ISTAART Electrophysiology Professional Interest Area (PIA) pre-conference agenda (July 21st-22th, 2018; Chicago, USA) **at Alzheimer's Association International Conference, AAIC2018** (July 22th-26th, 2018; Chicago, USA)

https://www.alz.org/aaic/

https://www.alz.org/aaic/program/pia-day.asp

Electrophysiology PIA Day 2018 will take place in conjunction with the Alzheimer's Association International Conference® (AAIC®) on July 21st 2018 from 08:30 to 11:30 am. at Hyatt Regency McCormick Place, Adler Room
2301 S. King Drive
Chicago, Illinois
60616
United States

The Agenda includes

1) **Electrophysiology PIA Day Annual Business Meeting from 08:30 to 09:00 am;**
2) **Electrophysiology PIA Day Scientific Session from 09:00 to 11:30 am.**

1) Electrophysiology PIA Day Annual Business Meeting (from 08:30 to 09:00 am):

Location: McCormick Place, Adler Room

Chair: Fiona Randall

Program:

1. Review of E-PIA activities in 2017-2018 (Fiona Randall, Chair, E-PIA) – 10 minutes
   Current EPIA membership roster

   Review of EPIA Annual Report 2017-2018

   PIA operational model update

   - Executive Committee roles
   - EPIA operational article.

2. Updates on EPIA White Paper and WEB Site in 2017-2018; perspectives in 2019 (Claudio Babiloni, Programs Chair, E-PIA) – 5 minutes

3. General Discussion– 15 minutes.

2) Electrophysiology PIA Day Scientific Session (from 09:00 to 11:30 am).

Location: McCormick Place, Adler Room

Title of the Scientific Session and main contents: "*Alzheimer's Disease, Brain Over-excitation, and EEG Signatures: Preclinical and Clinical Evidence*"

This session will highlight uses of neurophysiological methods such as cellular electrophysiology and electroencephalography for preclinical and clinical applications and drug discovery in Alzheimer's disease.

The pathophysiological features of Alzheimer's Disease are broadly consistent (e.g. extracellular deposition of amyloid beta 1-42 and intracellular accumulation of phospho-tau) but the clinical phenotype is heterogeneous with different manifestations of the symptoms over time. Several structural, molecular, and functional neuroimaging markers capture important underlying cortical and subcortical abnormalities. However, they cannot explore a potentially critical angle of the Alzheimer's disease as a pathology of distributed cognitive systems. They do not have the time resolution for probing the neurophysiological mechanisms of neural synchronization and coupling in the complex linear and nonlinear interactions at millisecond time scale. This Session will highlight new findings obtained from neurophysiological methods studying those interactions in neuronal circuitry and signal transmission at spatial macro-, meso-, and micro-scale, conferred by Alzheimer's disease-specific pathologies in living systems. Furthermore, the Session will focus on the issue of translation (from preclinical to clinical) vs. back-translation (from clinical to preclinical) of electrophysiology biomarkers in Alzheimer's research and drug discovery and development. Finally, findings on the cross-modal (e.g. neuroimaging) validity and specificity of the electrophysiological markers of Alzheimer's disease will be presented and discussed.

The above contents and concepts are the basis of a White Paper in preparation by the members of Electrophysiological EPIA for the submission to "Alzheimer's and Dementia". The White Paper (as this Session) aims at raising the awareness of the ISTAART members on the peculiar added value of electrophysiological markers for the Society mission.

Session Chairs: Fiona Randall (EISAI, Boston, USA) and Claudio Babiloni (Sapienza University Rome, Italy).

Scientific program: 6 invited talks (any talk lasting 20 minutes + 5 minutes of discussion)

1. *Neurophysiological Assessment of Neural Network Excitability, Plasticity, and Connectivity in a Tau Preclinical Mouse Model of Alzheimer's disease*. Dr Wilhelmus H.I.M. (Pim) Drinkenburg. Pim (W.H.) Drinkenburg (Janssen Research & Development, Beerse, Belgium)

2. *Characterization of epileptic spiking associated with brain amyloidosis in APP/PS1 mice as new readouts in preclinical treatment trials*. Heikki Tanila (University of Eastern Finland, Kuopio, Finland).

3. Epilepsy, amyloid-β, and D1 dopamine receptors: a possible pathogenetic link between AD and subclinical Epilepsy. Lucia Farotti, Lucilla Parnetti, and Cinzia Costa (University of Perugia, Italy).

4. Cortical excitability as revealed by cortical EEG biomarkers in patients with prodromal Alzheimer's disease and Dementia with Lewy Bodies. Claudio Babiloni (Sapienza University of Rome, Italy) and Laura Bonanni (University of Chieti "G. D'Annunzio, Italy).

5. Brain amyloid deposition and EEG biomarkers in patients with preclinical Alzheimer's disease: advancements of the Insight-PreAD project. Stefan Teipel (University of Rostock, Germany) and Harald Hampel (University of Paris "Sorbonne", Paris, France).

6. Brain amyloid deposition and EEG biomarkers in patients with prodromal Alzheimer's disease in a trial with medical food. Philip Scheltens (VU University Medical Center of Amsterdam, The Netherland).