Special Issue

Structure and Function of Bacterial ADP-Ribosylation Toxins

Message from the Guest Editor

Bacterial mono-ADP-ribosyltransferase toxins (mART toxins) belong to a family of toxins that catalyze the covalent transfer of an ADP-ribose moiety from NAD+ to a macromolecule (often protein or DNA) in a host cell, changing target activity and impairing the function and survival of the host cell. Many members are the principal causative agents in serious diseases, including cholera, whooping cough, traveler's diarrhea, gastroenteritis, diphtheria, and secondary infections of immune-compromised individuals. Although effective inhibitors against these five classes of mART toxins have not been readily forthcoming, recently, some encouraging results pertaining to active-site competitive inhibitors that mimic the NAD+ substrate have been reported. The conserved mART catalytic core is amenable to new toxin discovery using bioinformatics-based techniques that exploit an expanding library of bacterial genome sequence data. Presently, a bona fide structure-based approach entails comparative modeling of 3-D structures, including substrate-binding residues while using known mART toxin structures as templates.

Guest Editor

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Deadline for manuscript submissions

closed (30 November 2020)

Toxins

an Open Access Journal by MDPI

Impact Factor 4.0
CiteScore 8.2
Indexed in PubMed

mdpi.com/si/49453

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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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