ILAE/AES Translational Research Task Force: an update on the Joint ILAE-AES translational initiatives to optimize epilepsy research

By Aristea Galanopoulou

There is increasing awareness and concerns that discoveries made in animal studies often fail to translate into clinically relevant therapies. In September 2012, an international group of epilepsy investigators and representatives from funding agencies or patient advocate organizations participated in the first Joint ILAE/AES Translational Workshop that took place in London, UK. Their goal was to create a roadmap to optimize preclinical epilepsy research and lead to new transformative treatments for people with epilepsies, including anti-epileptogenic, drug-resistant, and anti-comorbidity therapies. The proceedings of this workshop were recently published as an Epilepsia Supplement [(2013), vol 54, Suppl. 5].

The newly assembled ILAE/AES Translational Task Force of the Neurobiology Commission of the ILAE has been tasked to set the groundwork to materialize the high priority next steps agreed upon at the London Workshop. The co-chairs of this Task Force (Jacqueline French, Aristea Galanopoulou, Terence O’Brien, and Michele Simonato) along with the elected members (Amy Brooks-Kayal, Marco de Curtis, Akio Ikeda, Frances Jensen, Solomon (Nico) Moshé, Asla Pitkanen, Helen Scharfman) are currently finalizing the membership of working groups that will work towards these next steps.

The first initiative aims to generate an infrastructure to harmonize and optimize the interpretation and analysis of electrophysiological studies in rodents so as to improve their predictive value for human studies. The co-leaders (Aristea Galanopoulou, Marco de Curtis, Akio Ikeda) and their selected working groups will try to (a) develop standards for recordings and interpretation of electrophysiological studies conducted in live animals or using in vitro seizure models, (b) evaluate their relevance to human studies, (c) optimize the use of video-EEG depositories and analysis software to harmonize epilepsy research and (d) generate publications and reference textbooks to disseminate these recommendations.

The second initiative will attempt to systematically review the animal data for their relevance to particular clinical syndromes and comorbidities and critically evaluate their predictive value for treatment response or biomarker development. The co-leaders (Michele Simonato, Amy Brooks-Kayal, Frances Jensen) and their selected working groups will try to establish means to generate and periodically update databases and reviews to facilitate meta-analyses of data from animal models. Systematic reviews could pave the way for large, multicenter studies and will provide material for common data elements.

The third initiative is to generate common data elements (CDEs) for preclinical epilepsy research. CDEs standardize the collection of investigational data and facilitate comparison of results across studies. Based on the experience with the clinical CDEs for epilepsy, spearheaded by NINDS, preclinical epilepsy CDEs are expected to ensure that important data elements (e.g., experimental conditions, EEG or behavioral data) are obtained in all animal studies in a similar fashion. They will serve the needs of individual laboratories as well as research consortia to standardize the study protocols. The co-leaders of this Step are Jackie French, Asla Pitkanen, Helen Scharfman.

The final initiative is to develop infrastructure for multicenter preclinical studies. These studies will represent a “Phase II” of preclinical studies, analogous to clinical Phase II/III multicenter, randomized, double-blinded studies, and the goal is to generate more rigorous preclinical data for efficacy than is currently generated from single laboratory “Phase I” studies. More predictive preclinical results may encourage industry and government to invest in a prospective therapy’s clinical development. Partnerships among government-related funding organizations (NIH, European Community), industry, philanthropic foundations and academia will be necessary. The co-leaders of this initiative include Terry O’Brien, Nico Moshé, Akio Ikeda.