Special Issue

Molecular Structure and Mechanisms of Neurotoxicity of Amyloid Prefibrillar Oligomers

Message from the Guest Editors

It has been proposed that a common core of pathologic pathways exists for amyloid-associated diseases based on the cellular membrane permeabilization and subsequent abnormal Ca2+-influx induced by aggregates of the involved proteins, independently from their primary sequence. An intriguing hypothesis has been formulated, that amyloid diseases were caused by aggregates that mimic bacterial pore-forming toxins, which, in general, form well-ordered oligomeric membrane-spanning pores. Up until now, emerging evidence has been focused on low molecular weight prefibrillar oligomers (PFOs) as the toxic species. On the other hand, many studies have indicated that the neuronal membrane composition and its chemical microenvironment play a pivotal role. It is now generally accepted that “lipid-rafts”, which are ordered nanodomains formed by sphingolipids, play a special role. However, the existence of a specific common toxic structure, and a common mechanism by which it induces neuronal damage and death, is still an open hypothesis. This Issue aims to gather as much information to test this hypothesis.

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The International Journal of Molecular Sciences (*IJMS*, ISSN 1422-0067) is an open access journal, which was established in 2000. The journal aims to provide a forum for scholarly research on a range of topics, including biochemistry, molecular and cell biology, molecular biophysics, molecular medicine, and all aspects of molecular research in chemistry. *IJMS* publishes both original research and review articles, and regularly publishes special issues to highlight advances at the cutting edge of research. We invite you to read recent articles published in *IJMS* and consider publishing your next paper with us.

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