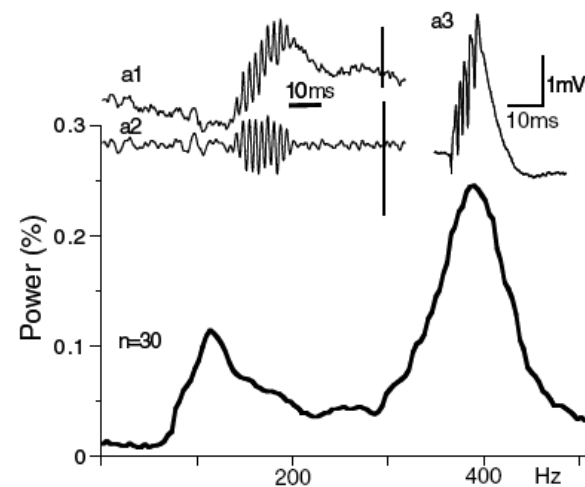
Basic Concept of Epileptogenesis



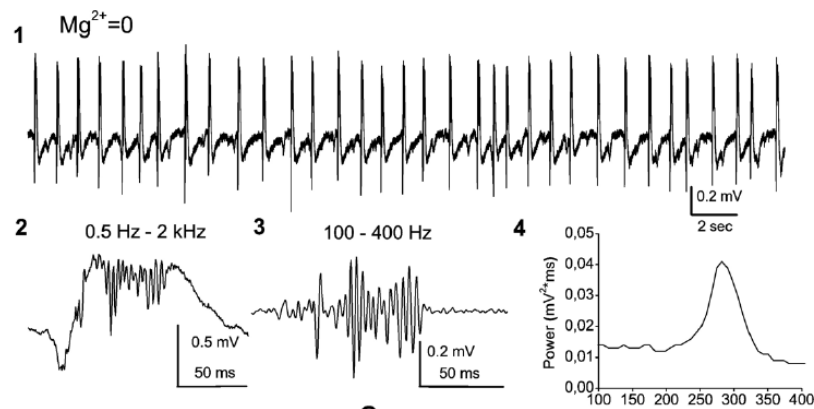
High Frequency Oscillation (HFO) in Epilepsy



Jacobs, 2009



Bragin, 2004



Moschovos, 2008

Oscillatory Activity in Epileptogenesis

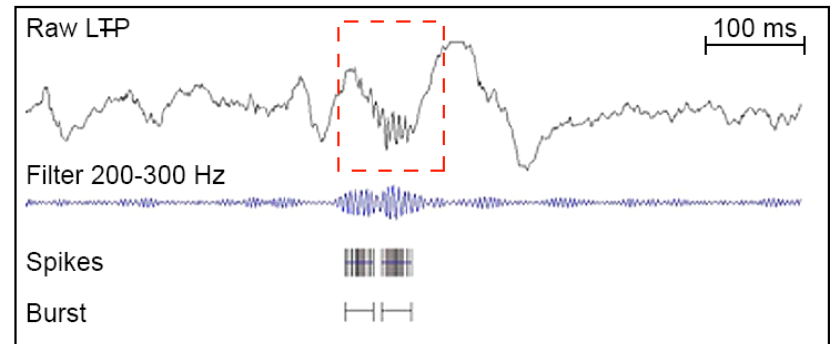
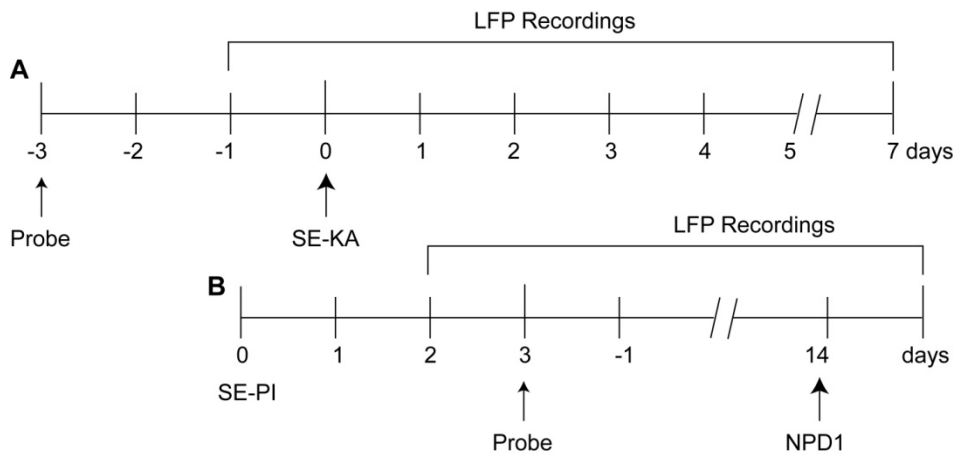
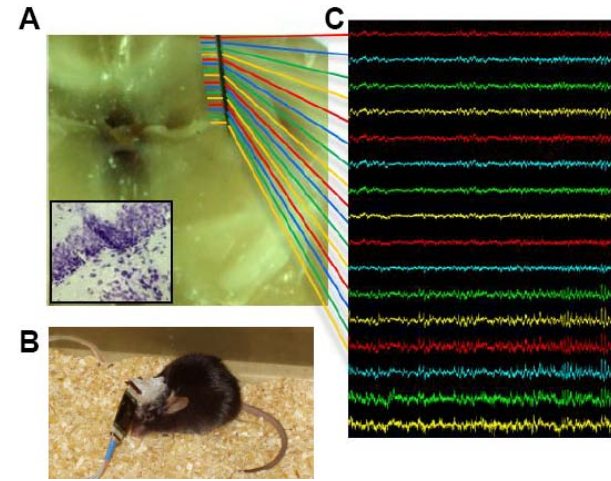
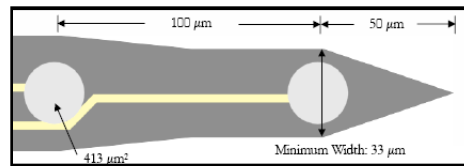
Objectives:

HFO

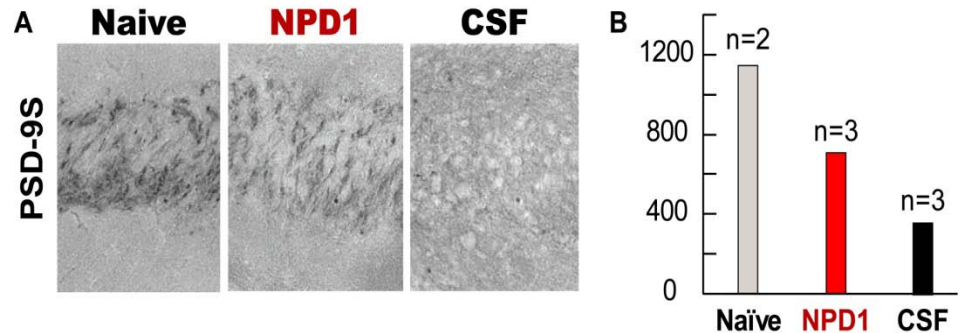
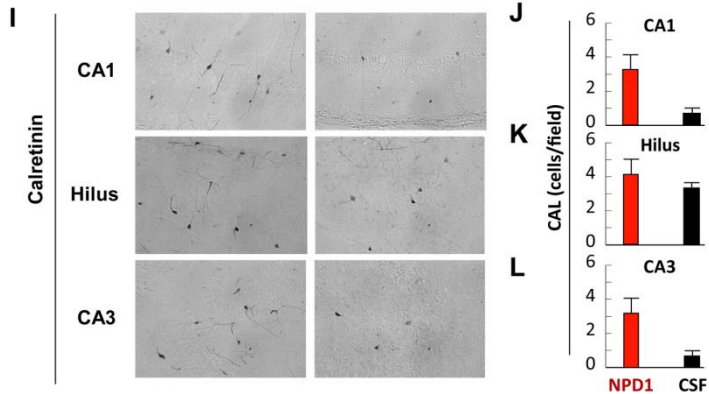
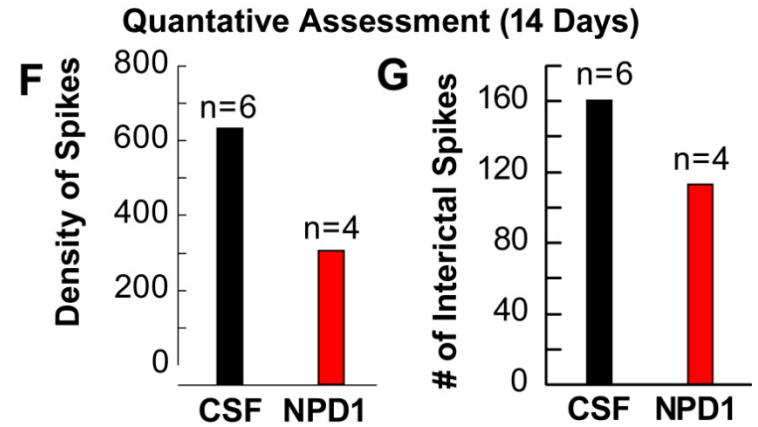
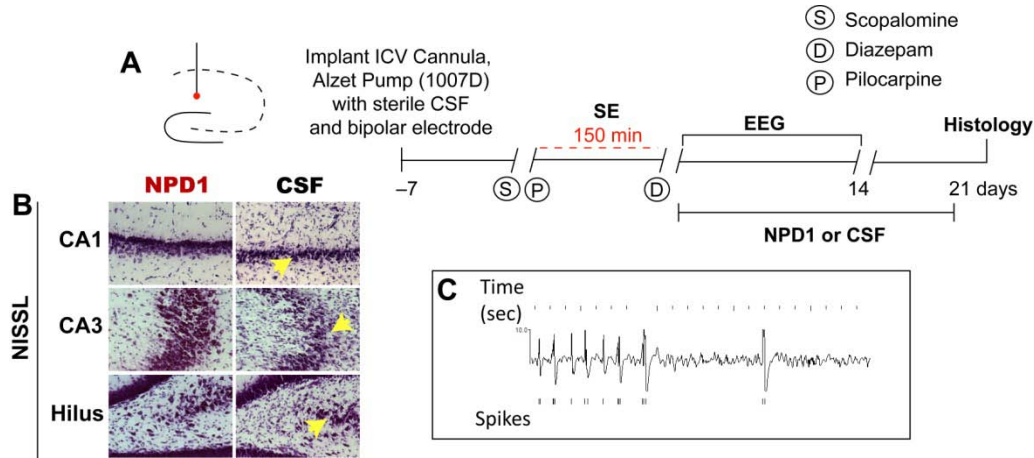
Microseizures

Modulation of HFO

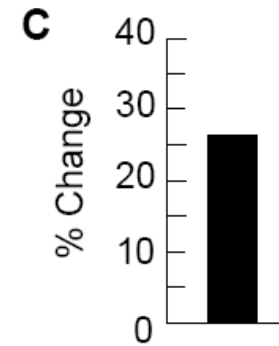
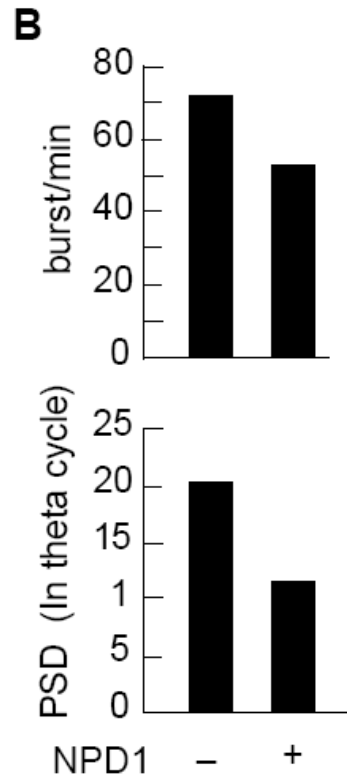
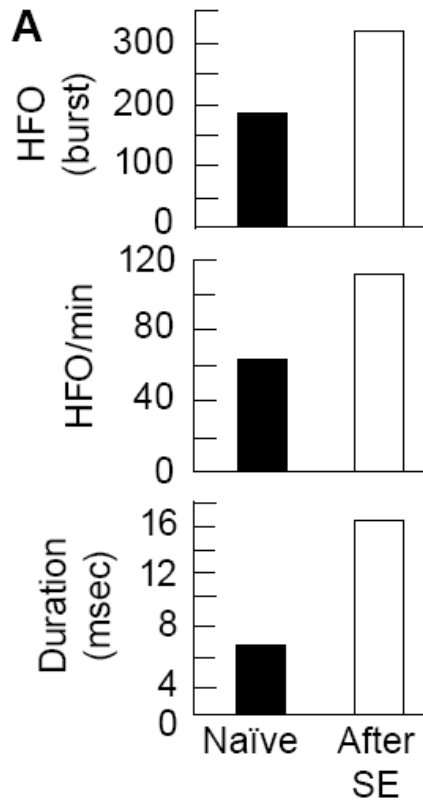
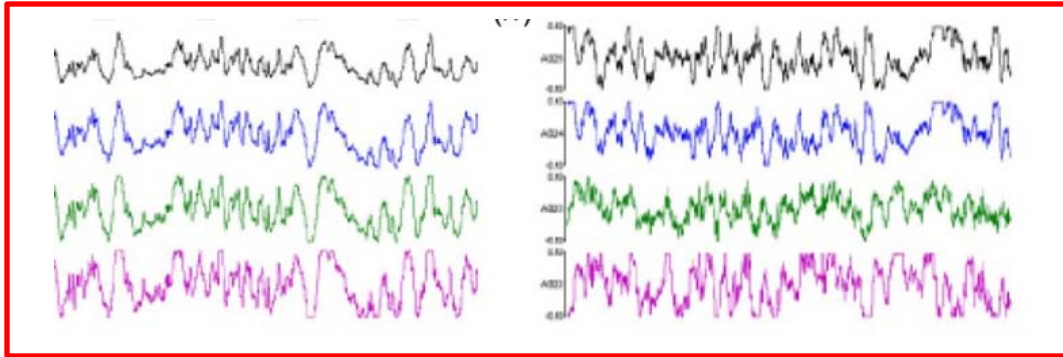
Experimental design



NPD1 Limits Seizure-Induced Damage



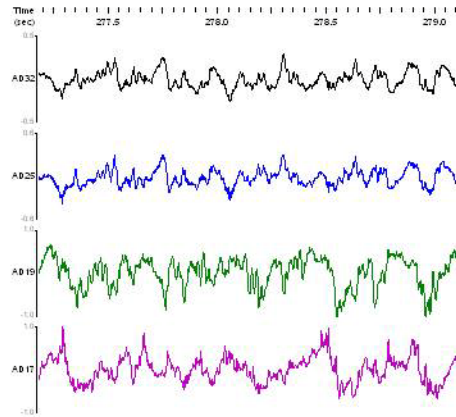
NPD1 Limits HFO in Epileptogenesis



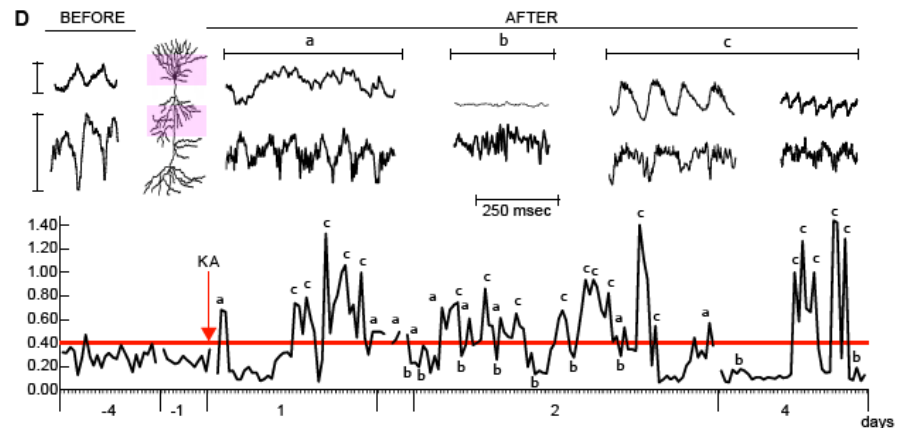
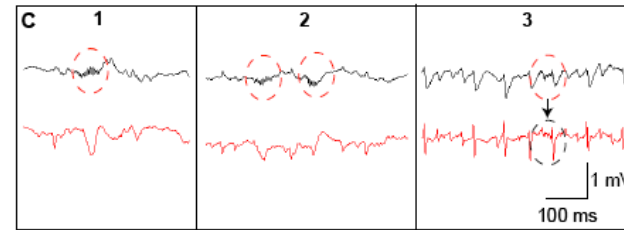
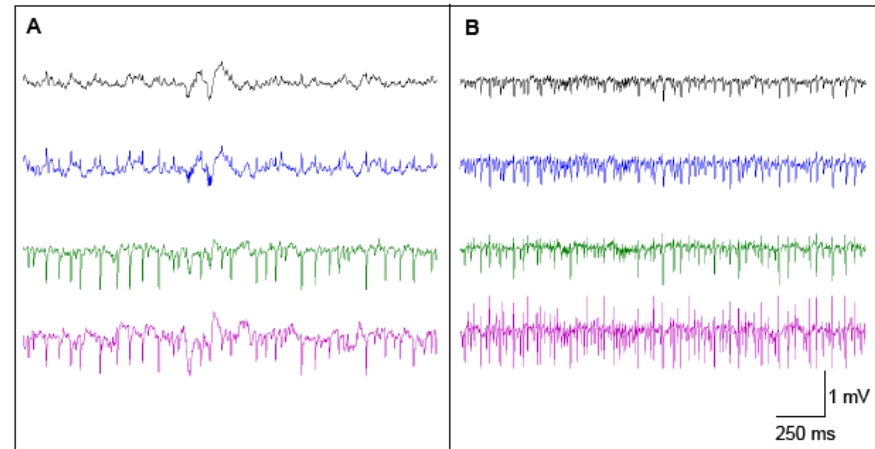
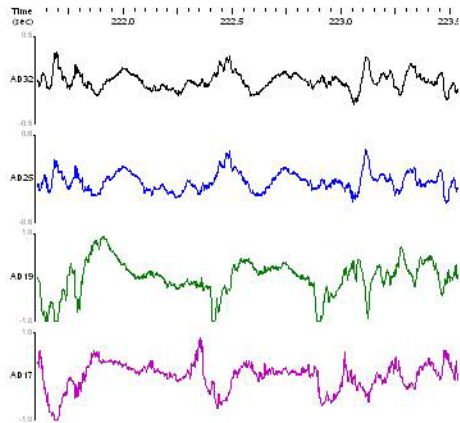
Disruption of Voltage-depth Profile

Control

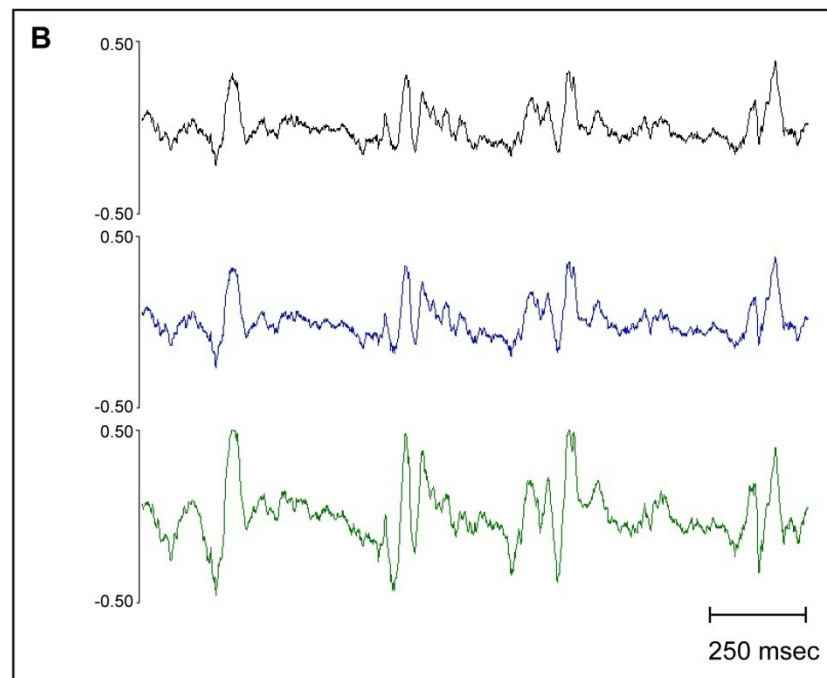
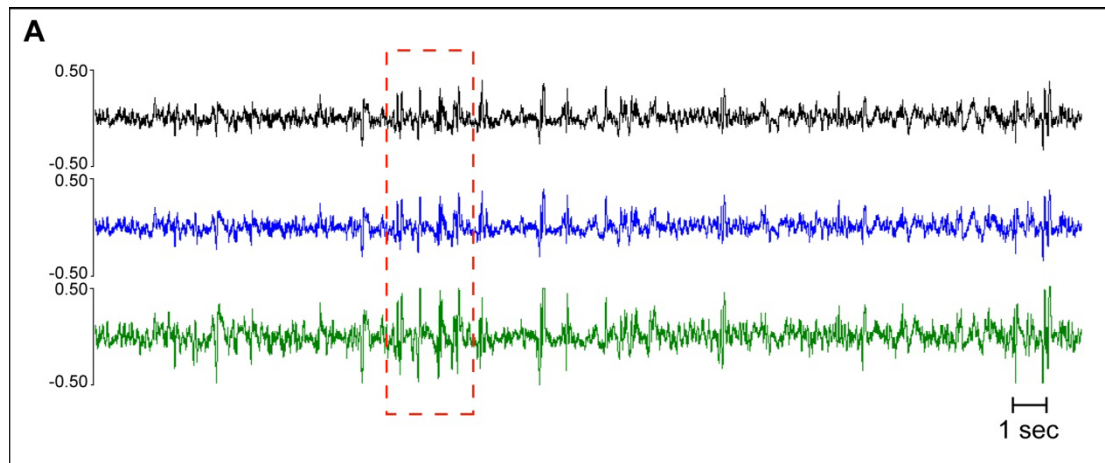
Awake



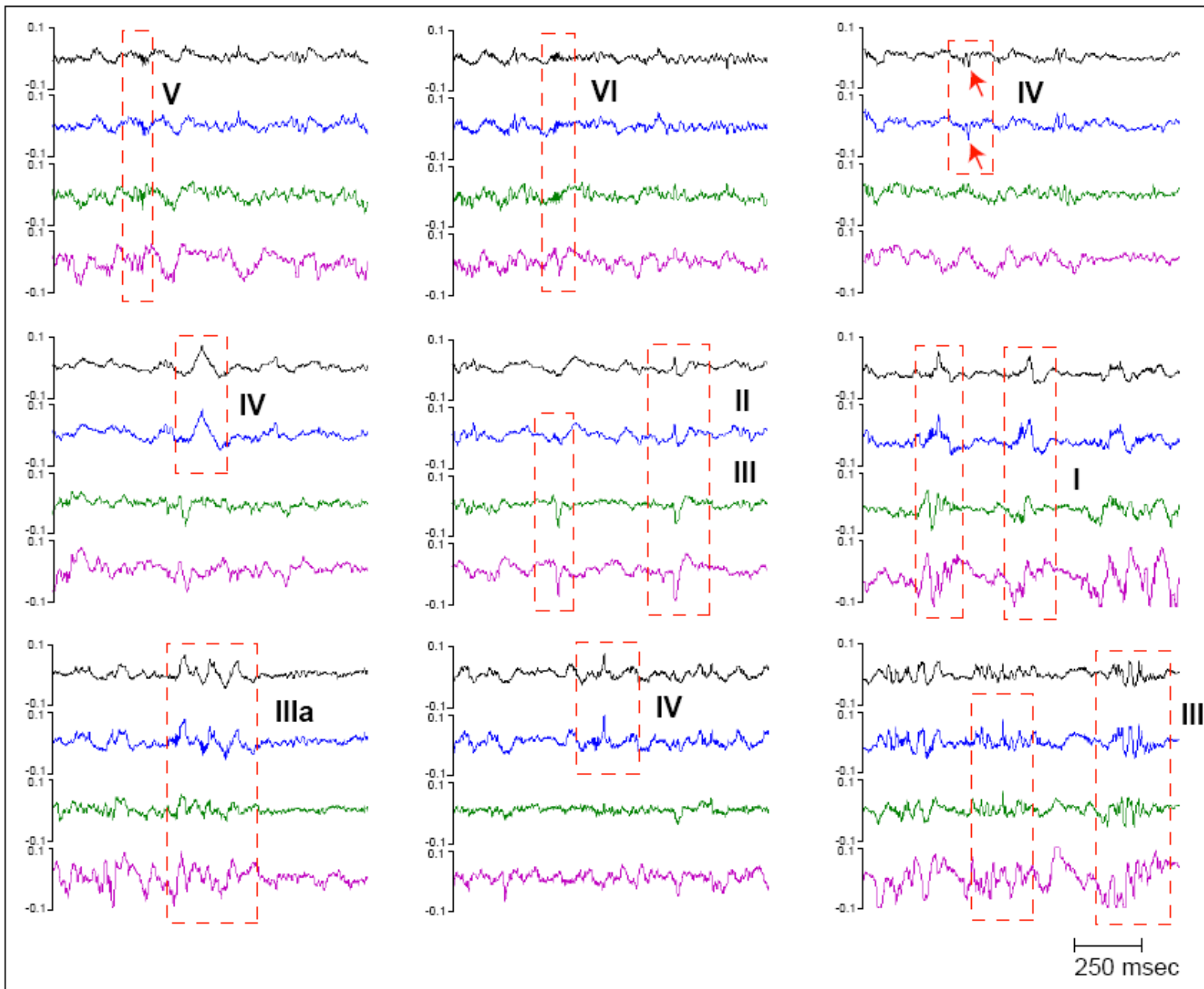
SWS



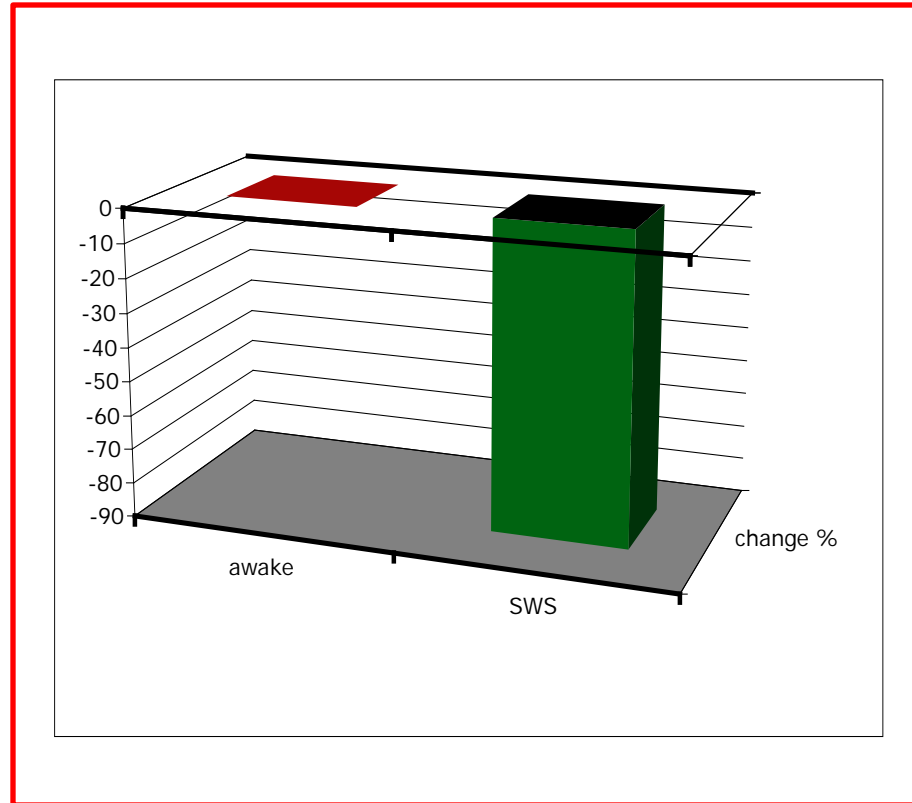
Spontaneous Interictal Spikes



Microseizures



HFO



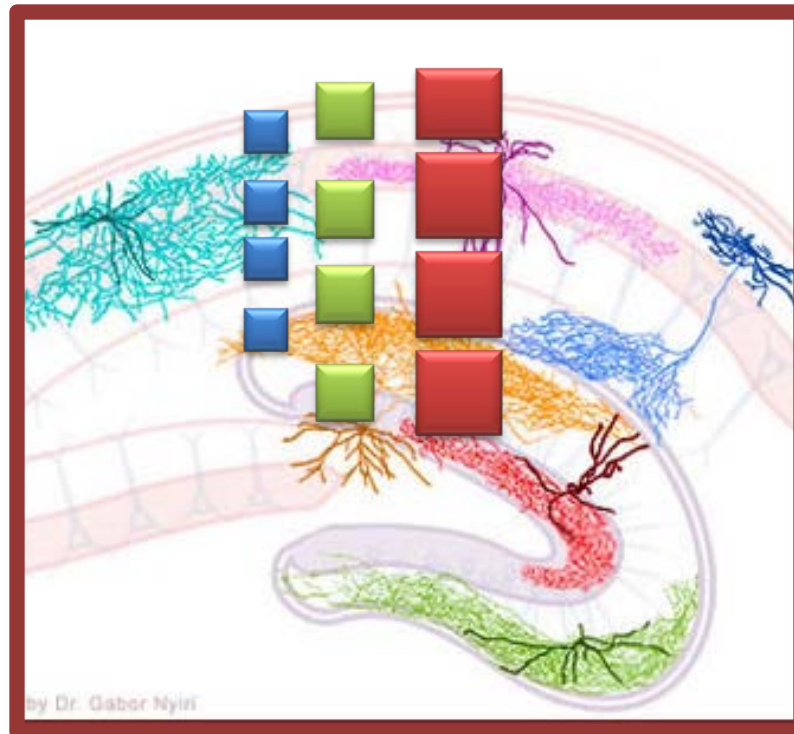
Summary

Microseizures

↓ HFO cognitive impairment ?

↑ HFO : neuronal network damage

NPD1 ↓ HFO



Acknowledgments

Bazan, N; LSUHSC (Mentor and PI COBRE)

Buzsaki, G , Rutger University

Canavier ,C; LSUHSC (Mentor)

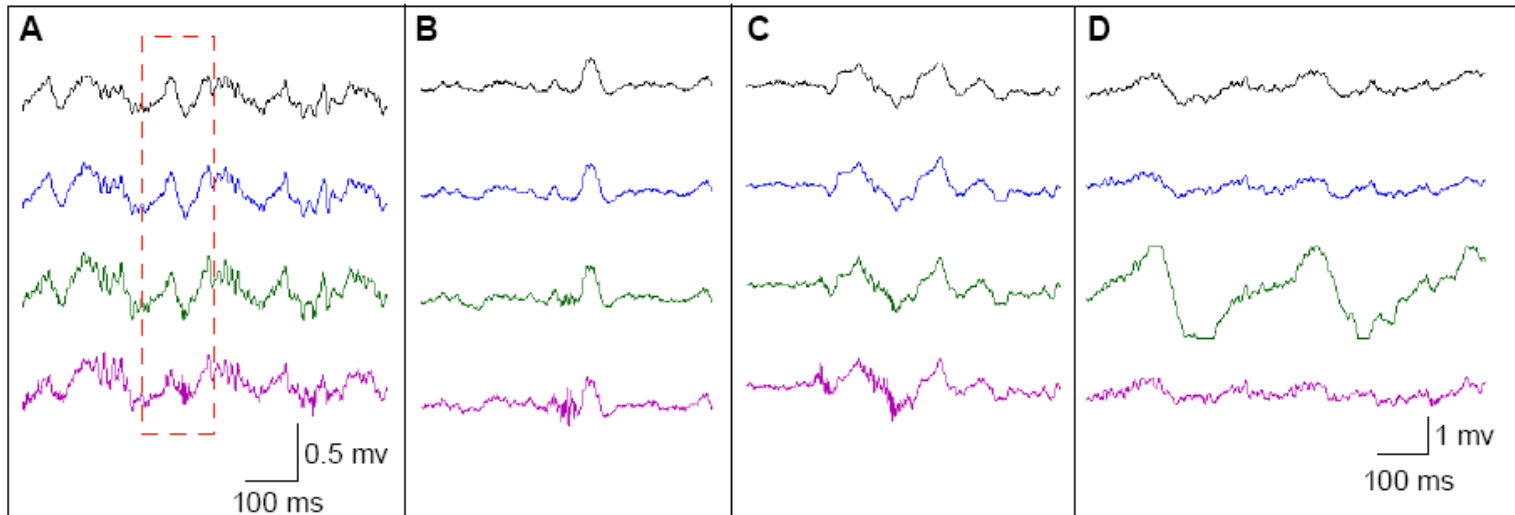
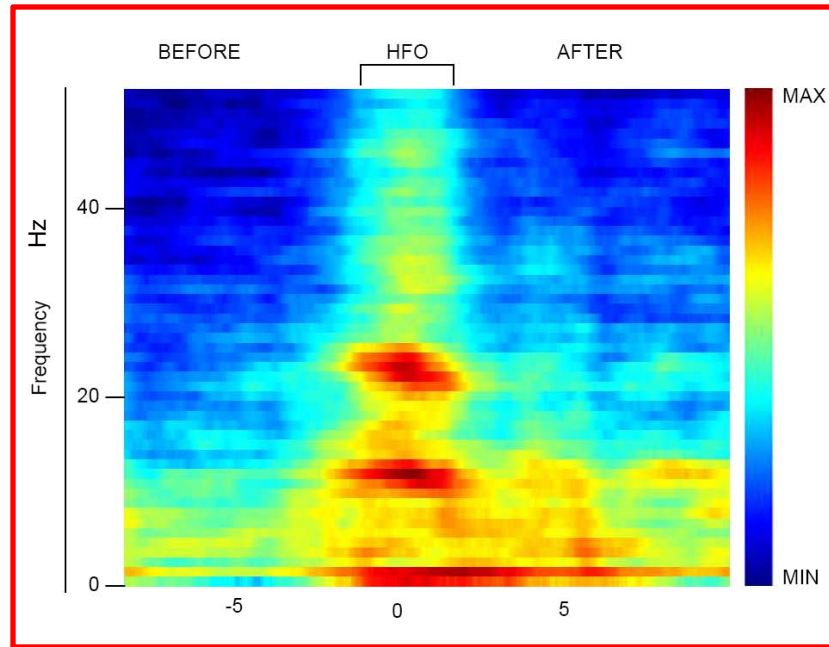
Brady ,S; U.of Illinois,Chicago (EAC)

Lipton, S ; Burham-Lajolla (EAC)

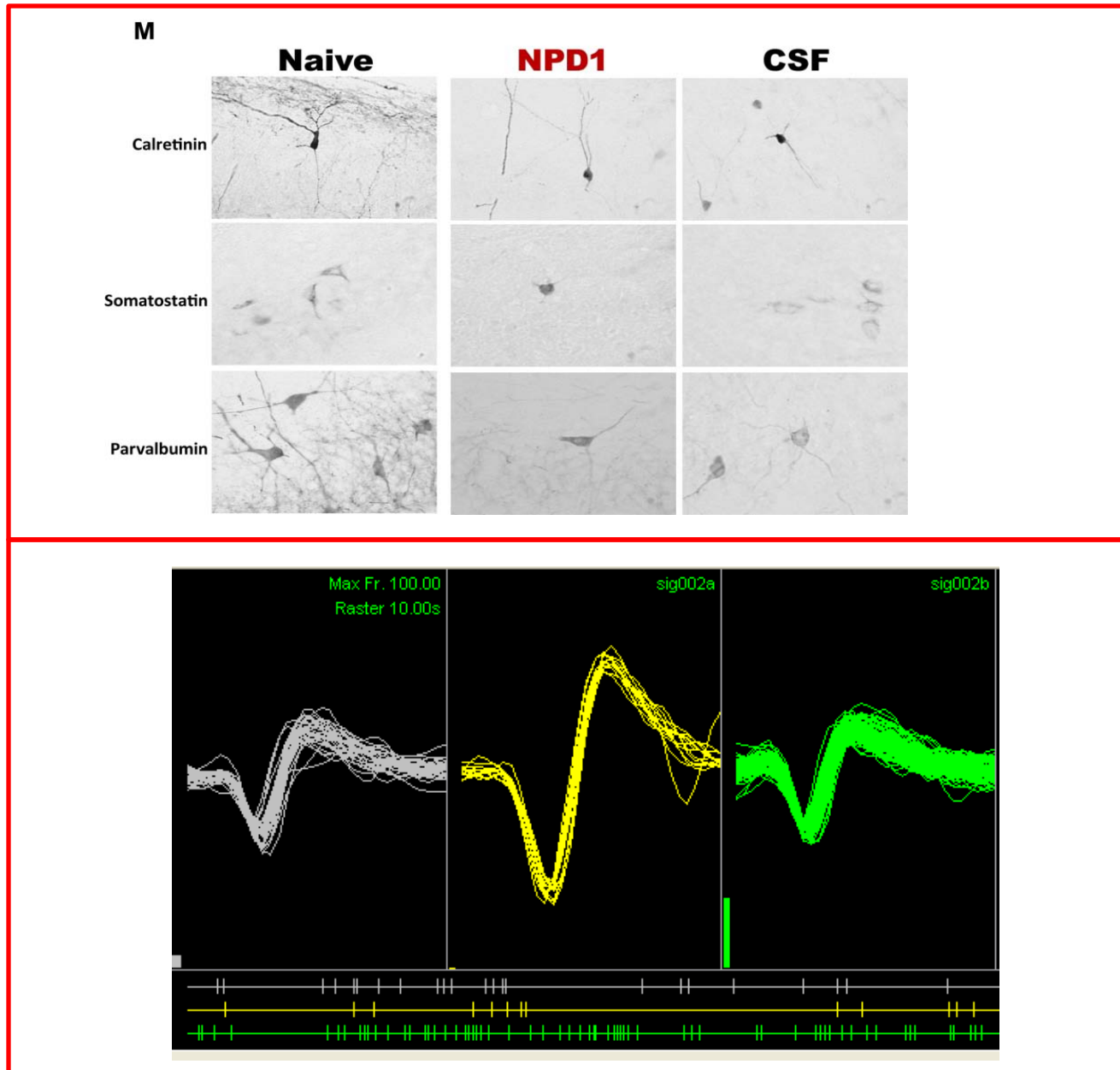
Quebedeaux, T; MD PHD student LSUHC

Holgraf, C, Summer student LSUHC.

Role of HFO in Epileptic Neuronal Network



HFO in epileptogenesis-Cellular and Molecular Mechanism



Hypothesis: Attenuation of HFO Limit Clinical Recurrent Spontaneous Seizure

Experimental Design

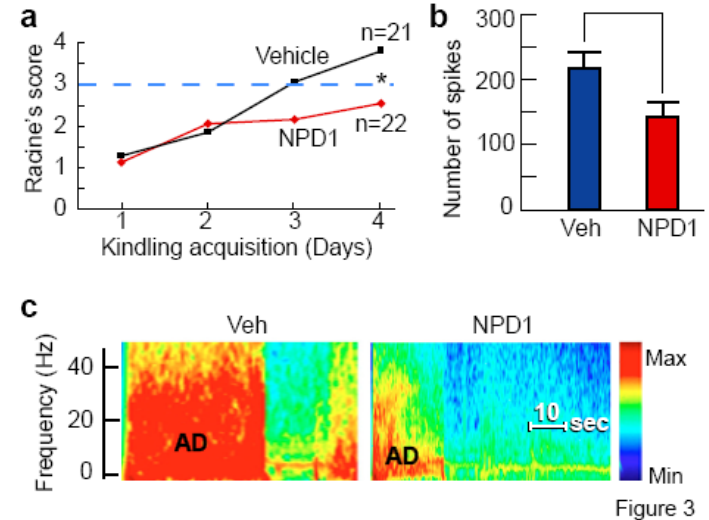
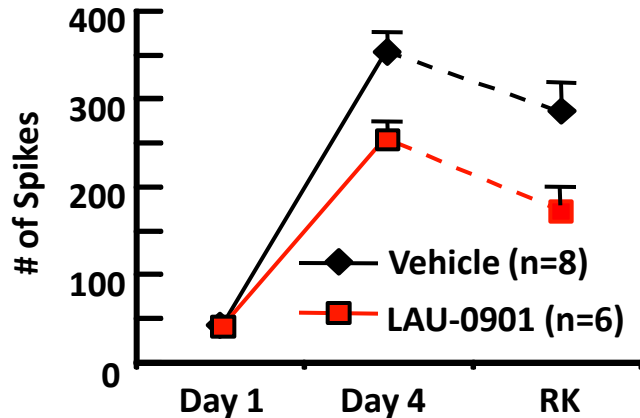
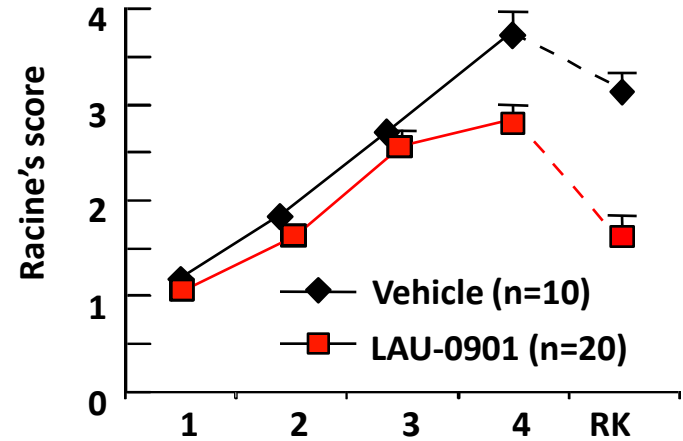
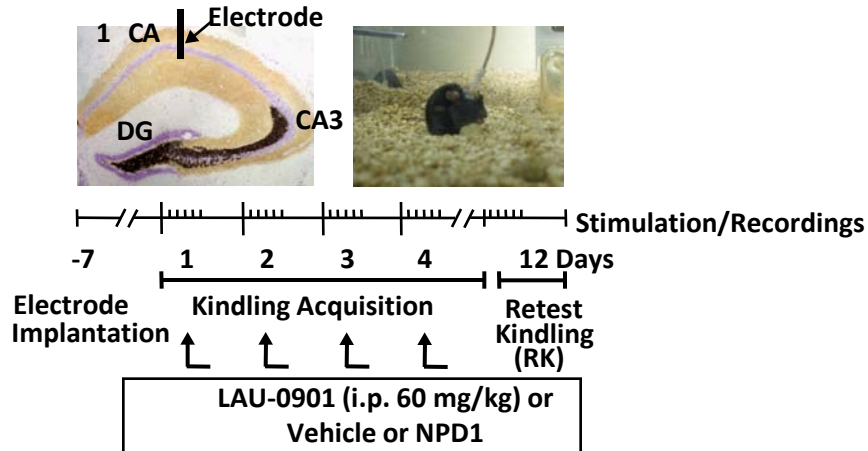
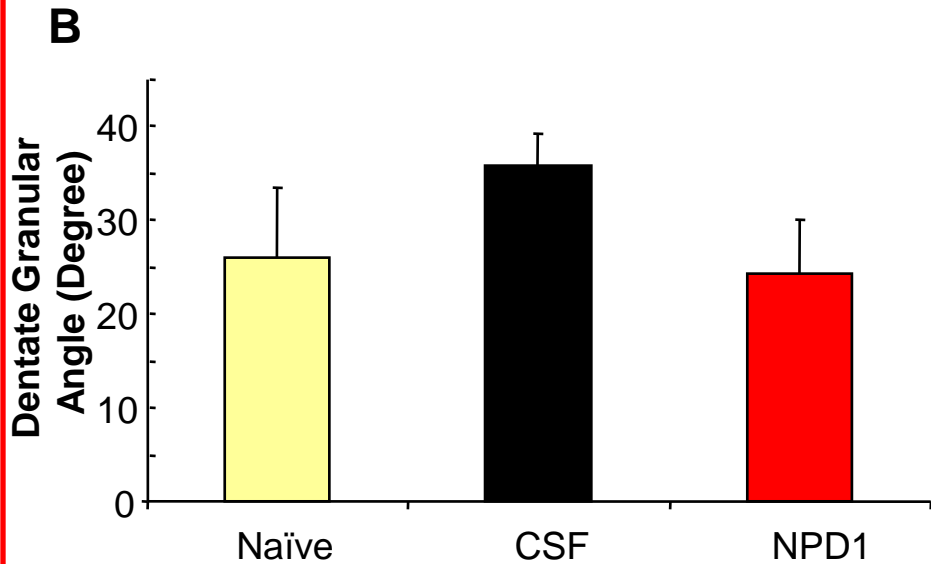
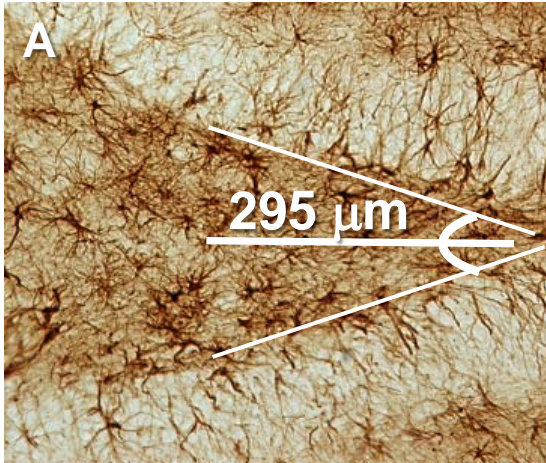
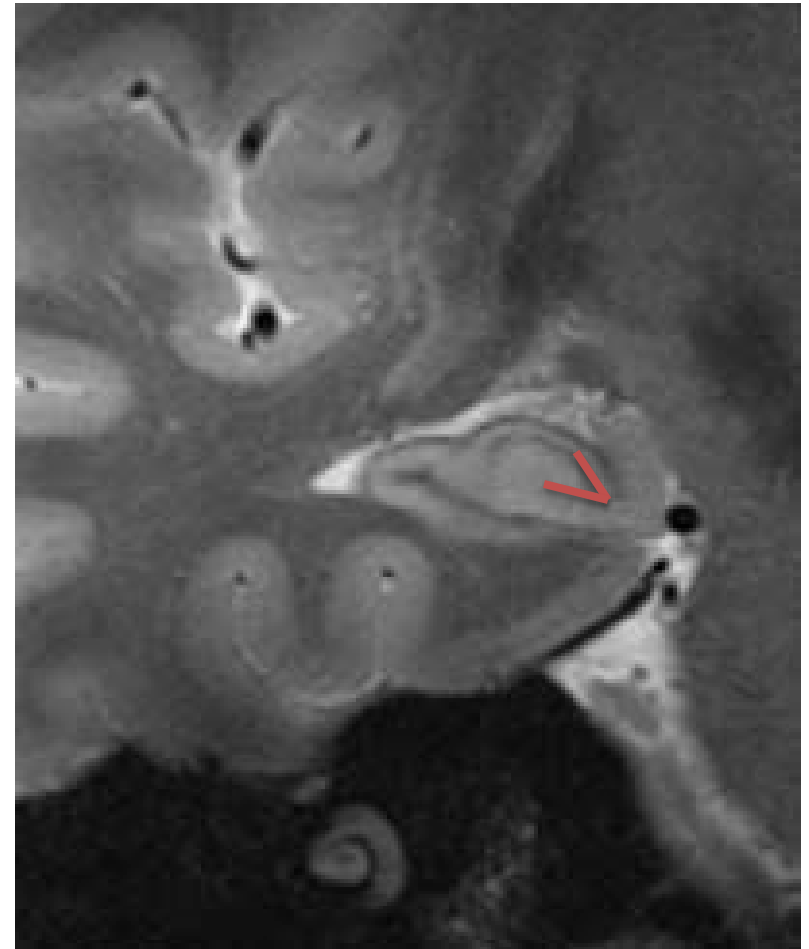


Figure 3

NPD1 Prevented Dentate Gyrus-Hilar Modifications 21 Days Following SE



Human Hippocampus MRI 7 Tesla-T2W



<http://www.ru.nl/donders/>

Epileptogenesis and NPD1 Levels

