Activities of the Neurobiology Commission

Marco de Curtis, Neurobiology Commission Chair

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The long-established objective of the Neurobiology Commission (NBC) is to support, develop and promote activities related to the neurobiology of epilepsy within ILAE and to collaborate with neuroscience organizations to support epilepsy research. The Commission is composed of Task Forces (TFs) that will develop specific actions for the period 2013-2017, in continuity with the program of the previous NBC chaired by Astrid Nehlig and Jeff Noebels. Whenever possible, TF's activities defined in agreement with the ILAE Executive Committee are fostered in collaboration with other Commissions. In keeping with NBC mission and objectives, six initiatives coordinated by specific TFs are planned. The progress of TF activities is regularly monitored by TF Chairs and is discussed at yearly NBC meetings scheduled during major International Epilepsy Congresses.

The goal of Initiative 1 is to formulate recommendations for preclinical epilepsy drug discovery. A joint ILAE and American Epilepsy Society Translational Research TF will devise a plan to revise terminology and to identify optimal methods and strategies for the discovery, validation, and translation of new therapies into the clinics. Since 2011, the work of the TF recognized that changes in traditional pre-clinical development pathways for anti-epileptic therapies are needed (*Epilepsia* 2013; 54,S4). Future steps include the development of i) standards for seizure and comorbidity classifications in animal models, ii) central repositories of video-EEG recordings from animal models and of software/methods for the analysis of large EEG dataset, iii) central infrastructures for undertaking multicentre pre-clinical studies based on the analysis of common data elements and iv) higher quality evidence of efficacy of new treatments and targets.

Initiative 2, run by the Resource Mapping TF, aims at keeping a record of techniques, resources and equipment available worldwide for basic epilepsy research. A questionnaire distributed among epilepsy centers will contribute to the development of a geographical mapping of available resources that should help to point out where there are critical needs which ideally would lead finding assistance to help correct the lack of equipment and other research resources.

The Education and Beyond TF is responsible for Initiative 3, which is focused on the identification of training activities to be supported by NBC. Recommendations and assistance to improve and enhance the neurobiology content of the training events will be provided. Funding requests will be received and evaluated by NBC through a call for application (to be developed).

The Education and Beyond TF will also work on a Beyond Training project (Initiative 4) that aims at seeding neurobiology activities in less advantaged geographical areas, in particular Africa, South America and Asia. The project seeks to advance professional training in epilepsy in countries with limited resources, by promoting and launching a competitive call for new research developments aimed at solving specific regional epilepsy issues. Projects and international networks will be evaluated during ILAE-sponsored training courses (LASSE and San Servolo), and selected international teams will be given the opportunity to compete for funding provided by ILAE and other funding agencies. This challenging project aims at funding two proposals per year starting from 2016-17.

Initiative 5 is focused on the scientific and logistical organization of the Workshop on Neurobiology of Epilepsy (WONOEP), the ILAE discussion arena for novel neurobiology research strategies in epilepsy. The topic of the next edition (WONOEP XIII, satellite of the 2015 Istanbul ILAE meeting) is biomarkers in epilepsy. The meeting is separated into sessions on such subthemes as (biomarkers of epileptogenesis, of seizures, of comorbidities; biomarkers by modality and function). An open call for abstracts will be published in July 2014. WONOEP discussion catalyzes specific reviews on neurobiology of epilepsy that are submitted to *Epilepsia* for publication.

Central to NBC purposes is Initiative 6, pursued by the Neurobiology Dissemination TF. To promote interactions between clinical scientists and neuroscientists and to help dissemination of neurobiology in the clinical setting, the need to include members with neurobiology expertise in ILAE Commissions and TFs is strongly emphasized. Among the specific TF objectives is the enhancement of the participation of neuroscientists to ILAE meetings. A link with WONOEP has been recognized as crucial to achieve this goal. For the 2015 ILAE Congress, the following activities were proposed: training sessions for neuroscientists on specific clinical epileptology issues; debates between neuroscientists and clinicians on specific topics; Young Scientist Awards for the best Neurobiology contribution during the platform presentations; neurobiology-related symposia obout a cutting-edge science achievement with a clear-cut educational format. To reinforce interactions with neuroscience societies, translational epilepsy sessions, symposia and satellite workshops are recommended at National and International neuroscience meetings. Finally, new strategies to disseminate NBC activities through the use of new web technologies accessible via cell phones or Pads are planned.

There are many exciting laboratory findings that may be applied to epilepsy that have appeared over the recent decades. It is the task of the NBC to keep the flow of new discoveries that may benefit epilepsy moving to the clinic and to support the continued efforts of neuroscientists that will one day lead to new better treatments.

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