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A non-invasive method to appraise time-dependent effects of venom toxins on the mouse neuromuscular excitability *in vivo*

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The conventional methods, usually performed *in vivo*, provide limited information regarding sensory and neuromuscular excitability properties. In the present work, we review the new minimally invasive methods that have been improved to supplement the conventional electrophysiological methods. In particular, the automated sequence of multiple excitability tests developed by Professor Bostock (Qtrac®, Institute of Neurology, London, UK) to assess sensory and neuromuscular excitability in clinical neurophysiology, has been adapted to animal models *in vivo*, initially in rats and, more recently, in mice. This method is particularly appropriate for venom toxin injections and repeated recordings from the same animal cohort, making it a promising tool to appraise the progression of toxin effects, and that of a given treatment, on the sensory and neuromuscular excitability of animal models *in vivo*. The *in vivo* efficiency in mice and long-term follow-up of the effects of sub-lethal doses of spider and *conus* venom toxins will be emphasised. It is indubitable that this method brings specific information regarding changes in ion transfer and membrane properties induced by a given venom toxin which, thereby, will help to a better characterization of toxin action on the sensory and neuromuscular excitability properties, *in vivo*.

Biography

Evelyne BENOIT has completed her PhD in Neuroscience at the age of 26 years and her habilitation to lead research in 2010 from Paris-XI-Orsay University. She is researcher at the CNRS and responsible for "Ion transfers and pathophysiology of neuromuscular conduction" studies. To gain a better understanding of these processes, she studies the mechanism of action of emerging neurotoxins and uses some of these bioactive agents because of their specificity of action. Since 2016, she is President of the French Society of Toxicology (<http://sfet.asso.fr/international/>). She has published more than 100 papers in reputed journals and more than 40 book chapters.

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