

Report of the first meeting of ILAE NeuroBiology Commission December 5th, 2013, Washington, D.C. (US)

Invited: *NBC members:* M. de Curtis, A. Galanopoulou, N. Garcia-Cairasco, R. Idro, D. Janigro, H-C Kang, K. Kobow, M. Kokaia, W.P. Liao, A. Nehlig, J. Noebels, T. O'Brien, V. Whittemore. *TF Chairs:* J. French, A. Pitkänen, R. Sankar. *Liaisons:* S. Moshe, A.M. Vezzani. *ILAE Secretariat:* P Shisler, D. Cunard.

Attended: M. de Curtis, N. Garcia-Cairasco, R. Idro, A. Galanopoulou, W.P. Liao, D. Janigro, A. Nehlig, K. Kobow, T. O'Brien, M. Kokaia, V. Whittemore, R. Sankar, A. Pitkänen, A.M. Vezzani, P Shisler, D. Cunard.

The meeting of the NBC started at 8:30 am and closed at 5:00 pm. After an introductory statement by the Chair, the members introduce themselves and confirmed their participation to the different TFs. Damir Janigro was added to the WONOE TF. ILAE Secretariat representatives Priscilla Shisler and Donna Cunard detailed Commission rules on budget, refunds and external funding.

The Commission elected the following *liaisons* with other ILAE Commissions: Astrid Nehlig for the Publication Commission, Annamaria Vezzani for the Commission on European Affairs. Katia Kobow was designed as contact member for the Web-site Task Force.

The six NBC initiatives outlined in the Commission agenda were discussed. **The present report will be used as reference by TF Chairs to plan activities for the next year and to circulate among TF members the decisions of the Commission.**

Time line of next meetings:

- the second NB Commission meeting will be at the 2014 European Conference on Epilepsy in Stockholm (June 28, 2014)
- the third NB Commission meeting is planned for the ILAE Meeting in September 2015.
- the Training and beyond TF will get together during the ECE Conference in Stockholm.
- planning of the other TF activities will be defined before the end of January 2014

Initiative n. 1: Translational Research

The past activities of the Translational Research TF were summarized by Terry O'Brien (see **Appendix 1** document). The following future activities were outlined (see **Appendix 2**):

1. Develop standards for seizure and comorbidity classifications in animal models.
2. Undertake a systematic review of data from specific animal model data for particular clinical syndromes, including treatments, biomarkers and comorbidities through a Cochrane collaboration. Proposal for uniform classification and diagnostic criteria for seizures, epilepsy syndromes, and comorbidities in animal models. Discuss the best strategy with the NC3R Epilepsy Working group
3. Develop a central database of EEG recordings and interpretation from animal models. Generation of a data depository of normal and abnormal EEG patterns and video-EEGs from the available animal models, with detailed annotations (Epileptic disorders, request for such data to be advertised). Preparing a centralized depository of software/methods for large EEG data analyses in animal models. Preparing the infrastructure for Central Preclinical Data depositories. Creation of a central depository of preclinical EEG data.
4. Formulate a system for publishing results of negative pre-clinical studies.
5. Work with government funding organizations (NIH and EC) to fund the establishment of a central infrastructure for undertaking multicentre pre-clinical studies to produce higher quality evidence of efficacy of new treatments and targets.

Among these themes, minimal requirements for CDE and model definition, relationship with NG3R initiative, CDE evaluation in other field of neuroscience (trauma, ischemia, etc), the need to publish "negative" or preliminary, non conclusive data were discussed during the NBC meeting, to be presented during the Translational TF meeting. Concerns on the feasibility of multicentric studies on animal models and were raised and the need to lobby to achieve regional funding from governmental agencies to achieve this goal was underlined.

A plan of activities was discussed during a TF meeting organized for December 6th. A detailed report of the meeting compiled by A. Galanopoulou, T. O'Brien and M. Simonato is attached (**Appendix 2**).

Actions: -Email to London meeting participants for update on publication issues.

- Open call for young experts volunteers / nominations for our working groups to be disseminate through AES, ILAE, NINDS.
- Selection of members of the working groups
- Invitation of new members for Stockholm meeting:
- define a program of the TF for the next 2 years
- Finalize TF 2014-16 budget and submit to NBC for review

Initiative n. 2: Catalog of laboratories, tools and resource

Astrid Nehlig co-chair of the Resource Mapping TF introduced the goals of the initiative: identify valuable resources of epilepsy laboratories worldwide to establish a list of techniques, resources, equipment available for basic epilepsy research, according to the questionnaire detailed in **Appendix 3**.

The goal is to spread this questionnaire as widely as possible to allow scientists in search for a specific technique or equipment to identify sites and establish contacts more easily, the ultimate goal being if possible a very large geographical mapping of available resources that should be mostly helpful to young scientists. This resource mapping could also help to point out where there are critical needs for techniques and equipments and possibly help in getting finances for equipment or technique development for some geographical areas where they are missing.

Actions: -Complete the questionnaire

- Prepare a mailing list of laboratories from different regions – contact Regional Commission and National Chapters, ILAE and Neuroscience Societies mailing lists and other sources
- Develop other platforms for data consultation – geographical maps of resources (see **Init. 6**)
- Arrange for publication of the data on ILAE web-site
- define a program of the TF for the next 2 years
- Prepare a 2015-16 budget for TF actions

Initiative n. 3: Educational activities supported by NBC

Marco de Curtis of Educational & Beyond Training TF opened the discussion on the type of activities that are to be supported by NBC in the future. It was decided to start from 2014 a funding requests through a formal application open from January to May 31st. The call for application will be available on the NBC area on ILAE website. A similar application procedure is currently utilized by CEA. Applications will be submitted one year in advance, will be evaluated by NBC with an *ad hoc* procedure (conference call or in-person meeting) and eventually will be included in the budget of the following year (suggestion of Jeff Noebels). Precedence of funding will be given to International Courses dedicated to bridging clinical and basic epileptology and to training of young international investigators, such as San Servolo Course, LASSE and the Epilepsy summer course organized in China open to applicants from the Asiatic area. Wei Ping Liao will report details on the Asian Course in early months of 2014. Regional courses will also be considered, after evaluation of the basic science content. For these courses, the Commission will provide recommendations and assistance to improve and/or enhance neuroscience content.

As suggested, a survey for training activities sponsored by ILAE and other Epilepsy Societies in and Regional Commissions/Chapters the last 3 years will be done 1) to evaluate the coverage of experimental epileptology in the program of the courses, 2) to establish the inclusion criteria for NBC sponsorship and 3) plan specific suggestions to implement neurobiology themes in the courses that apply for funding.

It has been proposed to utilize the currently sponsored Courses to develop distance e-training and web exchanges with lecturers. The Italian Master on Epileptology, mentioned by Michele Simonato, could be used as model for this type of activity. A more detailed project focused on distance training could be developed in the future, in parallel with the web-based dissemination proposed by DJ (see Initiative 6).

Support to conferences and workshops will be included in the budget, following discussion during the Commission. Selection of training events to be included in NBC budget request will be discussed yearly during the NBC meetings or by teleconference.

The NBC strongly emphasizes the need to include members with expertise in neurobiology of epilepsy in ILAE Commissions and Task Forces, to facilitate interactions between Commissions, to promote the reciprocal interactions between clinical scientists and neuroscientists and to help the process of dissemination of neurobiology in clinical setting (and viceversa).

Actions: -Prepare a document and an application form for funding requests

- Upload material and application forms on NBC area in ILAE web site
- Evaluate % neurobiology content in regional courses on epilepsy during the period 2011-13
- Define the NBC contribute to the Asian course
- Define timing for fund request evaluations
- Define a program of the TF for the next 2 years
- Prepare a 2015-16 budget for TF actions

Initiative n. 4: Beyond training

Educational & Beyond Training TF (see **Appendix 4**)

The project "Beyond training" was presented and discussed. The project will be further discussed during an ad hoc meeting of the TF during 2014 (in July at San Servolo, Italy). The competence of NBC to organize rotation of candidates in hosting laboratories was criticized as labour intensive and was removed from the project.

Actions: - Identify specific epilepsy research topics of regional relevance in previous 2010-2013 Courses

- Identify potential applicants from Africa, Asia and South America in the list of participants to ILAE training courses
- Define grant rules
- Develop a strategy to raise local and international funding external to ILAE (IBRO, NIH, private)
- Define a program of the TF for the next 2 years
- Prepare a 2015-16 budget for TF actions

Initiative n. 5: Organization of 2015 WONOEP XIII

The commission discussed and agreed on the following:

WONOEP XIII will be located in a hotel in or around Istanbul. Date: 2-6 September 2015

Organizing & Scientific Committee: Filiz Onat, Candan Gurses, K. Kobow, R. Sankar, M. de Curtis.

WONOEP topic suggested by Katia Kobow and approved by all members: **Biomarkers in epilepsy**. The format utilized in the last 2 WONOEPS is confirmed: 5 half-day sessions on subthemes that will be identified after abstract selection:

Biomarkers of epileptogenesis, of seizures, of co-morbidities

Biomarkers by function: bm of BBB, of inflammation, etc.

Biomarkers by modality: imaging, neurophysiological, serology and FACS

Each session will start with a 30-min critical introduction of the subtheme, followed by 8-10 datablitzes (max 15 min. each) and will be concluded by general discussion lead by a panel of discussants. Discussants and The session's titles and a list of opening speakers and discussants will be finalized in June 2014 during the NBC meeting at Stockholm ECE. The first call for abstracts will be published early in July 2014 and fund-raising will start soon after. Deadline for abstract submission is November 15th, 2014. Abstract selection by WONOEP TF members will end before the AES meeting (December 2014). The final WONOEP program will be ready by January 15th, 2015 and invitations will be sent out after this date.

The Commission confirmed that WONOEP content will be reported by *ad hoc* regular reviews that will be published before the end of 2016 on *Epilepsia*. Astrid Nehlig confirmed that at this moment *Epilepsia* is willing to receive WONOEP appraisal. The impact and the citation rate of WONOEP appraisal will be evaluated by *Epilepsia*. A senior (intro speaker or discussant) and a junior scientist will be engaged for

the production of the review, at least one month before WONOEP. NBC will submit a request for a WONOEP-NBC session on biomarkers to the 2015 ILAE meeting.

Travel funds to support young investigators participation to WONOEP will be available if allowed by the budget. The criteria for young investigator fellowship assignment will be defined.

- Actions:**
- Realize objectives according to the timetable defined above
 - Contact ILAE web site for dissemination of WONOEP – create a link to past WONOEP material
 - Open a call for topics for future WONOEPS
 - WONOEP session at 2015 ILAE meeting
 - Definition of the criteria for travelling fellowship to participate to WONOEP
 - Define a program of the TF for the next 2 years
 - Prepare a 2015 budget for TF actions

Initiative n. 6: Neurobiology dissemination at epilepsy meetings

This activity is transversal to all other NBC initiatives and it is central for the 4-year strategies of the Commission. Strategies to improve the interface between clinical epileptology and neuroscience were discussed and a plan for 2015 ILAE meeting was developed and will be pursued by the Neurobiology Dissemination TF.

For the 2015 ILAE meeting, our objective is to enhance the participation of neurobiologist by improving their motivation to choose ILAE meeting as a privileged formative event. A link with WONOEP has been recognized as crucial to achieve this goal. We propose that most activities dedicated to neurobiologists are concentrated in the first two days of the congress. Reduced submission fee for the first 2 days of the Congress and concentrate most educational activities that involve NB issues in these 2 days. WONOEP participants will be invited (and motivated) to attend the meeting in these two promotional days.

The NBC proposed the following neurobiology-relate activities for 2015 ILAE meeting in Istanbul:

-Neurobiology Symposium on a cutting-edge science achievement with a clear-cut educational format:

Optogenetics to cure epilepsy: facts and feasibility.

-Two session proposals on “*Success stories*” approached with a translational viewpoint to bridge basic science and clinical aspects of a specific theme:

-Personalizing mTOR inhibition for epilepsy treatment: from bench to bedside.

-Exploring New Therapies for Human Monogenic Epilepsies using Personalized Mouse Models.

- A proposal in collaboration with CEA on **Epilepsy networks supported by FP7-HEALTH-2013-INNOVATION: projects presentation and research progress.**

- Training sessions to present in an interactive educational method specific clinical epileptology issues to neuroscientists (***Teach epilepsy to neuroscientist***). Two clinicians and a senior neurobiologist are involved. Proposed topics:

- Temporal lobe epilepsy – human and in models
- The diverse causes of epilepsy – promote new animal models
- Ictal and interictal patterns – in collaboration with Translational TF

- ***Friendly debates***” between neuroscientists and clinicians on specific topic proposed by the NBC and the EC. We propose a pre-arranged open panel with invited discussants. Ideally the topic should be related to the neurobiology Symposium and the session should be organized for the same day of the Symposium (in the afternoon or in the morning before). Topic proposal: ***Will optogenetic stimulation replace DBS?*** Future themes: ketogenic diet; animal models for drug discovery.

- ***Young Scientist Awards*** by NB Commission to the best platform presentation. The decision on the award is based on the evaluation of science value and presentation skills by NBC reviewers. This proposal will help to recruit applicants from the basic science field to the meeting.

It was discussed and approved the proposal to produce a flyer to promote NBC activities – symposium, sessions, WONOEP, friendly debates, success stories, link to NBC App and maybe to videos. The **NBC flyer is proposed in the form of a bookmark**. All information on NBC activities and relative apps will be uploaded on ILAE web site.

It was proposed a new strategy to disseminate NBC activities through the use of new web technologies accessible via cell phones or Pads. Specific Apps created for NBC will be developed, as in the example in **Appendix 5**. This project was considered to be extremely valuable to promote with an original and innovative approach NBC activities and themes.

A ILAE-NBC symposium proposal was submitted to 9th IBRO meeting (Rio de Janeiro, July 7-11, 2015) organized under the chairmanship of Rafael Linden (Federal University of Rio de Janeiro): *Delineate the mechanisms of synchronization and hyperexcitability*. Online submission of proposals for symposia and mini-symposia will close December 31st, 2013. The symposium will be defined in the following weeks, and a contact with IBRO representative will be made to discuss possible collaborations (ILAE is an IBRO member).

Other proposals of the Dissemination TF chairs were discussed. Neurobiology in Patient organization meetings. To reinforce interactions with neuroscience and neurology Societies (FENS, Sfn), translational epilepsy/comorbidity sessions – discuss with leadership to have an earmarked ILAE symposium, systematic proposal of speakers/ sessions at Neuroscience meetings and encouragement of consortia to organize Satellites in connection of main Neuroscience meetings were discussed. Other initiative for dissemination could be planned in the future during the Brain Awareness Week was suggested.

- Actions:**
- Send proposal for 2015 ILAE meeting to EC
 - Plan a budget for 2015 ILAE
 - Define the format and a budget of the NBC flyer/bookmark
 - Start a NBC App that includes NBC activities.
 - Upload NBC initiatives on ILAE web site
 - Define the program of the ILAE-NBC symposium at IBRO
 - Define a program of the TF for the next 2 years
 - Prepare a 2015-16 budget for TF actions