Message

From: Roy Bailey [rbailey@gdcillc.com]
Sent: 7/28/2017 2:31:26 PM
To: Beck, Nancy [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=168ecb5184ac44de95a913297f353745-Beck, Nancy]
CC: Bennett, Tate [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=1fa92542f7ca4d01973b18b2f11b9141-Bennett, El]; Brown, Byron [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=9242d85c7df343d287659f840d730e65-Brown, Byro]; Gay Ludwick [gay@gdcillc.com]
Subject: Re: Wolbachia doc

Nancy

That certainly makes sense, thanks much. I will send you a thorough analysis in the next few days.

All my best

Roy W. Bailey
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On Jul 28, 2017, at 9:11 AM, Beck, Nancy <Beck.Nancy@epa.gov> wrote:

> Roy,
> Thanks for the heads up. It would probably make sense for the OPP experts to take a look at what will send and digest it a bit before we have a follow-up meeting. Next Tuesday/Wednesday may be a bit too soon, but we can make that call once we have more materials from you.
>
> Regards,
> Nancy
>
> ---
> Nancy B. Beck, Ph.D., DABT
> Deputy Assistant Administrator, OCSPP
> P: 202-564-1273
> M: Ex. 6
> beck.nancy@epa.gov
>
> **From:** Roy Bailey [mailto:rbailey@gdcillc.com]
> **Sent:** Friday, July 28, 2017 9:02 AM
> **To:** Beck, Nancy <Beck.Nancy@epa.gov>
> **Cc:** Bennett, Tate <Bennett.Tate@epa.gov>; Brown, Byron <brown.byron@epa.gov>; Gay Ludwick <gay@gdcillc.com>
> **Subject:** Re: Wolbachia doc
>
> Nancy,

Thanks so much for the responses. There remain serious concerns and I will send you a more substantive reply later today or by the weekend latest.

We will be in DC next week on Tues and Wed and would be happy to sit down to discuss details if helpful. Please let me know.

All my sincere regards

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On Jul 25, 2017, at 11:04 AM, Beck, Nancy <Beck.Nancy@epa.gov> wrote:

> Roy,
> Thank you for sending this information.
> In response to your comments, our staff checked on whether these concerns were addressed in the response to comments document that was issued August 30 2016.
> An overview of responses is below:
>
> Citations 1, 2, 3, 4, and 6: Addressed in EPA's response to comments Public Comment #3.
>
> Citation 5: This research is for a completely different organism, *Spodoptera exempta* (African armyworm), not mosquitoes, and *Wolbachia* causes very different responses depending on the host. This information, while interesting, cannot be used to make predictions about mosquitoes.
>
> Citation 7: Addressed in EPA's response to comments Public Comment #4.
>
> Citations 8, 9, 10, and 11: Addressed in EPA's response to comments Public Comment #7.
>
> Citation 12: With respect to the *Wolbachia* phage encoding a toxin from the black widow spider, this comment is referring to Citation 12 ("Eukaryotic association module in phage WO genomes from *Wolbachia*"). In this study, the WO-B phage in *w*AlbB strain mosquitoes were not studied. Only moth and parasitoid wasp WO phage were researched. *Aedes aegypti w*AlbB strain does have a WO-B phage associated with it; however, phage are specific to their hosts, horizontal gene transfer is happening on evolutionary time scales, there is no indication that the widow spider toxin sequence is expressed in the *Wolbachia* infection, and it is not reported that the WO-B phage in *w*AlbB *Aedes aegypti* produce the toxin from black widow spider. Also, most importantly, viruses have been shown to incorporate host sequences numerous times, but this is the first report of a virus of an obligate intercellular parasitic bacterium having sequences from both hosts: bacterial and eukaryotic. The widow spider toxin is a huge multimeric toxin with

the entire 150kD monomer needing to be expressed and binding to form a tetramer to have full toxin activity. The sequence detected in the prophage sequence is only the C-terminus (maybe 18 kD) of the entire monomeric protein (150 kD). This C-terminus has been implicated in passage through membranes to release the toxins when produced in the spider. Furthermore, there is no evidence that *Wolbachia* alone are being transferred to animals when a female mosquito bites and takes a blood meal from an animal.

Citation 13, 14, and 15: The *Wolbachia pipientis* strains associated with River blindness and lymphatic filariasis are in different clades than the *w*AlbB, and the *w*AlbB strain is not associated with these diseases.

If there are still concerns that you are worried are not adequately addressed, I'm sure we can get our scientific experts together for further discussions.

Regards,
Nancy

Nancy B. Beck, Ph.D., DABT
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From: Roy Bailey [mailto:rbailey@gdcillc.com]
Sent: Sunday, July 16, 2017 1:39 PM
To: Bennett, Tate <Bennett.Tate@epa.gov>; Brown, Byron <brown.byron@epa.gov>; Beck, Nancy <Beck.Nancy@epa.gov>
Cc: Roy Bailey <rbailey@gdcillc.com>; Gay Ludwick <gay@gdcillc.com>
Subject: Fwd: Wolbachia doc

Tate,

This additional info may be helpful as well. Thanks so much for your call and attention to the concerns.

Best regards

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Begin forwarded message:

> **From:** "Basta, Christopher" <CBasta@intrexon.com>
> **Date:** July 16, 2017 at 10:22:45 AM PDT
> **To:** Roy Bailey <rbailey@gdcillc.com>

Cc: "Kirk, Randal J" <RJ.Kirk@intrexon.com>, "Bobo, Jack" <JBobo@intrexon.com>
Subject: Wolbachia doc

Roy,

RJ asked that I send you this document that provides a Wolbachia overview as well as a list of publications that cover various Wolbachia concerns & potential issues.

Best,
Chris

Christopher Basta
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<Wolbachia Overview and Publications Citing Concerns and Risks.docx>