Special Issue

Engineered Botulinum Neurotoxins for Novel Biomedical Applications

Message from the Guest Editors

Botulinum neurotoxins (BoNTs) are some of the most potent known neurotoxins and the causative agents of the neuroparalytic disease botulism. The BoNTs share a unique, common modular structure consisting of three functional domains that facilitate the presynaptic binding, neuronal uptake, intracellular delivery, and catalytic activity of the toxin. The receptor-binding domain (RBD) binds ectoreceptors on peripheral cholinergic neurons and is endocytosed within early endocytotic vesicles. Within the endosome, the BoNTs are believed to undergo a conformational change allowing the translocation domain (HN) to form a transmembrane pore through which the light chain (LC) is extruded into the cytosol. Once in the cytosol, the LC cleaves SNARE proteins critical for the vesicular trafficking of neurotransmitters, eliciting the descending, bilateral paralysis that is a hallmark of botulism.

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Toxinology is an incredibly diverse area of study, ranging from field surveys of environmental toxins to the study of toxin action at the molecular level. The editorial board and staff of *Toxins* are dedicated to providing a timely, peer-reviewed outlet for exciting, innovative primary research articles and concise, informative reviews from investigators in the myriad of disciplines contributing to our knowledge on toxins. We are committed to meeting the needs of the toxin research community by offering useful and timely reviews of all manuscripts submitted. Please consider *Toxins* when submitting your work for publication.

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