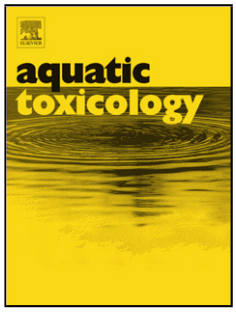

Title: The paralytic shellfish toxin, saxitoxin, enters the cytoplasm and induces apoptosis of oyster immune cells through a caspase-dependent pathway

Authors: Celina Abi-Khalil, Darren S. Finkelstein, Genevieve Conejero, Justin Du Bois, Delphine Destoumieux-Garzon, Jean Luc Rolland

PII: S0166-445X(17)30194-7
DOI: http://dx.doi.org/doi:10.1016/j.aquatox.2017.07.001
Reference: AQTOX 4695

To appear in: *Aquatic Toxicology*

Received date: 29-5-2017
Revised date: 4-7-2017
Accepted date: 5-7-2017

Please cite this article as: Abi-Khalil, Celina, Finkelstein, Darren S., Conejero, Genevieve, Du Bois, Justin, Destoumieux-Garzon, Delphine, Rolland, Jean Luc, The paralytic shellfish toxin, saxitoxin, enters the cytoplasm and induces apoptosis of oyster immune cells through a caspase-dependent pathway.Aquatic Toxicology http://dx.doi.org/10.1016/j.aquatox.2017.07.001

The paralytic shellfish toxin, saxitoxin, enters the cytoplasm and induces apoptosis of oyster immune cells through a caspase-dependent pathway.

Celina Abi-Khalil[1], Darren S. Finkelstein[2], Genevieve Conejero[3], Justin Du Bois[2], Delphine Destoumieux-Garzon[1] and Jean.Luc Rolland[1,*]

[1]. IFREMER, CNRS, Université de Montpellier, Université de Perpignan Via Domitia, IHPE, UMR 5244, F-34095 Montpellier, France. E-Mails: celina.abi-khalil@umontpellier.fr (C.A.K.); ddestoum@ifremer.fr (D.D.G); jean.luc.rolland@ifremer.fr (J.L.R.)

[2]. Department of Chemistry, Stanford University, 333 Campus Drive, Stanford, CA 94305-5080, USA. E-Mails: dsfinkel@stanford.edu (D.S.F.) jdubois@stanford.edu (J.D.)

[3]. Plant Cell Imaging platform PHIV, UMR B&PMP (INRA, CNRS, UM, SupAgro), Montpellier, France E-Mail: Genevieve.conejero@inra.fr (G.C)

* Author to whom corresponding should be addressed; E-Mails: jean.luc.rolland@ifremer.fr; Tel.: +33-467-144-709.

HIGHLIGHTS

- Saxitoxin (STX) appeared to spread throughout the cytoplasm of *Crassostrea gigas* hemocytes.
- STX induces a caspase-dependent apoptosis death of hemocytes that does not depend on ROS production.
- GTX5, which is present in large amounts in *A. catenella*, was found to be the most toxic derivate against oyster hemocytes.
- Hyalinocytes were found to be a hemocyte population highly responsive to this toxic stress.

Abstract:

Exposure of the toxin-producing dinoflagellate *Alexandrium catenella* (*A. catenella*) was previously demonstrated to cause apoptosis of hemocytes in the oyster species *Crassostrea*