

# BIOSIS® Toxicology

Date revised: January 12, 2026

## Description

BIOSIS® Toxicology is a subset of BIOSIS® Previews, with a focus on toxicology and related topics. Records are drawn from journal articles, conference papers, monographs and book chapters, notes, letters, and reports, as well as original research. U.S. patent records are also included.

Abstracts are available for records beginning in 1976.

## Subject Coverage

All aspects of toxicology are covered, as they relate to:

- Agriculture
- Bacteriology
- Biochemistry
- Biophysics
- Biotechnology
- Botany
- Cell Biology
- Clinical Medicine
- Drugs
- Environmental Biology
- Environmental Science
- Experimental Medicine
- Genetics
- Immunology
- Microbiology
- Nutrition
- Occupational Health
- Parasitology
- Pathology
- Pharmacology
- Physiology
- Public Health
- Radiation Biology
- Systematic Biology
- Veterinary Science
- Virology

## Date Coverage

1969–present

## Update Frequency

Weekly

## Geographic Coverage

International

## Document Types

- Books and Monographs
- Conferences, Symposia, Meetings
- Journal Articles
- Patents

## Publisher

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# Sample document

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**Citation/Abstract** [« Back to results](#)

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**TI** Improved Insecticidal Toxicity by Fusing Cry1Ac of *Bacillus thuringiensis* with Av3 of *Anemonia viridis*

**AU,AUFN,AULN** **PUB** Yan, Fu ; Cheng, Xing ; Ding, Xuezhi; Yao, Ting ; Chen, Hanna ; et al. **Current Microbiology** 68(5) (May 2014): 604-609.

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**AB**

**Abstract (summary)** [Translate](#)

Av3, a neurotoxin of *Anemonia viridis*, is toxic to crustaceans and cockroaches but inactive in mammals. In the present study, Av3 was expressed in *Escherichia coli* Origami B (DE3) and purified by reversed-phase liquid chromatography. The purified Av3 was injected into the hemocoel of *Helicoverpa armigera*, rendering the worm paralyzed. Then, Av3 was expressed alone or fusion expressed with the Cry1Ac in acrystalliferous strain Cry(-)B of *Bacillus thuringiensis*. The shape of Cry1Ac was changed by fusion with Av3. The expressed fusion protein, Cry1AcAv3, formed irregular rhombus- or crescent-shaped crystalline inclusions, which is quite different from the shape of original Cry1Ac crystals. The toxicity of Cry1Ac was improved by fused expression. Compared with original Cry1Ac expressed in Cry(-)B, the oral toxicity of Cry1AcAv3 to *H. armigera* was elevated about 2.6-fold. No toxicity was detected when Av3 was expressed in Cry(-)B alone. The present study confirmed that marine toxins could be used in bio-control and implied that fused expression with other insecticidal proteins could be an efficient way for their application.

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**SU**

**Subject**

Anemonia viridis -- species;  
Anemonia viridis -- Cnidaria [41000];  
Anemonia viridis -- Invertebrata;  
Anemonia viridis -- Animalia;  
Anemonia viridis -- Animals;  
Anemonia viridis -- Invertebrates;  
crustacean -- common;  
crustacean -- Crustacea [75100];  
crustacean -- Arthropoda;  
crustacean -- Invertebrata;  
crustacean -- Animalia;  
crustacean -- Animals;  
crustacean -- Arthropods;  
crustacean -- Crustaceans;  
crustacean -- Invertebrates;  
*Bacillus thuringiensis* -- species;  
*Bacillus thuringiensis* -- strain-Cry B;  
*Bacillus thuringiensis* -- Endospore-forming Gram-Positives [07810];  
*Bacillus thuringiensis* -- Eubacteria;  
*Bacillus thuringiensis* -- Bacteria;  
*Bacillus thuringiensis* -- Microorganisms;  
*Escherichia coli* -- species;  
*Escherichia coli* -- expression system;  
*Escherichia coli* -- strain-Origami B;  
*Escherichia coli* -- Enterobacteriaceae [06702];  
*Escherichia coli* -- Facultatively Anaerobic Gram-Negative Rods;  
*Escherichia coli* -- Eubacteria;  
*Escherichia coli* -- Bacteria;  
*Escherichia coli* -- Microorganisms;  
*Helicoverpa armigera* -- species;  
*Helicoverpa armigera* -- pest;  
*Helicoverpa armigera* -- Invertebrata;  
*Helicoverpa armigera* -- Animalia;  
*Helicoverpa armigera* -- Animals;  
*Helicoverpa armigera* -- Arthropods;  
*Helicoverpa armigera* -- Insects;  
*Helicoverpa armigera* -- Invertebrates;  
cockroach -- common;  
cockroach -- Orthoptera [75340];  
cockroach -- Insecta;  
cockroach -- Arthropoda;

		cockroach -- Invertebrata; cockroach -- Animalia; cockroach -- Animals; cockroach -- Arthropods; cockroach -- Insects; cockroach -- Invertebrates; hemocoel -- circulatory system; reversed-phase liquid chromatography -- laboratory techniques; reversed-phase liquid chromatography -- chromatographic techniques
<b>Classification</b>		03506: Genetics - Animal 10060: Biochemistry studies - General 10064: Biochemistry studies - Proteins, peptides and amino acids 14504: Cardiovascular system - Physiology and biochemistry 20506: Nervous system - Pathology 22501: Toxicology - General and methods 31000: Physiology and biochemistry of bacteria 31500: Genetics of bacteria and viruses 54600: Pest control: general, pesticides and herbicides 60016: Economic entomology - Chemical control and apparatus 64008: Invertebrata: comparative, experimental morphology, physiology and pathology - Cnidaria 64054: Invertebrata: comparative, experimental morphology, physiology and pathology - Arthropoda: crustacea 64076: Invertebrata: comparative, experimental morphology, physiology and pathology - Insecta: physiology
<b>Major concept</b>		<b>Biochemistry and Molecular Biophysics, Toxicology, Pesticides</b>
<b>Biological organism</b>		Organism: <i>Anemonia viridis</i> , species Supertaxa: Invertebrata, Animalia Taxonomic notes: Animals, Invertebrates Biosystematic class: Cnidaria [41000]; Organism: crustacean, common Supertaxa: Arthropoda, Invertebrata, Animalia Taxonomic notes: Animals, Arthropods, Crustaceans, Invertebrates Biosystematic class: Crustacea [75100]; Organism: <i>Bacillus thuringiensis</i> , species Detail: strain-Cry B Supertaxa: Eubacteria, Bacteria, Microorganisms Taxonomic notes: Bacteria, Eubacteria, Microorganisms Biosystematic class: Endospore-forming Gram-Positives [07810]; Organism: <i>Escherichia coli</i> , species Detail: strain-Origami B Role: expression system Supertaxa: Facultatively Anaerobic Gram-Negative Rods, Eubacteria, Bacteria, Microorganisms Taxonomic notes: Bacteria, Eubacteria, Microorganisms Biosystematic class: Enterobacteriaceae [06702]; Organism: <i>Helicoverpa armigera</i> , species Role: pest Supertaxa: Insecta, Arthropoda, Invertebrata, Animalia Taxonomic notes: Animals, Arthropods, Insects, Invertebrates Biosystematic class: Lepidoptera [75330]; Organism: cockroach, common Supertaxa: Insecta, Arthropoda, Invertebrata, Animalia Taxonomic notes: Animals, Arthropods, Insects, Invertebrates Biosystematic class: Orthoptera [75340]
<b>GQ, SU</b>	<b>Genetic sequence</b>	Sequence: P01535 Detail: amino acid sequence Databank: UniProt
<b>MQ, SU</b>	<b>Method and equipment</b>	reversed-phase liquid chromatography -- laboratory techniques, reversed-phase liquid chromatography -- chromatographic techniques
<b>IF, SU</b>	<b>Identifier (keyword)</b>	crystal structure
	<b>Generic name</b>	Av3, Cry1Ac

<b>TI</b>	<b>Title</b>	Improved Insecticidal Toxicity by Fusing Cry1Ac of <i>Bacillus thuringiensis</i> with Av3 of <i>Anemonia viridis</i>
<b>AU,AUFN,AULN FAU</b>	<b>Author</b>	Yan, Fu; Cheng, Xing; Ding, Xuezhi; Yao, Ting; Chen, Hanna; Li, Wenping; Hu, Shengbiao; Yu, Ziquan; Sun, Yunjun; Zhang, Youming; Xia, Liqiu
	<b>Correspondence author</b>	Xia, Liqiu Hunan Normal Univ, State Key Lab Breeding Base Microbial Mol Biol, Hunan Prov Key Lab Microbial Mol Biol, Changsha 410081, Hunan, Peoples R China.
<b>LA</b>	<b>Language</b>	English
<b>SL</b>	<b>Language of abstract</b>	English
<b>DTYPE</b>	<b>Document type</b>	Article
<b>PUB</b>	<b>Publication title</b>	Current Microbiology
<b>VO</b>	<b>Volume</b>	68
<b>ISS</b>	<b>Issue</b>	5
<b>PG</b>	<b>Pagination</b>	604-609
<b>ISSN</b>	<b>ISSN</b>	0343-8651
<b>PSTYPE</b>	<b>Publication type</b>	Article
<b>DOI</b>	<b>DOI</b>	<a href="http://dx.doi.org/10.1007/s00284-013-0516-1">http://dx.doi.org/10.1007/s00284-013-0516-1</a>
<b>PD,YR</b>	<b>URL</b>	<a href="http://www.springerlink.com/content/100355/">http://www.springerlink.com/content/100355/</a>
<b>DCRE</b>	<b>Publication date</b>	May 2014
<b>DSTAT</b>	<b>Date created</b>	2014-04-14
<b>AN</b>	<b>Document status</b>	New
	<b>Source attribution</b>	BIOSIS Toxicology, © Publisher specific
<b>FAV</b>	<b>Accession number</b>	TOXB201400031332
<b>UD</b>	<b>Document URL</b>	<a href="http://search.proquest.com/professional/docview/1516493980?accountid=137296">http://search.proquest.com/professional/docview/1516493980?accountid=137296</a>
	<b>Copyright</b>	Copyright Thomson 2014
	<b>First available</b>	2014-04-16
	<b>Updates</b>	2014-04-16
	<b>Database</b>	BIOSIS® Toxicology (1969 - current)

## Search fields

You can use field codes on the Basic Search, Advanced Search, and Command Line Search pages to limit searches to specific fields. The table below lists the field codes for this database.

Field Name	Field Code	Example	Description and Notes
Abstract	AB	ab(reversed-phase liquid chromatography)	Use adjacency and/or Boolean operators to narrow search results.
Abstract present	ABANY	"Bacillus thuringiensis" AND abany(yes)	Add: AND ABANY(YES) to a query to limit retrieval to records with abstracts.
Accession number	AN	an(TOXB201400031332)	A unique document identification number assigned by the information provider.
All fields	ALL	all("marine toxins" NEAR/4 bio-control)	Searches all fields in bibliographic files. Use adjacency and/or Boolean operators to narrow search results.
All fields + text	--	("marine toxins" N/4 bio-control)	Same as ALL field code: searches all fields in bibliographic files.
Author <sup>1</sup> Author First Name Author Last Name	AU AUFN AULN	au(chen, hanna) au(hanna) or au(h*) au(chen)	Includes all Authors.
First author	FAU	fau("yan, fu")	First name listed in Author field. It is included in Author browse, but its position cannot be specified in the Author browse.
Author affiliation	AF	af("Hunan Normal Univ" and china)	Includes as much data as is available in the original document, such as department, organization, address, city, state, country, author email, etc.
CAS® Registry Number	RN, SUBST	rn(1199-18-4)	Also searchable using the Substance field code (SUBST).
Classification <sup>1</sup>	CC, BC	cc(03506) cc("genetics - animal") bc(75326) bc("hymenoptera")	BC=Biosystematic Codes CC=Concept Codes.
Conference information	CF	cf("63rd Annual Meeting of the American-Academy-of-Neurology") cf(2009-08-30) cf("amer fisheries soc") cf(nashville, tn, usa)	Includes conference title, date, sponsor, and location.
Conference location	CG	cg(honolulu, hi, usa)	
Conference sponsor	CS	cs("amer acad neurol")	
Conference title	CFTI	cfti("63rd Annual Meeting of the American-Academy-of-Neurology")	
Date created	DCRE	dcre(20160301)	This represents the date BIOSIS created the record and added it to their system. It predates its delivery to ProQuest and has no relation to the ProQuest update date.  If a document has been revised by BIOSIS it does NOT have a Date created date; instead a Date revised date is displayed. See also <i>Document status</i> .

<sup>1</sup> A Lookup/Browse feature is available for this field in the Advanced Search dropdown or in Browse Fields.

Field Name	Field Code	Example	Description and Notes
			Date range searching is supported.
Date revised	DREV	drev(>20171231)	<p>This represents the date BIOSIS last revised the record. It predates its delivery to ProQuest and has no relation to the ProQuest update date.</p> <p>If a document has never been revised by BIOSIS it does NOT have a Date revised date; only a Date created date is displayed. See also <i>Document status</i>.</p> <p>Date range searching is supported.</p>
DOI	DOI	doi(10.1007/s00284-013-0516-1)	Digital Object Identifier. Search the portion of the DOI that follows <a href="http://dx.doi.org/">http://dx.doi.org/</a> .
Disease	DIS	dis("Neurodegenerative Disease")	Also searchable using the Subject field code (SU).
Document status	DSTAT	dstat(new) dstat(revised)	<p>BIOSIS records have a status of <i>New</i> OR <i>Revised</i>.</p> <p>See also <i>Date created</i> and <i>Date revised</i>.</p>
Document title	TI	ti("Improved Insecticidal Toxicity by Fusing Cry1Ac of Bacillus thuringiensis")	Includes Alternate Title (OTI), but not Publication Title (PUB).
Alternate title	OTI	oti(phenoxy carbonsaeure -herbizide)	Includes Alternate title, subtitle, and original-language of document title, if available.
Document type	DTYPE	dtype(article)	
First available	FAV	fav(2014-04-16)	Indicates the first time a document was loaded on PQD. It will not change regardless if how many times the document is subsequently reloaded, as long as the Accession Number remains the same.
From database <sup>2</sup>	FDB	"PC12 cell line" AND fdb(biosistoxicology) "PC12 cell line" AND fdb(1008436)	Useful in multi-file searches to isolate records from a single file. FDB cannot be searched on its own; specify at least one search term then AND it with FDB.
Enzyme Commission number	ECN	ecn("1.14.16.4")	Also searchable using the Substance field code (SUBST).
Gene name	GNA	gna("h1n1 influenza virus")	Also searchable using the Subject field code (SU).
Genetic sequence	GQ	gq(UniProt) gq(P01535)	Also searchable using the Subject field code (SU).
ISSN	ISSN	issn(0343-8651) issn(03438651)	Also searchable via the Look Up Citation tool.
Issue	ISS	iss(5) iss(supp)	Also searchable via the Look Up Citation tool.
Language	LA	la(english)	The language in which the document was originally published.
Language of abstract	SL	sl(English)	
Location	LOC	loc(sweden)	Also searchable using the Subject field code (SU).

<sup>2</sup> Click the "Field codes" hyperlink at the top right of the Advanced Search page. Click "Search syntax and field codes", then click on "FDB command" to get a list of database names and codes that can be searched with FDB.

Field Name	Field Code	Example	Description and Notes
Major concept <sup>1</sup>	MJCN	mjcn(pharmacology)	Also searchable using the Subject field code (SU).
Method and equipment	MQ	mq("reversed-phase liquid chromatography")	Also searchable using the Subject field code (SU).
Organism	ORM	orm("crustacean")	Also searchable using the Subject field code (SU).
Other subject	OSU	osu("systems biology")	Also searchable using the Subject field code (SU).
Patent assignee	PA	pa("du pont" or dupont)	
Patent number	PN	pn("07902231")	
Pagination	PG	pg(604-609)	Includes: start page (and end page – where available). The start page is searchable on the Look Up Citation page.
Part and structure	POR	por(hemocoel)	Also searchable using the Subject field code (SU).
Publication date	PD	pd(201405) pd(20140501-20140531) pd(>=20131231)	Date range searching is supported.
Publication title	PUB	pub(current microbiology)	Title of publication where document originally appears, commonly a monograph or periodical title.
Publication type	PSTYPE	pstype(article)	
Publication year	YR	yr(2014) yr(>2010)	Date range searching is supported.
Source information	SRC	src(ACS chemical neuroscience)	Includes Publication title, Issue, Volume, ISSN, Publication date, and Pagination.
Start page	PAGE	page(605)	
Subject <sup>1</sup>	SU	su("anemonea viridis")	Includes the majority of descriptor fields.
Substance	SUBST	subst(cry1AC) subst(216864-07-02)	Includes: CAS Registry Number (RN) and Enzyme Commission number (ECN).
Super taxa	STX	stx(invertebrata)	Displays as part of Organism display.
Taxa notes	TXN	txn(animals)	Displays as part of Organism display.
Updated	UD	ud(2014-04-16)	The date(s) the record was loaded as a result of an update provided by the supplier.
Volume of publication	VO	vo(68)	

In addition to [Search Fields](#), other tools available for searching are [Limit Options](#), [Command Line Common Concepts](#), [Browse Fields](#), ["Narrow Results By" Limiters](#) and [Look Up Citation](#). Each is listed separately below. Some data can be searched using more than one tool.

## Limit options

Limit options are quick and easy ways of searching certain common concepts. Check boxes are available for:

**Abstract included, Humans, Animals, Plants, Microorganisms, Females, Males**

Short lists of choices are available for:

**Document type, Language**

**Date limiters** are available in which you can select single dates or ranges of dates for date of **publication** and **updated**.

## Command line common concepts

Find articles on humans:	HUMAN(YES)
Find articles on animals:	ANIMAL(YES)
Find articles on males:	MALE(YES)
Find articles on females:	FEMALE(YES)
Find articles on microorganisms:	MICROORGANISM(YES)
Find articles on plants:	PLANT(YES)
Find review articles:	DTYPE(REVIEW)

## Browse fields

You can browse the contents of certain fields by using Look Up lists. These are particularly useful to validate spellings or the presence of specific data. Terms found in the course of browsing may be selected and automatically added to the Advanced Search form. Look Up lists are available in the fields drop-down and in the search options for:

**Major concept, Concept code, Biosystematic code, Super taxa, CAS Registry numbers**

And in the fields drop-down only for:

**Author, Publication title**

## “Narrow Results By” limiters

When results of a search are presented, the results display is accompanied by a list of “Narrow results by” options shown on the right-hand panel. Click on any of these options and you will see a ranked list showing the most frequently occurring terms in your results. Click on the term to apply it to (“narrow”) your search results. “Narrow results by” limiters in BIOSIS Toxicology include:

**Author, Language, Publication title, Subject, Document type, and Publication date**

## Look up citation

If you need to trace a particular bibliographic reference, use the Look Up Citation feature. Find a link to this toward the top left of the Advanced Search page, or in the drop list under Advanced on any search form; click this and you will go to a form where you can enter any known details of the citation, including document title, author, journal name, volume, issue, page, publication date, ISSN.

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