

## Accepted Manuscript

Title: Cry toxin specificities of insect ABCC transporters closely related to lepidopteran ABCC2 transporters

Author: Haruka Endo Shiho Tanaka Kazuhiro Imamura  
Satomi Adegawa Shingo Kikuta Ryoichi Sato



PII: S0196-9781(17)30161-4  
DOI: <http://dx.doi.org/doi:10.1016/j.peptides.2017.04.003>  
Reference: PEP 69762

To appear in: *Peptides*

Received date: 11-1-2017  
Revised date: 10-4-2017  
Accepted date: 11-4-2017

Please cite this article as: Endo H, Tanaka S, Imamura K, Adegawa S, Kikuta S, Sato R, Cry toxin specificities of insect ABCC transporters closely related to lepidopteran ABCC2 transporters, *Peptides* (2017), <http://dx.doi.org/10.1016/j.peptides.2017.04.003>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

**Cry toxin specificities of insect ABCC transporters closely related to lepidopteran ABCC2 transporters**Haruka Endo<sup>1,2</sup>, Shiho Tanaka<sup>1</sup>, Kazuhiro Imamura<sup>1</sup>, Satomi Adegawa<sup>1</sup>, Shingo Kikuta<sup>1</sup> and Ryoichi Sato<sup>1</sup>

<sup>1</sup>Graduate School of Bio-Applications and Systems Engineering, Tokyo University of Agriculture and Technology, Koganei, Tokyo 184-8588, Japan, <sup>2</sup>Research Fellow of Japan Society for the Promotion of Science

**Correspondence**

R. Sato, PhD, Graduate School of Bio-Applications and Systems Engineering, Tokyo University of Agriculture and Technology, Koganei, Tokyo 184-8588, Japan

Fax: +81 42 388 7277

Tel: +81 42 388 7277

E-mail: ryoichi@cc.tuat.ac.jp

**Abstract**

In this study, we examined insect and human ABCC transporters closely related to the lepidopteran ABC transporter C2 (ABCC2), a powerful receptor for the *Bacillus thuringiensis* Cry toxin, for their responses to various Cry toxins. ABCC2 and the lepidopteran ABC transporter C3 (ABCC3) conferred cultured cells with susceptibility to a lepidopteran-specific Cry1Aa toxin but not to lepidopteran-specific Cry1Ca and Cry1Da. One coleopteran ABCC transporter specifically responded to a coleopteran-specific Cry8Ca toxin. ABCC transporters from a dipteran insect and humans did not respond to any of the tested Cry toxins that are active to lepidopteran and coleopteran insects. These results yield important information for our understanding of insect specificity of Cry toxins and provide the first demonstration of a coleopteran ABCC transporter that serves as a Cry toxin receptor.

**Keywords**

*Bacillus thuringiensis*, Cry toxin, ABC transporter subfamily C

**Abbreviations**

ABC transporter, ATP-binding cassette transporter; ABCC transporter, ABC transporter subfamily C; HEK293T, Human embryonic kidney 293 T; D-MEM, Dulbecco's modified Eagle medium; PEI, polyethylenimine; LDH, lactose dehydrogenase

Download English Version:

<https://daneshyari.com/en/article/8347658>

Download Persian Version:

<https://daneshyari.com/article/8347658>

[Daneshyari.com](https://daneshyari.com)