

COMMISSION ON NEUROBIOLOGY



Astrid Nehlig



Jeff Noebels

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Guiliano Avanzini (Italy)
Christophe Bernard, Treasurer (France)
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Uwe Heinemann (Germany)
Raman Sankar (USA)

Aims

The overall goals of the Neurobiology Commission are (1) to increase the visibility and impact of basic neuroscience research among the epilepsy community, (2) to set up new good laboratory practice for research at the translational level in order to identify new drugs that could reach the level of clinical trials, (3) to bring education to a broader community, (4) to develop specific task forces and (5) spread knowledge during diverse meetings.

Mission

The mission is the sum of the aims, namely, to provide a forum for neuroscientists involved in epilepsy research to discuss new findings related to the understanding of the basic mechanisms of epilepsy and epileptogenesis in the context of translational research. The Commission will also promote the participation of ILAE Chapters and of young emerging scientists in the field of experimental epileptology. It is also to develop basic science and translational approaches to remaining problems such as establishing better guidelines for preclinical research and with the help of other Chapters and Commissions to develop a better interactive network partly related to specific problems linked to epileptic syndromes more common in less developed countries.

Commission Goals

The commission has been committed to advancing the recruitment and accelerating the training of younger scientists in the field of basic, preclinical, and translational epilepsy research. Toward that aim, the commission is actively involved in several international educational projects designed to achieve these goals across diverse and emerging areas of biological and preclinical epileptology. These include the following training workshops:

- **2011: WONOEP** at Grottoferata: "Finding a Better Drug for Epilepsy" a three-day advanced workshop involving 77 scientists from academia and industry. Five "Critical Appraisals" covering each of the major themes of the workshop have been published in *Epilepsia* in 2012/2013.
- **2013: WONOEP** in Montreal: "New Technologies to Study the Epileptic Brain" (about 60 scientists

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from academia and industry). Several “Critical Appraisals” covering each of the major themes of the workshop are planned to be published in *Epilepsia* in 2014.

- **2011: San Servolo course** on Bridging Clinical and Scientific Research in Epilepsy 2011. An international 14-day residential summer school including young clinical and basic investigators from 55 countries. During this course an innovative research project on neuro-malaria and epilepsy in Africa was identified. This project was led by a young neurologist from Nigeria and was planned to be partly supported by NBC. The application was submitted to the Gates Foundation in 2012 for financial support but was not selected.
- **NBC Symposium at IEC and EEC Congresses**
 - Epilepsy, Dementia/Alzheimer’s Disease and the Temporal Lobe (Rhodes EEC 2010)
 - Metabolic mechanisms of epileptogenesis (Rome IEC 2011)
 - Pediatric epilepsy syndromes: experimental models and therapeutic perspectives (London EEC 2012)
 - Role of non-neuronal cells in epileptogenesis (Montreal IEC 2013)
 - Future: continue organizing NBC symposia at each IEC and EEC, one is currently planned for Stockholm EEC 2014
- **2012: London Translational Workshop** to optimize and accelerate preclinical epilepsy discovery organized by the sub-commission on translational research was held in conjunction with the AES Task Force on Translational Research prior to the EEC meeting in London. Seven task forces were created:
 - o Defining the clinical “gaps to care” and the “opportunities” to develop new treatment approaches for epilepsy
 - o General technical and methodological issues in AET development
 - o Issues related to development of new anti-seizure treatments
 - o Issues related to development of anti-epileptogenic therapies
 - o Issues related to symptomatic and disease modifying treatments affecting comorbidities
 - o Issues related to biomarkers and surrogate endpoints
 - o Issues related to “Stage II pre-clinical trials” and criteria to propose candidates for clinical trials

The proceedings of this workshop gave rise to one paper already published *Epilepsia* and seven additional manuscripts are under review in *Epilepsia*.

- **Gordon Conference**, an international five-day advanced neurobiology of epilepsy workshop on mechanisms of epilepsy and neuronal synchronization taking place in Waterville, USA.
 - o **2010:** “Dynamics, Development and Dysregulation”
 - o **2012:** “Synchronization, Reorganization in the Epileptic Brain”

Plans for the Future

- Continue organizing the WONOEP meetings at each IEC meeting (2015 and 2017) to gather the best scientists in a given domain of neurobiology to fertilize exchanges and disseminate knowledge.
- A joint project to be launched with the Commission on Education which seeks to advance professional training in epilepsy with a focus on new research projects to solve regional epilepsy issues in less advantaged countries, like the neuro-malaria project in Africa.
- The development of a new course on the Neurobiology of the Epilepsies is planned in Asia for the next future. Associated with this a specific task force will be devoted to the identification of needs which once defined will take specific actions.
- Establish a catalog/list of laboratories and tools of valuable resource to allow training of scientists and clinicians from well-developed countries. This project was not achieved during the present term of the commission for various reasons and will be developed during the next term.
- Neurobiology dissemination at meetings: Organization of basic science symposia in epilepsy meetings but also in less focused meetings (neurobiology, pediatrics, pharmacology).

New Commission Members (2013-2017)

Marco de Curtis, Chair (Italy)
Astrid Nehlig (France)
Jeff Noebels (USA)
Aristea Galanopoulou (USA)
Norberto Garcia-Caraisco (Brazil)
Richard Idro (Uganda)
Damir Janigro (USA)
Hoon-Chul Kang (Korea)
Katja Kobow (Germany)
Merab Kokaia (Sweden)
Weiping Liao (China)
Terence O’Brien (Australia)
Vicky Whittemore (USA)
Nico Moshé, EC Liaison (USA)