

**Analysis of the Quorum Sensing Regulons of *Vibrio parahaemolyticus* BB22 and *Pantoea stewartii* subspecies *stewartii***

Alison Kernell Burke

Dissertation submitted to the faculty of Virginia Polytechnic Institute and State University in partial fulfillment of the requirements for the degree of

Doctor of Philosophy  
in  
Biological Sciences

Ann M. Stevens, Chair  
Stephen B. Melville  
Florian D. Schubot

October 29, 2015  
Blacksburg, Virginia

Keywords: Quorum sensing, *Vibrio parahaemolyticus*, *Pantoea stewartii*, RNA-Seq, OpaR, EsaR, Transcriptomics

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Allison Burke &lt;akernell@vt.edu&gt;

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**Permission to use the VP BB22 Genome Announcement in my Dissertation**

9 messages

Allison Burke &lt;akernell@vt.edu&gt;

Tue, Aug 18, 2015 at 12:43 PM

To: "rvjensen@vt.edu" <rvjensen@vt.edu>, singals@hsc.wvu.edu, eharbolick@gmail.com, tianh3@uci.edu, David Kruchko <david.kruchko@gmail.com>, Thero Modise <thero@vt.edu>, "linda-mccarter@uiowa.edu" <linda-mccarter@uiowa.edu>, cimarron.smith22@gmail.com, Ann Stevens <ams@vt.edu>

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Complete genome sequence of prepandemic *Vibrio parahaemolyticus* BB22OP. Genome Announcement 1. 2007 Jensen, Depasquale, Harbolick, Hong, Kernell, Kruchko, Modise, Smith, McCarter, Stevens.

# Alison

Alison Kernell Burke  
PhD Candidate  
Stevens Lab LSI 222  
Virginia Tech  
540-231-2342

---

Stevens Ann <ams@vt.edu>

Tue, Aug 18, 2015 at 12:44 PM

To: Allison Burke &lt;akernell@vt.edu&gt;

Alison,

Ask the graduate school if I can give permission as corresponding author...

-Ann

Ann M. Stevens, Ph.D.  
Professor of Microbiology  
Department of Biological Sciences MC 0910  
Life Sciences 1, Rm. 219, Virginia Tech  
970 Washington St. SW  
Blacksburg, VA 24061

Office Phone: (540)-231-9378  
Lab Phone: (540)-231-2342  
FAX: (540)-231-4043  
E-mail: ams@vt.edu

[Quoted text hidden]

Tian Hong <hong.tian@uci.edu>  
To: Alison Burke <akernell@vt.edu>

Tue, Aug 18, 2015 at 1:02 PM

Dear Alison,

Please find my statement below. Good luck for your dissertation.

Best,  
Tian

To whom it may concern,

I give permission for Alison Kernell Burke to use the paper "Complete genome sequence of prepandemic *Vibrio parahaemolyticus* BB22OP" in her PhD Dissertation.

Sincerely yours,  
Tian Hong

—  
Tian Hong

Postdoctoral Scholar  
Center for Complex Biological Systems  
Department of Mathematics  
540L Rowland Hall (Bldg 400), University of California, Irvine,  
Irvine, CA 92697  
Tel: 949-824-0287

McCarter, Linda <linda-mccarter@uiowa.edu>  
To: Alison Burke <akernell@vt.edu>

Tue, Aug 18, 2015 at 1:14 PM

I am happy to give permission for Alison Kernell Burke to use the paper "Complete genome sequence of prepandemic *Vibrio parahaemolyticus* BB22OP" in her PhD Dissertation."

Complete genome sequence of prepandemic *Vibrio parahaemolyticus* BB22OP. Genome Announcement 1. 2007 Jensen, Depasquale, Harbolick, Hong, Kernell, Kruchko, Modise, Smith, McCarter, Stevens.

\*\*\*\*\*

Linda McCarter  
Microbiology  
3-430 BSB  
The University of Iowa  
Iowa City, IA 52242

tel: 319 335-9721

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\*\*\*\*\*

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David Kruchko <david.kruchko@gmail.com>  
To: Alison Burke <akemell@vt.edu>

Tue, Aug 18, 2015 at 1:15 PM

Hi Allison,

Congratulations on getting so close to the end. Best of luck with your dissertation!

I give permission for Alison Kemell Burke to use the paper "Complete genome sequence of prepandemic *Vibrio parahaemolyticus* BB22OP" in her PhD Dissertation.

Please let me know if I can do anything else to help.

Take care,

David Kruchko  
[Quoted text hidden]

David Kruchko

Elizabeth Harbolick <eharbolick@gmail.com>  
To: Alison Burke <akemell@vt.edu>

Tue, Aug 18, 2015 at 2:31 PM

Hi Alison!

Here you go!

I give permission for Alison Kemell Burke to use the paper "Complete genome sequence of prepandemic *Vibrio parahaemolyticus* BB22OP" in her PhD Dissertation."

Complete genome sequence of prepandemic *Vibrio parahaemolyticus* BB22OP. Genome Announcement 1. 2007 Jensen, Depasquale, Harbolick, Hong, Kemell, Kruchko, Modise, Smith, McCarter, Stevens.

let me know if you need anything else

Elizabeth Harbolick

On Tue, Aug 18, 2015 at 12:43 PM, Allison Burke <akemell@vt.edu> wrote:  
[Quoted text hidden]

Depasquale, Saylor <singalls@hsc.wvu.edu>  
To: Alison Burke <akemell@vt.edu>

Wed, Aug 19, 2015 at 8:28 AM

I give permission for Alison Kernell Burke to use the paper "Complete genome sequence of prepandemic *Vibrio parahaemolyticus* BB22OP" in her PhD Dissertation.

Good luck with the writing and defense!

**From:** Alison Burke [mailto:akemell@vt.edu]

**Sent:** Tuesday, August 18, 2015 12:44 PM

**To:** rvjensen@vt.edu; Depasquale, Saylem; eharbolick@gmail.com; tianh3@uci.edu; David Kruchko; Thero Modise; linda-mccarter@uiowa.edu; cimarron.smith22@gmail.com; Ann Stevens

**Subject:** Permission to use the VP BB22 Genome Announcement in my Dissertation

[Quoted text hidden]

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**Jensen, Roderick** <rvjensen@vt.edu>  
To: "Burke, Alison" <akemell@vt.edu>

Wed, Aug 19, 2015 at 8:37 AM

"I give permission for Alison Kernell Burke to use the paper "Complete genome sequence of prepandemic *Vibrio parahaemolyticus*BB22OP" in her PhD Dissertation." — Rick Jensen

---

**From:** Alison Burke <akemell@vt.edu>

**Sent:** Tuesday, August 18, 2015 12:43 PM

**To:** Jensen, Roderick; singalls@hsc.wvu.edu; eharbolick@gmail.com; tianh3@uci.edu; David Kruchko; Modise, Thero; linda-mccarter@uiowa.edu; cimarron.smith22@gmail.com; Stevens, Ann

**Subject:** Permission to use the VP BB22 Genome Announcement in my Dissertation

[Quoted text hidden]

---

**Cimarron Smith** <cimarron.smith22@gmail.com>  
To: Alison Burke <akemell@vt.edu>

Sat, Aug 22, 2015 at 6:45 PM

To whom it may concern,

I give permission for Alison Kernell Burke to use the paper "Complete genome sequence of prepandemic *Vibrio parahaemolyticus* BB22OP" in her PhD Dissertation

Cimarron Smith

[Quoted text hidden]



Allison Burke <akernell@vt.edu>

---

## Permission to use V. parahaemolyticus RNA-Seq Paper in Dissertation

6 messages

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Allison Burke <akernell@vt.edu>

Wed, Aug 5, 2015 at 1:18 PM

To: Leah Guthrie <lfcguthrie@gmail.com>, Thero Modise <thero@vt.edu>, gcornier@uga.edu, "rvjensen@vt.edu" <rvjensen@vt.edu>, "linda-mccarter@uiowa.edu" <linda-mccarter@uiowa.edu>, Ann Stevens <ams@vt.edu>

Hello All,

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You may receive multiple of these emails from me because I will need individual permission for each paper we have published together.

**OpaR Controls a Network of Downstream Transcription Factors  
in *Vibrio parahaemolyticus* BB22OP**

Allison Kernell Burke<sup>1</sup>, Leah T. C. Guthrie<sup>1</sup>, Thero Modise<sup>1</sup>, Guy Cormier<sup>2</sup>, Roderick V. Jensen<sup>1</sup>,  
Linda L. McCarter<sup>3</sup>, and Ann M. Stevens<sup>1\*</sup>

<sup>1</sup>Department of Biological Sciences, Virginia Tech, Blacksburg, VA, USA

<sup>2</sup>Georgia Advanced Computing Resource Center, University of Georgia, Athens, GA, USA

<sup>3</sup>Department of Microbiology, University of Iowa, Iowa City, IA, USA

# Alison

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Virginia Tech  
540-231-2342

---

Guy Cormier <gcormier@uga.edu>  
To: Alison Burke <akernell@vt.edu>

Wed, Aug 5, 2015 at 2:01 PM

Hello Alison,

I give permission for you, Alison Kernell Burke, to use the paper "OpaR Controls a Network of Downstream Transcription Factors in *Vibrio parahaemolyticus* BB22OP" in your PhD Dissertation.

regards,  
Guy

\*\*\*\*\*  
Dr. Guy Cormier  
Director of Research Computing  
Georgia Advanced Computing Resource Center  
The University of Georgia  
gcormier@uga.edu  
(706) 542-0355

---

McCarter, Linda <linda-mccarter@uiowa.edu>  
To: Alison Burke <akernell@vt.edu>

Wed, Aug 5, 2015 at 3:03 PM

To whom it may concern,

I give permission for Alison Kernell Burke to use the paper "OpaR Controls a Network of Downstream Transcription Factors in *Vibrio parahaemolyticus* BB22OP" in her PhD Dissertation" on which I am one of the co-authors.

\*\*\*\*\*  
Linda McCarter  
Professor  
Microbiology  
3-430 BSB  
The University of Iowa  
Iowa City, IA 52242

tel: 319 335-9721  
email: linda-mccarter@uiowa.edu  
\*\*\*\*\*

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Leah Guthrie <ltcguthrie@gmail.com>

Wed, Aug 5, 2015 at 3:33 PM

To: Alison Burke <akemell@vt.edu>

Hi Alison,

I give permission for Alison Kernell Burke to use the paper "OpaR Controls a Network of Downstream Transcription Factors in Vibrio parahaemolyticus BB22OP" in her PhD Dissertation.

All the best with your defense.

Leah

[Quoted text hidden]

---

Thero Modise <thero@vt.edu>  
To: Alison Burke <akemell@vt.edu>

Thu, Aug 6, 2015 at 12:27 AM

Hi Alison,

I Thero Modise give permission for Alison Kernell Burke to use the paper "OpaR Controls a Network of Downstream Transcription Factors in Vibrio parahaemolyticus BB22OP" in her PhD Dissertation."

Hope this helps,  
Thero

On Wed, Aug 5, 2015 at 1:16 PM, Alison Burke <akemell@vt.edu> wrote:  
[Quoted text hidden]

---

Jensen, Roderick <rvjensen@vt.edu>  
To: "Burke, Alison" <akemell@vt.edu>

Tue, Aug 18, 2015 at 12:22 PM

Yes. You have my permission. -- Rick Jensen

---

From: Alison Burke <akemell@vt.edu>  
Sent: Wednesday, August 5, 2015 1:16 PM  
To: Leah Guthrie; Modise, Thero; gcomier@uga.edu; Jensen, Roderick; linda-mccarter@uiowa.edu; Stevens, Ann  
Subject: Permission to use V. parahaemolyticus RNA-Seq Paper in Dissertation

[Quoted text hidden]





Allison Burke <akernell@vt.edu>

---

## Permission to use PS RNA-Seq Paper in Dissertation

4 messages

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Allison Burke <akernell@vt.edu>

Wed, Aug 5, 2015 at 1:19 PM

To: Revathy Ram <revthewiz@gmail.com>, gcornier@uga.edu, "rvjensen@vt.edu" <rvjensen@vt.edu>, Ann Stevens <ams@vt.edu>

Hello All,

I am working to complete my dissertation and I need your permission to include the VP paper listed below in my dissertation. I need a statement (email is fine) saying "I give permission for Allison Kernell Burke to use the paper "Transcriptome-Based Analysis of the *Pantoea stewartii* Quorum-Sensing Regulon and Identification of EsaR Direct Targets." in her PhD Dissertation."

**Transcriptome-Based Analysis of the *Pantoea stewartii* Quorum-Sensing Regulon and Identification of EsaR Direct Targets**

Ramachandran R<sup>a</sup>, Burke AK<sup>a</sup>, Cormier G<sup>b</sup>, Jensen RV<sup>a</sup>, Stevens AM<sup>a</sup>. Transcriptome-based analysis of the *Pantoea stewartii* quorum-sensing regulon and identification of EsaR direct targets. *Appl Environ Microbiol.* 2014;80(18):5790-800. Epub 2014/07/11.

Department of Biological Sciences, Virginia Tech, Blacksburg, Virginia, USA<sup>a</sup>; University of Georgia, Georgia Advanced Computing Resource Center and Institute of Bioinformatics, Athens, Georgia, USA<sup>b</sup>

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Virginia Tech  
540-231-2342

---

Guy Cormier <gcornier@uga.edu>

Wed, Aug 5, 2015 at 2:00 PM

To: Allison Burke <akernell@vt.edu>

Hello Alison,

I give permission for you, Allison Kernell Burke, to use the paper "Transcriptome-Based Analysis of the *Pantoea*

stewartii Quorum-Sensing Regulon and Identification of EsaR Direct Targets." in your PhD Dissertation.

regards,  
Guy

---

Dr. Guy Cormier  
Director of Research Computing  
Georgia Advanced Computing Resource Center  
The University of Georgia  
gcormier@uga.edu  
(706) 542-0355

---

Revathy Ram <revthewiz@gmail.com>  
To: Alison Burke <akernell@vt.edu>

Wed, Aug 5, 2015 at 2:37 PM

Hello,

I give permission to Alison Kernell Burke to use the paper "Transcriptome-Based Analysis of the *Pantoea stewartii* Quorum-Sensing Regulon and Identification of EsaR Direct Targets. *Appl Environ Microbiol.* 2014;80(18):5790-800" in her PhD Dissertation.

Good luck,  
-Revathy  
[Quoted text hidden]

---

Jensen, Roderick <rvjensen@vt.edu>  
To: "Burke, Allison" <akernell@vt.edu>

Tue, Aug 18, 2015 at 12:22 PM

Yes. You have my permission. --- Rick Jensen

---

From: Alison Burke <akernell@vt.edu>  
Sent: Wednesday, August 5, 2015 1:19 PM  
To: Revathy Ram; gcormier@uga.edu; Jensen, Roderick; Stevens, Ann  
Subject: Permission to use PS RNA-Seq Paper in Dissertation

[Quoted text hidden]



Alison Burke <akernell@vt.edu>

---

## Permission to use RcsA and LrhA Paper in Dissertation

3 messages

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Alison Burke <akernell@vt.edu>

Wed, Aug 5, 2015 at 1:25 PM.

To: An Duong <andd@vt.edu>, Ann Stevens <ams@vt.edu>, "rvjensen@vt.edu" <rvjensen@vt.edu>

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### **Examining the roles of two quorum-sensing controlled transcription factors**

*In Pantoea stewartii* via RNA-Seq

Alison Kernell Burke<sup>†</sup>, An Duy Duong<sup>†</sup>, Roderick V. Jensen, and Ann M. Stevens<sup>\*</sup>

Department of Biological Sciences, Virginia Tech, Blacksburg, VA 24017

# Alison

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PhD Candidate  
Stevens Lab LSI 222  
Virginia Tech  
540-231-2342

---

An Duong <andd@vt.edu>

Wed, Aug 5, 2015 at 2:23 PM

To: Alison Burke <akernell@vt.edu>

Dear Alison,

I give permission for Alison Kernell Burke to use the paper "Examining the roles of two quorum-sensing controlled transcription factors" in her PhD Dissertation.

### **Examining the roles of two quorum-sensing controlled transcription factors**

*In Pantoea stewartii* via RNA-Seq

Alison Kernell Burke<sup>†</sup>, An Duy Duong<sup>†</sup>, Roderick V. Jensen, and Ann M. Stevens<sup>\*</sup>

Department of Biological Sciences, Virginia Tech, Blacksburg, VA 24017

An Duy Duong.

[Quoted text hidden]

---

Jensen, Roderick <rvjensen@vt.edu>  
To: "Burke, Alison" <akernell@vt.edu>

Tue, Aug 18, 2015 at 12:22 PM

Yes. You have my permission. --- Rick Jensen

---

**From:** Alison Burke <akernell@vt.edu>  
**Sent:** Wednesday, August 5, 2015 1:25 PM  
**To:** Duong, An; Stevens, Ann; Jensen, Roderick  
**Subject:** Permission to use RcsA and LrhA Paper in Dissertation

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