



DEPARTMENT OF HEALTH & HUMAN SERVICES

Public Health Service

National Institutes of Health
Freedom of Information Office
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via Email: foia@sirillp.com

May 13, 2022

Aaron Siri, Esq.
Siri & Glimstad LLP
200 Park Avenue
Seventeenth Floor
New York, NY 10166

Re: NIH FOIA Case No. 54107; *ICAN v. National Institutes of Health*, No. 20-cv-01277

Dear Mr. Siri:

This is a partial response to Freedom of Information Act (FOIA) requests that are the subject of the Complaint filed in *ICAN v. National Institutes of Health*, No. 20-cv-01277. Your FOIA request, dated April 29, 2020, was received by the National Institutes of Health (NIH) on the same day.

You requested the following for the timeframe of November 1, 2019 through the date of the search for:

All emails sent or received by Barney Graham that include the term SARS-CoV, COVID, COVID-19 or coronavirus in any portion of the email, including the body, subject, metadata, sender line, or recipient line of the email, or any attachment to the email.

NIH has processed 301 pages responsive to your request 54107. Attached to this letter are 287 pages; NIH has sent the remaining 14 pages to the Centers for Disease Control, the Department of Defense and the Department of Health and Human Services for further review. NIH will provide a further response regarding the consulted material once the consultations are complete.

I have determined to withhold portions of the enclosed pages under FOIA exemptions (b)(4), (b)(5) and (b)(6). The information being withheld is protected from release pursuant to Exemptions 4, 5, and 6 of the FOIA, 5 U.S.C. § 552 (b)(4), (b)(5) and (b)(6); and sections 5.31 (d), (e) and (f) of the HHS FOIA Regulations, 45 CFR Part 5. Exemption 4 protects from disclosure trade secrets and commercial or financial information that is privileged and confidential. Exemption 5 permits the withholding of internal government records which are

pre-decisional and contain staff advice, opinion, and recommendations, as well as documents solicited and received by the President or his immediate White House advisers who have broad and significant responsibility for investigating and formulating the advice to be given to the President. Exemption 6 permits the withholding of privacy information, the release of which would constitute a clearly unwarranted invasion of personal privacy.

If you have any questions about this response, please contact AUSA Morrison, of the Department of Justice, at Kristina.Morrison@usdoj.gov.

Sincerely,

for Gorka Garcia-Malene
Freedom of Information Officer, NIH

From: Graham, Barney (NIH/VRC) [E]
Sent: Wed, 11 Mar 2020 22:37:14 +0000
To: Corbett, Kizzmekia (NIH/VRC) [E]; Morabito, Kaitlyn (NIH/VRC) [E]
Cc: Stein, Judy (NIH/VRC) [C]; Petrik, Amy (NIH/NIAID) [E]
Subject: RE: SARS-CoV-2 (b) license applicant inquire

Yes, we should facilitate, they are serious and probably capable.

BG

From: Corbett, Kizzmekia (NIH/VRC) [E] (b) (6)>
Sent: Wednesday, March 11, 2020 4:16 PM
To: Morabito, Kaitlyn (NIH/VRC) [E] (b) (6)>; Graham, Barney (NIH/VRC) [E] (b) (6)
Subject: Re: SARS-CoV-2 (b) (5) license applicant inquire

Yay to all.

--

Kizzmekia S. Corbett, PhD
Senior Research Fellow | Scientific Lead
Coronavirus Vaccines & Immunopathogenesis (coVip) Team
Viral Pathogenesis Laboratory | Vaccine Research Center
National Institutes of Allergy and Infectious Diseases
National Institutes of Health

Building 40 Room 2608
40 Convent Drive
Bethesda MD 20892
Laboratory: (b) (6)
Personal: (b) (6)
Fax: (301) 480-2771

From: Kaitlyn Morabito (b) (6)>
Date: Wednesday, March 11, 2020 at 3:56 PM
To: Kizzmekia Corbett (b) (6)>, Barney Graham (b) (6)>
Subject: FW: SARS-CoV-2 (b) (5) license applicant inquire

Hi Kizzmekia,

Can you give me a yay/nay on sharing the below materials with a potential licensee? They are also asking to see immunogenicity data. Barney do you think we should share?

Thanks,
Kaitlyn

From: "Petrik, Amy (NIH/NIAID) [E]" (b) (6)
Date: Wednesday, March 11, 2020 at 3:28 PM
To: "Morabito, Kaitlyn (NIH/VRC) [E]" <(b) (6)>
Cc: Judy Stein (b) (6)
Subject: SARS-CoV-2 (b) (5) license applicant inquire

Hi Kaitlyn,

I am working on a license agreement with a start-up formed for the purpose of advancing the (b) (5)
(b) (5)

The have (b) (5) and are curious (b) (5)
(b) (5) I believe that (b) (5)
(b) (5) Is that accurate? If so, any idea of (b) (5)
(b) (5)

(b) (5), (b) (4)

They are also anxious to speak with one of the inventors and I have put that off for some time.
However, they do seem serious and so I'm wondering if anyone might be available for even a thirty
minute call?

Thanks!
Amy

Amy F. Petrik, Ph.D.
Technology Transfer and Patent Specialist

Technology Transfer and Intellectual Property Office
National Institute of Allergy and Infectious Diseases
National Institutes of Health, HHS

5601 Fishers Lane
Suite 2G
Rockville, MD 20892-9804
(b) (6)

From: Graham, Barney (NIH/VRC) [E]
Sent: Fri, 28 Feb 2020 15:03:30 +0000
To: GSELL, Pierre
Subject: Accepted: FW: [COVID-19]1st TC on Animal Models for Vx and Rx development

From: Graham, Barney (NIH/VRC) [E]
Sent: Tue, 7 Apr 2020 13:18:39 +0000
To: Hiatt, Nissa (NIH/VRC) [C]
Cc: Corbett, Kizzmekia (NIH/VRC) [E]
Subject: Re: Interview request
Attachments: image001.png

Any way to see the whole story without subscribing to WSJ?

BG

Sent from my iPhone

On Apr 7, 2020, at 8:59 AM, Hiatt, Nissa (NIH/VRC) [C] (b) (6) > wrote:

Good morning, Barney and Kizzmekia. The WSJ story from Peter Loftus is now live and you are both featured.

Scientists Rush to Find Coronavirus Cure—but It Still Isn't Fast Enough

<https://www.wsj.com/articles/inside-the-race-to-find-a-coronavirus-cure-11586189463>

Best,
Nissa

Nissa Hiatt

Communications

Vaccine Research Center, NIAID, NIH

40 Convent Drive, Bldg 40, Room 1100

Bethesda, MD 20892

Cell: (b) (6)

Office: (b) (6)

(b) (6)

<image001.png>

From: Corbett, Kizzmekia (NIH/VRC) [E] (b) (6) >
Sent: Thursday, April 2, 2020 7:45 AM
To: Graham, Barney (NIH/VRC) [E] (b) (6); Loftus, Peter <peter.loftus@wsj.com>
Cc: Hiatt, Nissa (NIH/VRC) [C] (b) (6) >
Subject: Re: Interview request

Testing on mice started on Feb. 4th, meaning that's when we vaccinated the first mouse. So we got readings on the initial immune responses on the 18TH. (not 25th).

--

Kizzmekia S. Corbett, PhD

Senior Research Fellow | Scientific Lead

Coronavirus Vaccines & Immunopathogenesis (coVip) Team

Viral Pathogenesis Laboratory | Vaccine Research Center

National Institutes of Allergy and Infectious Diseases

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From: Barney Graham (b) (6)

Date: Thursday, April 2, 2020 at 7:36 AM

To: "Loftus, Peter" <peter.loftus@wsj.com>

Cc: Kizzmekia Corbett (b) (6), "Hiatt, Nissa (NIH/VRC) [C]"
(b) (6)

Subject: Re: Interview request

Hi Peter,

The 12-18 month timeline is still our best hope.

I'm not sure I understand the second comment about Feb 25, but maybe Dr. Corbett does.

Take care,

Barney

Sent from my iPhone

On Apr 1, 2020, at 5:06 PM, Loftus, Peter <peter.loftus@wsj.com> wrote:

Thank you both for answers to the follow up questions. I think we are close to wrapping up our story.

I just wanted to triple-check that the best-case scenario -- assuming all the things you cite here go smoothly -- is 12-18 months for the vaccine to become available? Meaning, early next year at best?

And just to triple check on the mouse testing - you said results Feb. 25, and do you remember when that testing started?

On Sat, Mar 28, 2020 at 6:06 PM Graham, Barney (NIH/VRC) [E] (b) (6)> wrote:
Hi Peter,

Sorry for not getting back to this. I gave a few answers below.

Can you give me a sense of the main factors that could lead to things taking longer?

RESPONSE: 1) There has never been a licensed human coronavirus vaccine before, 2) there has never been a licensed mRNA vaccine before, 3) most vaccine development efforts are measured in decades, not in months, so this would be unprecedented timeline, 4) The vaccine may not work as well as we want and may take some revision, 5) the animal models to test the vaccine may not work as well as we want and will take time to improve, 6) if too many people become infected who are critical for the research, manufacturing, and clinical trial work there could be delays. This could include delays in shipping because flights are canceled or in any number of services we usually take for granted

Or, a related question: how challenging is it to develop a vaccine against an emerging infectious disease, and why might it take some time despite the urgent and quick response so far?

RESPONSE: Making a vaccine in response to a new emerging disease in time to influence the immediate course of the epidemic has never been done, but our hope is that new technologies and pre-existing knowledge will make this possible.

Barney

From: Loftus, Peter <peter.loftus@wsj.com>

Sent: Wednesday, March 25, 2020 4:42 PM

To: Graham, Barney (NIH/VRC) [E] <(b) (6)>

Cc: Corbett, Kizzmekia (NIH/VRC) [E] (b) (6)

Subject: Re: Interview request

Thanks so much to both of you for taking time to speak on a Saturday, and amid all that you are working on.

I have follow-up questions that I am hoping you can answer:

-Dr. Corbett, you mentioned that around Jan. 1, you set up alerts on your phone for news about the virus in Wuhan. Can you elaborate on why - as in, what was it about the situation at that time that caught your interest (or concerned you) and motivated you to

set up alerts? And to clarify, did you mean setting up something like a Google news alert, or is there some sort of alert system for NIH or scientists generally?

-Dr. Graham, at the end of our call you mentioned that a 12-18 month time frame is a hope-for outcome and assumes many things would have to go smoothly.

Can you give me a sense of the main factors that could lead to things taking longer? Or, a related question: how challenging is it to develop a vaccine against an emerging infectious disease, and why might it take some time despite the urgent and quick response so far?

Thanks!

On Sat, Mar 21, 2020 at 2:33 PM Graham, Barney (NIH/VRC) [E] (b) (6)> wrote:
(b) (6)

Barney

From: Loftus, Peter <peter.loftus@wsj.com>
Sent: Saturday, March 21, 2020 2:32 PM
To: Graham, Barney (NIH/VRC) [E] (b) (6)>
Cc: Corbett, Kizzmekia (NIH/VRC) [E] <(b) (6)>
Subject: Re: Interview request

Hi what number should I call?

On Sat, Mar 21, 2020 at 11:34 AM Graham, Barney (NIH/VRC) [E] (b) (6)> wrote:
Ok. Let's try for 2:30. If you call me I will add Dr. Corbett.

Barney

Sent from my iPhone

On Mar 21, 2020, at 11:19 AM, Peter Loftus <peter.loftus@wsj.com> wrote:

Thanks, I'm free from 12:30 to 1:30 and then after about 2:15.

Peter Loftus
The Wall Street Journal
Peter.Loftus@wsj.com
(b) (6)

On Mar 21, 2020, at 11:10 AM, Graham, Barney (NIH/VRC) [E] (b) (6) wrote:

Would it be possible to schedule this today? Monday will be difficult. If you could propose a time this afternoon we will try to be available.

Barney Graham

Barney S. Graham, MD, PhD
Senior Investigator
Deputy Director, Vaccine Research Center
Chief, Viral Pathogenesis Laboratory
National Institute of Allergy and Infectious Diseases, NIH
40 Convent Drive, MSC 3017
Bldg 40, Room 2502
Bethesda, MD 20892-3017
Phone: (b) (6)
URL: <https://www.niaid.nih.gov/research/barney-graham-md-phd>

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Sent from my iPhone

--

Peter Loftus

REPORTER



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From: Graham, Barney (NIH/VRC) [E]
Sent: Sat, 28 Mar 2020 19:44:51 +0000
To: Stein, Judy (NIH/VRC) [C]; Young, Monique (NIH/VRC) [E]
Cc: Morabito, Kaitlyn (NIH/VRC) [E]; Alvarado, Gabriela (NIH/VRC) [C]
Subject: RE: VRC/Reithera Coronavirus RCA COI form
Attachments: 2020-0422_COI (b) (4)_forBGsignature_GRAHAM.pdf

Signed.

BG

From: Stein, Judy (NIH/VRC) [C] (b) (6)
Sent: Friday, March 27, 2020 3:29 PM
To: Young, Monique (NIH/VRC) [E] <(b) (6)>; Graham, Barney (NIH/VRC) [E]
<(b) (6)>
Cc: Morabito, Kaitlyn (NIH/VRC) [E] (b) (6)>; Alvarado, Gabriela (NIH/VRC) [C]
(b) (6)>
Subject: FW: VRC/ (b) (4) Coronavirus RCA COI form

Hi Monique and Barney,

While the details of the RCA are being worked out internally and then with (b) (4) can you please sign this COI form that Amy put together.

Thanks very much.

Judy

From: (b) (6)
Sent: Wed, 19 Feb 2020 09:34:25 -0500
To: Valantine, Hannah (NIH/OD) [E]
Subject: FYI

I thought you might enjoy this photo i took yesterday of the core group in my lab managing the response to the new coronavirus.

Barney



Sent from my iPhone

From: Graham, Barney (NIH/VRC) [E]
Sent: Fri, 1 May 2020 13:35:05 +0000
To: Megan Scudellari
Subject: RE: Article for Nature

Neither I nor the VRC has ever received any funds from Moderna. It has been a collaboration with each group operating with their own internal resources.

I am an inventor on patent applications involving vaccines and monoclonal antibodies for COVID-19 and other viral diseases.

Barney

From: Megan Scudellari <megan@scudellari.com>
Sent: Friday, May 1, 2020 7:04 AM
To: Graham, Barney (NIH/VRC) [E] (b) (6)
Subject: Re: Article for Nature

Thanks Barney, this is very helpful. I will incorporate your suggestions along with Jason's.

Also, just to clarify, I know the VRC is working closely with Moderna on the vaccine, but do you have any conflicts of interest to declare in terms of Moderna?

Thanks,
Megan

On Thu, Apr 30, 2020 at 3:09 PM Graham, Barney (NIH/VRC) [E] (b) (6) wrote:
You might ask Jason about the words "crystallize" and "open, prefusion". For Cryo-EM they freeze into an ice crystal, but it's distinct from the crystallization of proteins that is used in a different analysis process. The spike was stabilized in the prefusion conformation, but not sure about the term "open". It does allow mobility of the RBD, but is not "open" in the sense that HIV glycoproteins can be "open".

Just a few comments on the highlighted words below:

1. McLellan knew – This could be "the group knew" or "they knew"
2. For that reason, - the reason structure was especially important was that monoclonal antibodies and other reagents typically used to confirm the conformation of a vaccine antigen were not yet available. Seeing the atomic level detail and knowing that it was uniform enough to solve the structure meant that we were making high quality protein.
3. and he sent the construct to Moderna, who began manufacturing it. – We sent the sequence to Moderna on January 14th by email. We did not send them the "construct" which to me means the plasmid that encodes the selected protein. This happened before we made the protein for use in assays or animal experiments. This phrase should probably be deleted.

4. after Wrapp and McLellan – There are a few differences between the sequence selected for producing protein for the cryo-EM and the sequence selected for the initial GMP vaccine manufacturing at Moderna. I would say we selected these sequences together. The plans had been set in motion from studies we published in 2017.

Thanks,

Barney

From: Megan Scudellari <megan@scudellari.com>
Sent: Tuesday, April 28, 2020 1:07 PM
To: Graham, Barney (NIH/VRC) [E] (b) (6)>
Subject: Re: Article for Nature

Hi Barney,

Thanks again for your responses to my earlier questions. We are wrapping up the story now and running through some fact-checking. I hoped you might review a few quick paragraphs for accuracy, below in blue. Jason will be reviewing sections about his part in the work as well.

Please let me know if you have any suggested changes.

Best,
Megan

NOT FOR DISTRIBUTION

...McLellan previously solved the structures of two other coronavirus spikes, from HKU1 and MERS, in collaboration with Andrew Ward at Scripps Research Institute and Barney Graham at the Vaccine Research Center (VRC) in Bethesda. Because of that work, McLellan knew two specific mutations they needed to make in the spike protein's genetic sequence to stabilize it enough to crystallize in an open, pre-fusion shape.

While McLellan's team waited for the construct to arrive, Graham called Moderna Therapeutics, a Cambridge, Massachusetts-based drug discovery company with whom the VRC had been working on a pandemic preparedness project. With only the spike sequence selected—no protein synthesis or experimentation yet—on January 13th Moderna began preparing manufacturing facilities to make a coronavirus vaccine based on that protein.

...As soon as McLellan completed gathering high-resolution electron microscopy data of the stabilized spike, thanks to a \$5.5 million cryo-EM microscopy facility at UT Southwestern Medical Center, he sent the data to Graham at the VRC. Vaccines are often based on presenting parts of the virus to the immune system to provoke a response, and the spike protein is an obvious candidate because it latches onto

human cells. Graham planned to create a vaccine antigen from McLellan's configuration: the shape the spike adopts before it fuses to a cell.

The spike protein is three subunits stuck together in the shape of a pyramid, with a hinge-like trap door that opens to expose a binding region to grab onto a human cell. Graham and McLellan's past work on a similar protein suggested the pre-fusion state would effectively provoke the human immune system, and with the complete structure, Graham could see that this gene construct made the right protein in the right conformation. For that reason, it was important to have the electron microscopy information, says Graham.

...Graham tested the spike as an antigen in mice, working to improve expression levels and potency, and he sent the construct to Moderna, who began manufacturing it. On February 7th, Moderna completed its first batch of the vaccine based on that protein—just 25 days after Wrapp and McLellan selected the protein sequence.

Following a brief FDA review, on March 16th—65 days after the release of the viral genome—doctors at Kaiser Permanente Washington Health Research Institute dosed the first patient in an NIH-funded clinical trial of the Moderna vaccine.

It was a lot faster than even the fastest vaccine development the VRC had previously done, says Graham. Because of research on SARS and MERS, coronaviruses were probably the only viral family where that was possible, he adds. If it was another type of virus, such as bunyavirus or an arenavirus, scientists might have needed years to develop a vaccine.

On Mon, Apr 20, 2020 at 4:13 PM Megan Scudellari <megan@scudellari.com> wrote:
Marvelous. Thanks.

On Mon, Apr 20, 2020 at 4:11 PM Graham, Barney (NIH/VRC) [E] <(b) (6)> wrote:
We were collecting protein from SEC columns for the first time on 1/30 and 1/31. On the 31st there was an initial structure with 4.7 angstrom resolution, then 3.5 angstroms by 2/1 and 3.2 angstroms by 2/3.

In parallel, we did the first ELISA on 2/1 and immunized mice on 2/4.

Best wishes,

Barney

From: Megan Scudellari <megan@scudellari.com>
Sent: Monday, April 20, 2020 12:59 PM
To: Graham, Barney (NIH/VRC) [E] <(b) (6)>
Subject: Re: Article for Nature

Hi Barney,

Thanks again for chatting with me for the *Nature* feature story. I'm wrapping up a draft now, and have one quick follow-up question for you: What date (specifically, if you can check) did you receive the spike structure from Jason?

Thanks! I will be in touch later this week with some fact-checking. Hope all is well.

Best,
Megan

On Thu, Apr 9, 2020 at 2:42 PM Graham, Barney (NIH/VRC) [E] (b) (6) wrote:
(b) (6).

Barney

Sent from my iPhone

On Apr 9, 2020, at 2:37 PM, Megan Scudellari <megan@scudellari.com> wrote:

Hi Barney,

No worries. Yes, today at 5:30 ET works. At what number can I reach you then?

Looking forward to it,
Megan

On Apr 9, 2020, at 2:05 PM, Graham, Barney (NIH/VRC) [E] <(b) (6)> wrote:

Sorry for my delayed response. I would be glad to speak with you if I haven't missed the deadline. I have a brief opening at 5:30 today.

Barney

Sent from my iPhone

On Apr 7, 2020, at 9:05 AM, Megan Scudellari <megan@scudellari.com> wrote:

Dear Dr. Graham,

Hello, this is Megan Scudellari, a reporter with *Nature*. I spoke with Jason McLellan at UT yesterday and he suggested I speak with you as well. How are you?

We are planning a feature news story on the rush to obtain structures of SARS-CoV-2 proteins and then use that information in drug/vaccine discovery. The story will focus on the rapid timeline of these discoveries and intensive teamwork among various scientific groups.

I hoped you might be available to chat with me about the *Science* publication of the virus' spike protein structure that you and Jason collaborated on, and your work to translate that into a vaccine.

If so, is there a good day and time this week that I could give you a call to chat? I will only take about 30 minutes of your time.

Thank you! I look forward to hearing from you.

Best,
Megan

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Megan R. Scudellari
Science Reporter
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web: <http://megan.scudellari.com>

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From: Graham, Barney (NIH/VRC) [E]
Sent: Wed, 29 Apr 2020 15:08:37 +0000
To: Corbett, Kizzmekia (NIH/VRC) [E]
Cc: Stein, Judy (NIH/VRC) [C]; Petrik, Amy (NIH/NIAID) [E]; Wang, Lingshu (NIH/VRC) [E]
Subject: Re: Request for anti-MERS Fv sequences for a new database of CoV-binding antibodies

I'm surprised they didn't ask for my favorite (b) (5)

BG

Sent from my iPhone

On Apr 29, 2020, at 10:49 AM, Corbett, Kizzmekia (NIH/VRC) [E]
(b) (6) > wrote:

Thank you. Lingshu, could you please send this group the plasmid maps for the mAbs that they want? You can also attach the patent. Please see all-inclusive on the email and Dr. Mascola, if you feel it is apt.

--

Kizzmekia S. Corbett, PhD
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From: "Stein, Judy (NIH/VRC) [C]" (b) (6)
Date: Wednesday, April 29, 2020 at 10:47 AM
To: Kizzmekia Corbett (b) (6) >
Cc: "Petrik, Amy (NIH/NIAID) [E]" (b) (6), Barney Graham

(b) (6)>, "Wang, Lingshu (NIH/VRC) [E]" (b) (6)>

Subject: RE: Request for anti-MERS Fv sequences for a new database of CoV-binding antibodies

Hi Kizzmekia,

The sequences in VRC format can be sent with a reference to the patent if it is not too inconvenient. Otherwise, the patent seems like it would work for them.

Thanks

Judy

From: Corbett, Kizzmekia (NIH/VRC) [E] <(b) (6)>

Sent: Wednesday, April 29, 2020 10:46 AM

To: Petrik, Amy (NIH/NIAID) [E] (b) (6); Stein, Judy (NIH/VRC) [C] (b) (6)

Cc: Graham, Barney (NIH/VRC) [E] (b) (6)>; Wang, Lingshu (NIH/VRC) [E]

(b) (6)>

Subject: Re: Request for anti-MERS Fv sequences for a new database of CoV-binding antibodies

Looks like they are all inclusive. Judy should we just send (b) (5)?

--

Kizzmekia S. Corbett, PhD

Senior Research Fellow | Scientific Lead

Coronavirus Vaccines & Immunopathogenesis (coVip) Team

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National Institutes of Allergy and Infectious Diseases

National Institutes of Health

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Laboratory: (b) (6)

Personal: (b) (6)

Fax: (301) 480-2771

From: "Petrik, Amy (NIH/NIAID) [E]" (b) (6)>

Date: Wednesday, April 29, 2020 at 10:44 AM

To: Kizzmekia Corbett (b) (6)>, "Stein, Judy (NIH/VRC) [C]"

<(b) (6)>

Subject: RE: Request for anti-MERS Fv sequences for a new database of CoV-binding antibodies

Yes, the issued patent is attached. I see all but the (b) (5) antibodies in it. (b) (5)

From: Corbett, Kizzmekia (NIH/VRC) [E] (b) (6)

Sent: Wednesday, April 29, 2020 10:34 AM

To: Stein, Judy (NIH/VRC) [C] (b) (6)

Cc: Petrik, Amy (NIH/NIAID) [E] (b) (6)

Subject: Re: Request for anti-MERS Fv sequences for a new database of CoV-binding antibodies

Amy can provide guidance but the MERS patents are filed.

--

Kizzmekia S. Corbett, PhD

Senior Research Fellow | Scientific Lead

Coronavirus Vaccines & Immunopathogenesis (coVip) Team

Viral Pathogenesis Laboratory | Vaccine Research Center

National Institutes of Allergy and Infectious Diseases

National Institutes of Health

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Laboratory: (b) (6)

Personal: (b) (6)

Fax: (301) 480-2771

From: "Stein, Judy (NIH/VRC) [C]" <(b) (6)>

Date: Wednesday, April 29, 2020 at 10:31 AM

To: Kizzmekia Corbett (b) (6)

Subject: RE: Request for anti-MERS Fv sequences for a new database of CoV-binding antibodies

Sorry I didn't read down far enough.

Let me check.

(b) (6), (b) (5)

Thanks,

Judy

From: Corbett, Kizzmekia (NIH/VRC) [E] <(b) (6)>

Sent: Wednesday, April 29, 2020 10:29 AM

To: Stein, Judy (NIH/VRC) [C] <j (b) (6)>

Subject: Re: Request for anti-MERS Fv sequences for a new database of CoV-binding antibodies

The provisional that was submitted was (b) (5) right?

--

Kizzmekia S. Corbett, PhD

Senior Research Fellow | Scientific Lead

Coronavirus Vaccines & Immunopathogenesis (coVip) Team

Viral Pathogenesis Laboratory | Vaccine Research Center

National Institutes of Allergy and Infectious Diseases

National Institutes of Health

Building 40 Room 2608

40 Convent Drive

Bethesda MD 20892

Laboratory: (b) (6)

Personal: (b) (6)

Fax: (301) 480-2771

From: "Stein, Judy (NIH/VRC) [C]" (b) (6) >

Date: Wednesday, April 29, 2020 at 10:21 AM

To: Kizzmekia Corbett (b) (6)

Subject: RE: Request for anti-MERS Fv sequences for a new database of CoV-binding antibodies

Hi Kizzmekia,

Thanks – I will respond. FYI, (b) (5)

(b) (5)

Thanks

Judy

From: Corbett, Kizzmekia (NIH/VRC) [E] <(b) (6)>

Sent: Wednesday, April 29, 2020 10:20 AM

To: Graham, Barney (NIH/VRC) [E] <(b) (6)>; Wang, Lingshu (NIH/VRC) [E]
(b) (6) >

Cc: Stein, Judy (NIH/VRC) [C] (b) (6) >

Subject: Re: Request for anti-MERS Fv sequences for a new database of CoV-binding antibodies

I am not opposed to sending the sequences for these. We should bring Judy Stein into the conversation so that agreements are in place. And so that we can determine (b) (5)

(b) (5)

--

Kizzmekia S. Corbett, PhD

Senior Research Fellow | Scientific Lead

Coronavirus Vaccines & Immunopathogenesis (coVip) Team

Viral Pathogenesis Laboratory | Vaccine Research Center

National Institutes of Allergy and Infectious Diseases

National Institutes of Health

Building 40 Room 2608

40 Convent Drive

Bethesda MD 20892

Laboratory: (b) (6)

Personal: (b) (6)

Fax: (301) 480-2771

From: Barney Graham (b) (6)

Date: Wednesday, April 29, 2020 at 10:16 AM

To: Kizzmekia Corbett <(b) (6)>, "Wang, Lingshu (NIH/VRC) [E]"

(b) (6)>

Subject: FW: Request for anti-MERS Fv sequences for a new database of CoV-binding antibodies

FYI. Do you want to share sequences?

If these are all included in a patent application, the easiest thing might be to send that.

BG

From: Matthew Raybould (b) (6)>

Sent: Wednesday, April 29, 2020 10:11 AM

To: Graham, Barney (NIH/VRC) [E] (b) (6)>

Cc: (b) (6)

Subject: Request for anti-MERS Fv sequences for a new database of CoV-binding antibodies

Dear Professor Graham,

Please forgive the unexpected email. We are researchers in immunoinformatics from the [Oxford Protein Informatics Group](#) (University of Oxford, UK) and - in response to the recent SARS CoV2 epidemic - are in the process of constructing a comprehensive public database of the sequences and structures all published coronavirus binding antibodies.

We came across your MERS neutralisation studies from 2015 and 2018 (<https://www.nature.com/articles/ncomms8712>, and <https://jvi.asm.org/content/92/10/e02002-17>) and are keen to highlight your antibodies in our database. We have managed to derive our desired information on D12, G2, G4, JC57-14, and CDC-C2 from crystal structures. However we have so far been unable to locate data for F11, FIBH1, JC57-11, JC57-14, CDC-A2, CDC-A10, and CDC-C5.

We were wondering if you might consider sharing the full Fv sequences of these antibodies? If so, it would be fantastic if you could share them with us as a .fasta/.txt file, or direct us to appropriate patents containing their sequences. Please affirm your consent that we can add these to our database.

Many thanks in advance for your consideration, and for performing this highly valuable

research.

Best wishes,
Matt

Matthew Raybould

Postgraduate Researcher on the Systems Approaches to Biomedical Sciences CDT (2016-2020)
Oxford Protein Informatics Group, Department of Statistics (PI: Professor Charlotte Deane)
New College, University of Oxford

(b) (6)

From: Graham, Barney (NIH/VRC) [E]
Sent: Fri, 20 Mar 2020 11:33:53 +0000
To: Stein, Judy (NIH/VRC) [C]
Cc: Mascola, John (NIH/VRC) [E]; Petrik, Amy (NIH/NIAID) [E]; Gall, Jason (NIH/VRC) [C]; Corbett, Kizzmekia (NIH/VRC) [E]; Morabito, Kaitlyn (NIH/VRC) [E]; Suhana, Tina (NIH/VRC) [E]; Young, Monique (NIH/VRC) [E]; Ledgerwood, Julie (NIH/NIAID) [E]
Subject: Re: Request review of (b) (4) application

Hi Judy,

I wasn't able to get to this yesterday. Will try today.

Barney

Sent from my iPhone

On Mar 19, 2020, at 11:54 AM, Stein, Judy (NIH/VRC) [C] (b) (6) wrote:

Sure I can put that together

From: Mascola, John (NIH/VRC) [E] (b) (6)
Sent: Thursday, March 19, 2020 11:51 AM
To: Stein, Judy (NIH/VRC) [C] (b) (6)>; Petrik, Amy (NIH/NIAID) [E] (b) (6)>; Gall, Jason (NIH/VRC) [C] (b) (6)
Cc: Graham, Barney (NIH/VRC) [E] (b) (6)>; Corbett, Kizzmekia (NIH/VRC) [E] (b) (6); Morabito, Kaitlyn (NIH/VRC) [E] (b) (6)>; Suhana, Tina (NIH/VRC) [E] (b) (6)>; Young, Monique (NIH/VRC) [E] (b) (6); Ledgerwood, Julie (NIH/NIAID) [E] (b) (6)>
Subject: RE: Request review of (b) (4) application

Thanks Judy,

We need to be (b) (5)
(b) (5)

(b) (5) We've done this many times before.

Thanks,
John

From: Stein, Judy (NIH/VRC) [C] (b) (6)>
Sent: Thursday, March 19, 2020 11:25 AM
To: Petrik, Amy (NIH/NIAID) [E] (b) (6)>; Mascola, John (NIH/VRC) [E] (b) (6)>; Gall, Jason (NIH/VRC) [C] (b) (6)>
Cc: Graham, Barney (NIH/VRC) [E] (b) (6)>; Corbett, Kizzmekia (NIH/VRC) [E] (b) (6)>; Morabito, Kaitlyn (NIH/VRC) [E] (b) (6)>; Suhana, Tina (NIH/VRC) [E] (b) (6)>; Young, Monique (NIH/VRC) [E] (b) (6)>; Ledgerwood, Julie (NIH/NIAID) [E] (b) (6)>
Subject: RE: Request review of (b) (4) application

Hi everyone,
And on that note, would it be possible to (b) (5)

Today or tomorrow I will (b) (5),
(b) (5)

Thanks,
Judy

From: Petrik, Amy (NIH/NIAID) [E] (b) (6)
Sent: Thursday, March 19, 2020 11:21 AM
To: Mascola, John (NIH/VRC) [E] (b) (6)>; Gall, Jason (NIH/VRC) [C] (b) (6)>
Cc: Graham, Barney (NIH/VRC) [E] (b) (6)>; Corbett, Kizzmekia (NIH/VRC) [E] (b) (6)>; Stein, Judy (NIH/VRC) [C] (b) (6)>; Morabito, Kaitlyn (NIH/VRC) [E] (b) (6)
Subject: RE: Request review of (b) (4) application

Thanks, John.

I relayed that (b) (5) in my initial message. I'd like to (b) (5)
(b) (5) Judy is going to work on that set of
information.

I think that (b) (5)
(b) (5)
Best,
Amy

From: Mascola, John (NIH/VRC) [E] (b) (6)>
Sent: Thursday, March 19, 2020 10:54 AM
To: Gall, Jason (NIH/VRC) [C] (b) (6)
Cc: Petrik, Amy (NIH/NIAID) [E] (b) (6)>; Graham, Barney (NIH/VRC) [E] (b) (6)>; Corbett, Kizzmekia (NIH/VRC) [E] (b) (6)>; Stein, Judy (NIH/VRC) [C] (b) (6)>; Morabito, Kaitlyn (NIH/VRC) [E] (b) (6)>
Subject: Re: Request review of (b) (4) application

(b) (5), (b) (4)

Thanks
John

Sent from my iPhone

On Mar 19, 2020, at 10:00, Gall, Jason (NIH/VRC) [C] (b) (6)> wrote:

John and Barney,

I think it is important that

(b) (5), (b) (4)

(b) (5), (b) (4)

Jason

From: Petrik, Amy (NIH/NIAID) [E] (b) (6)

Sent: Thursday, March 19, 2020 9:41 AM

To: Graham, Barney (NIH/VRC) [E] (b) (6); Corbett, Kizzmekia (NIH/VRC) [E]

(b) (6)

Cc: Stein, Judy (NIH/VRC) [C] (b) (6)>; Gall, Jason (NIH/VRC) [C] (b) (6)>;

Morabito, Kaitlyn (NIH/VRC) [E] (b) (6)>

Subject: FW: Request review of (b) (4) application

Good morning,

(b) (5), (b) (4)

It would be helpful to understand (b) (5), (b) (4)

Perhaps we should set a time to discuss once we've had a chance to review and collect information.

Best,
Amy

From: Tryn Stimart <(b) (6)>
Sent: Thursday, March 19, 2020 9:34 AM
To: Petrik, Amy (NIH/NIAID) [E] (b) (6)>
Subject: Re: Request review of (b) (4) application

Hi Amy:

(b) (4)
Please review and get back
to me as soon as you can so we can (b) (4)

Tryn

On Thu, Mar 19, 2020 at 6:28 AM Petrik, Amy (NIH/NIAID) [E] (b) (6)> wrote:
Thanks, Tryn.

We will review (b) (4)
(b) (4)
Best,
Amy

From: Tryn Stimart (b) (6)>
Sent: Thursday, March 19, 2020 9:24 AM
To: Petrik, Amy (NIH/NIAID) [E] (b) (6)
Subject: Re: Request review of (b) (4) application

Hi Amy -

Good morning.

I will forward (b) (4)

(b) (4)

(b) (4)

Kind regards,

Tryn

On Thu, Mar 19, 2020 at 6:02 AM Petrik, Amy (NIH/NIAID) [E] (b) (6)> wrote:
Hi Tryn,

The VRC has requested a copy of the

(b) (4)

(b) (4)

Best,
Amy

Amy F. Petrik, Ph.D.
Technology Transfer and Patent Specialist
Technology Transfer and Intellectual Property Office
National Institute of Allergy and Infectious Diseases
National Institutes of Health, HHS

5601 Fishers Lane
Suite 2G
Rockville, MD 20892-9804

(b) (6)

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--

Tryn T. Stimart
General Counsel
AbCellera Biologics Inc.
2215 Yukon Street

Vancouver BC V5Y 0A1



--

Tryn T. Stimart
General Counsel
AbCellera Biologics Inc.
2215 Yukon Street
Vancouver BC V5Y 0A1



From: Graham, Barney (NIH/VRC) [E]
Sent: Mon, 30 Mar 2020 17:58:41 +0000
To: Hiatt, Nissa (NIH/VRC) [C]
Cc: Routh, Jennifer (NIH/NIAID) [E]; Oplinger, Anne (NIH/NIAID) [E]
Subject: FW: Interview for Brazilian newspaper Zero Hora

FYI. Jorge Kalil is a friend of mine, but this seems low priority.

BG

From: Luiza Piffero (b) (6)>
Sent: Monday, March 30, 2020 1:32 PM
To: Graham, Barney (NIH/VRC) [E] (b) (6)
Subject: Interview for Brazilian newspaper Zero Hora

Dear Mr. Graham,

Professor Jorge Kalil gave me your contact information because I'm writing a story on the development of vaccines for coronavirus. I'm a reporter for Brazilian newspaper Zero Hora.

It would be very important to speak with a researcher such as yourself. Could we talk tomorrow? Do you have WhatsApp? My number is (b) (6).

Thanks a lot for your attention,

Luiza Piffero
Zero Hora
Av. Ipiranga, 1.075 – 4º andar | 90169-900
Porto Alegre | RS
Fone: (b) (6)
(b) (6)

foreign language

From: Graham, Barney (NIH/VRC) [E]
Sent: Fri, 13 Dec 2019 22:09:54 +0000
To: Jason McLellan
Cc: [REDACTED] (b) (6); Corbett, Kizzmekia (NIH/VRC) [E]; Ziwawo, Cynthia (NIH/VRC) [F]
Subject: RE: [REDACTED] (b) (4)

Thanks Jason. Looks good. The images are encouraging. Kizzy also reassured me and should have the NT data soon.

BG

From: Jason McLellan [REDACTED] (b) (6) >
Sent: Friday, December 13, 2019 5:04 PM
To: Graham, Barney (NIH/VRC) [E] [REDACTED] (b) (6) >
Cc: [REDACTED] (b) (6) >; Corbett, Kizzmekia (NIH/VRC) [E]
[REDACTED] (b) (6) Ziwawo, Cynthia (NIH/VRC) [F] [REDACTED] (b) (6) >
Subject: RE: [REDACTED] (b) (4)

Hi Barney,

We are also very paranoid about artifacts, but this looks like the real deal. Attached are some images of [REDACTED] (b) (4)

Cheers,
Jason

From: Graham, Barney (NIH/VRC) [E] [REDACTED] (b) (6)
Sent: Friday, December 13, 2019 9:36 AM
To: Jason McLellan <[REDACTED] (b) (6) >
Cc: [REDACTED] (b) (6) Corbett, Kizzmekia (NIH/VRC) [E]
[REDACTED] (b) (6); Ziwawo, Cynthia (NIH/VRC) [F] <[REDACTED] (b) (6) >
Subject: Re: [REDACTED] (b) (4)

Thanks Jason. Maybe I'm paranoid about artifacts.

Hope you are doing well during the holiday season.

Best wishes,

Barney

Sent from my iPhone

On Dec 13, 2019, at 2:15 PM, Jason McLellan (b) (6) wrote:

No, definitely not. (b) (4).
(b) (4) I'll

send you some more images later today.

Jason

- sent from my phone

From: Graham, Barney (NIH/VRC) [E] (b) (6)
Sent: Friday, December 13, 2019 2:47:55 AM
To: Jason McLellan (b) (6);
(b) (6); Corbett, Kizzmekia (NIH/VRC) [E] (b) (6);
Ziwawo, Cynthia (NIH/VRC) [F] (b) (6);
Subject: RE: (b) (4)

Is that (b) (4)?

BG

From: Jason McLellan (b) (6)
Sent: Wednesday, December 11, 2019 4:17 PM
To: (b) (6); Corbett, Kizzmekia (NIH/VRC) [E]
<(b) (6)>; Ziwawo, Cynthia (NIH/VRC) [F] (b) (6)
Cc: Graham, Barney (NIH/VRC) [E] <(b) (6)>
Subject: RE: (b) (4)

Attached is a (b) (4)
Jason

From: Ching-Lin Hsieh (b) (6) >
Sent: Wednesday, December 11, 2019 12:14 AM
To: Corbett, Kizzmekia (NIH/VRC) [E] <(b) (6)>; Ziwawo, Cynthia (NIH/VRC) [F]
(b) (6)
Cc: Jason McLellan (b) (6) >
Subject: (b) (4)

Hi Kizzie and Cynthia,

Attached is the (b) (4)
(b) (4)

Looking forward to hear back neutralization assay results!

Cheers,
Ching-Lin

From: Graham, Barney (NIH/VRC) [E]
Sent: Tue, 17 Mar 2020 21:25:46 +0000
To: Stein, Judy (NIH/VRC) [C]
Cc: Corbett, Kizzmekia (NIH/VRC) [E]
Subject: Re: PHS EIR Short Form (b) (4) NIAID CoV

I plan to be in the office on Thursday.

BG

Sent from my iPhone

On Mar 17, 2020, at 3:37 PM, Stein, Judy (NIH/VRC) [C] (b) (6) wrote:

Hi Barney and Kizzmekia,
When I have your signed inventor forms, I will submit this to Vince.
Thanks,
Judy

From: Graham, Barney (NIH/VRC) [E] (b) (6)>
Sent: Tuesday, March 17, 2020 3:11 PM
To: Corbett, Kizzmekia (NIH/VRC) [E] (b) (6); Stein, Judy (NIH/VRC) [C]
(b) (6); Wang, Lingshu (NIH/VRC) [E] (b) (6)
Cc: Young, Monique (NIH/VRC) [E] (b) (6)>
Subject: RE: PHS EIR Short Form (b) (4) NIAID CoV

I recommend completing the form and sending it in.

BG

From: Corbett, Kizzmekia (NIH/VRC) [E] (b) (6)>
Sent: Tuesday, March 17, 2020 10:40 AM
To: Stein, Judy (NIH/VRC) [C] (b) (6) Graham, Barney (NIH/VRC) [E]
(b) (6); Wang, Lingshu (NIH/VRC) [E] <(b) (6)>
Cc: Young, Monique (NIH/VRC) [E] (b) (6)>
Subject: Re: PHS EIR Short Form (b) (4) NIAID CoV

I believe I contributed more than Dr. Graham, but alas... here we are. Haha.

--

Kizzmekia S. Corbett, PhD

Senior Research Fellow | Scientific Lead

Coronavirus Vaccines & Immunopathogenesis (coVip) Team

Viral Pathogenesis Laboratory | Vaccine Research Center

National Institutes of Allergy and Infectious Diseases

National Institutes of Health

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40 Convent Drive

Bethesda MD 20892

Laboratory: (b) (6)

Personal: (b) (6)

Fax: (301) 480-2771

From: "Stein, Judy (NIH/VRC) [C]" (b) (6) >

Date: Tuesday, March 17, 2020 at 10:33 AM

To: Barney Graham <(b) (6)> Kizzmekia Corbett <(b) (6)>,
"Wang, Lingshu (NIH/VRC) [E]" <(b) (6)>

Cc: Monique Young (b) (6) >

Subject: PHS EIR Short Form (b) (4) NIAID CoV

Hi everyone,

(b) (4), (b) (5)

All inventors would need to complete an inventor sheet (blank is attached) that clearly describes your contribution to the project and a signature.

Thanks!

Judy

From: Graham, Barney (NIH/VRC) [E]
Sent: Tue, 31 Mar 2020 15:35:14 +0000
To: Corbett, Kizzmekia (NIH/VRC) [E]
Cc: Stein, Judy (NIH/VRC) [C]
Subject: RE: [External] FW: Material Transfer Agreement for Material from Vaccine Research Center (VRC), NIAID, NIH (VRC-NIAID-NIH) (b) (4)
(b) (4)

Agree we never send virus. We can send plasmids.

BG

From: Corbett, Kizzmekia (NIH/VRC) [E] (b) (6)>
Sent: Tuesday, March 31, 2020 11:18 AM
To: Graham, Barney (NIH/VRC) [E] <(b) (6)>
Cc: Stein, Judy (NIH/VRC) [C] (b) (6)>
Subject: Re: [External] FW: Material Transfer Agreement for Material from Vaccine Research Center (VRC), NIAID, NIH (VRC-NIAID-NIH) (b) (4)]

Did we agree to send (b) (4) virus? We never send virus.

--

Kizzmekia S. Corbett, PhD
Senior Research Fellow | Scientific Lead
Coronavirus Vaccines & Immunopathogenesis (coVip) Team
Viral Pathogenesis Laboratory | Vaccine Research Center
National Institutes of Allergy and Infectious Diseases
National Institutes of Health

Building 40 Room 2608
40 Convent Drive
Bethesda MD 20892
Laboratory: (b) (6)
Personal: (b) (6)
Fax: (301) 480-2771

From: (b) (4), (b) (6)
Date: Monday, March 30, 2020 at 7:36 PM
To: Kizzmekia Corbett (b) (6)>
Cc: "Stein, Judy (NIH/VRC) [C]" (b) (6)
Subject: Re: [External] FW: Material Transfer Agreement for Material from Vaccine Research

Center (VRC), NIAID, NIH (VRC-NIAID-NIH) (b) (4), (b) (6)

How soon will you be able to send the pseudotyped virus?

Thank you.

(b) (4), (b) (6)

From: Corbett, Kizzmekia (NIH/VRC) [E] (b) (6)>

Sent: Thursday, March 26, 2020 9:01 AM

To: (b) (4), (b) (6)>

Cc: Stein, Judy (NIH/VRC) [C] <(b) (6)>

Subject: Re: [External] FW: Material Transfer Agreement for Material from Vaccine Research Center (VRC), NIAID, NIH (VRC-NIAID-NIH) (b) (4)

See attached.

Sent from the mobile device of:

Kizzmekia S. Corbett, PhD

Senior Research Fellow

coVip Scientific Lead

VRC | NIAID | NIH

(b) (6)

From: (b) (4), (b) (6)

Date: Thursday, March 26, 2020 at 8:46:14 AM

To: "Corbett, Kizzmekia (NIH/VRC) [E]" (b) (6)>

Cc: "Stein, Judy (NIH/VRC) [C]" (b) (6)>

Subject: RE: [External] FW: Material Transfer Agreement for Material from Vaccine Research Center (VRC), NIAID, NIH (VRC-NIAID-NIH) (b) (4)

Have you shipped materials yet. We are sometimes having trouble with incoming shipments arriving at our laboratory. If you have shipped, could you send tracking info.

Thank you.

(b) (4)

(b) (4), (b) (6)

From: (b) (4)

Sent: Friday, March 20, 2020 11:41 AM

To: Corbett, Kizzmekia (NIH/VRC) [E] (b) (6) >

Cc: Stein, Judy (NIH/VRC) [C] (b) (6) >

Subject: RE: [External] FW: Material Transfer Agreement for Material from Vaccine Research Center (VRC), NIAID, NIH (VRC-NIAID-NIH) (b) (4)

We would like to get "SARS-CoV-2 S-2P immunogen protein and plasmid expressing such immunogen protein "

(b) (6), (b) (4)

Thanks.

(b) (4)

From: Corbett, Kizzmekia (NIH/VRC) [E] (b) (6) >

Sent: Friday, March 20, 2020 10:59 AM

To: (b) (4), (b) (6) >

Cc: Stein, Judy (NIH/VRC) [C] (b) (6) >

Subject: [External] FW: Material Transfer Agreement for Material from Vaccine Research Center (VRC), NIAID, NIH (VRC-NIAID-NIH) (b) (4)

Hi Dr. (b) (4)

We are ready to fulfill your agreement. Please specific what you would like shipped on Monday and a POC.

--

Kizzmekia S. Corbett, PhD

Senior Research Fellow | Scientific Lead

Coronavirus Vaccines & Immunopathogenesis (coVip) Team

Viral Pathogenesis Laboratory | Vaccine Research Center

National Institutes of Allergy and Infectious Diseases

National Institutes of Health

Building 40 Room 2608

40 Convent Drive

Bethesda MD 20892

Laboratory: (b) (6)

Personal: (b) (6)

Fax: (301) 480-2771

From: "Stein, Judy (NIH/VRC) [C]" (b) (6) >

Date: Thursday, March 19, 2020 at 12:55 PM

To: Barney Graham (b) (6) >, Kizzmekia Corbett (b) (6) >, Kaitlyn Morabito (b) (6) >

Subject: RE: Material Transfer Agreement for Material from Vaccine Research Center (VRC), NIAID, NIH (VRC-NIAID-NIH) (b) (4)

Hi Barney,

We would need another SLA for the pseudotyped virus.

Is this something that we should routinely add so we are managing SLAs better?

Thanks,

Judy

From: (b) (6), (b) (4)

Sent: Thursday, March 19, 2020 12:49 PM

To: Graham, Barney (NIH/VRC) [E] (b) (6) >; Stein, Judy (NIH/VRC) [C] (b) (6)

Subject: FW: Material Transfer Agreement for Material from Vaccine Research Center (VRC), NIAID, NIH (VRC-NIAID-NIH) (b) (4)

I believe the MTA is now complete. Any update on getting the plasmid?

Barney,

Would it be possible to get your SARS-CoV-2 S pseudotyped virus as well.

(b) (4)



(b) (4), (b) (6)

From: (b) (4), (b) (6)

Sent: Wednesday, March 11, 2020 12:11 PM

To: (b) (4), (b) (6) >

Cc: Judy Stein (b) (6); Barney Graham (b) (6); (b) (4), (b) (6)
(b) (4), (b) (6)

Subject: Material Transfer Agreement for Material from Vaccine Research Center (VRC), NIAID, NIH (VRC-NIAID-NIH) (b) (4)

Dear Dr. (b) (4):

Attached please find a fully executed copy of the above referenced MTA. Please let me know if you have any questions, or if I can be of assistance in the future.

Sincerely,

(b) (4), (b) (6)

This e-mail message (including any attachments) is for the sole use of the intended recipient(s) and may contain confidential and privileged information. If the reader of this message is not the intended recipient, you are hereby notified that any dissemination, distribution or copying of this message (including any attachments) is strictly prohibited.

If you have received this message in error, please contact the sender by reply e-mail message and destroy all copies of the original message (including attachments).

From: Graham, Barney (NIH/VRC) [E]
Sent: Tue, 25 Feb 2020 15:43:37 +0000
To: De wit, Emmie (NIH/NIAID) [E]; Munster, Vincent (NIH/NIAID) [E]
Cc: Corbett, Kizzmekia (NIH/VRC) [E]; van Doremalen, Neeltje (NIH/NIAID) [E]
Subject: RE: Elisa reagents

The (b) (5) is encouraging.

BG

From: De wit, Emmie (NIH/NIAID) [E] (b) (6)
Sent: Tuesday, February 25, 2020 10:25 AM
To: Graham, Barney (NIH/VRC) [E] (b) (6); Munster, Vincent (NIH/NIAID) [E]
<(b) (6)>
Cc: Corbett, Kizzmekia (NIH/VRC) [E] (b) (6); van Doremalen, Neeltje (NIH/NIAID) [E] (b) (6)>
Subject: RE: Elisa reagents

Hi Barney,
Here are the (b) (5) data including yesterday:

(b) (5)



Emmie

From: Graham, Barney (NIH/VRC) [E] (b) (6)>
Sent: Tuesday, February 25, 2020 7:55 AM
To: Munster, Vincent (NIH/NIAID) [E] (b) (6)
Cc: Corbett, Kizzmekia (NIH/VRC) [E] (b) (6)>; van Doremalen, Neeltje (NIH/NIAID) [E] (b) (6)>; De wit, Emmie (NIH/NIAID) [E] (b) (6)
Subject: Re: Elisa reagents

Thanks Vincent. I would like to see the (b) (5) if possible. I know the (b) (5)

Barney

Sent from my iPhone

On Feb 25, 2020, at 9:46 AM, Munster, Vincent (NIH/NIAID) [E] <(b) (6)> wrote:

Thanks Barney,

Model looks good, still (b) (5)

Vincent Munster, PhD
Chief, Virus Ecology Section
Laboratory of Virology
Rocky Mountain Laboratories
NIAID/NIH

From: Barney Graham (b) (6) >
Date: Tuesday, February 25, 2020 at 7:32 AM
To: "(b) (6)"
Cc: "Corbett, Kizzmekia (NIH/VRC) [E]" (b) (6) Neeltje van Doremalen (b) (6) >, Emmie De wit (b) (6) >
Subject: Re: Elisa reagents

Hi Vincent. We can give you a little protein and a good expression plasmid and a pretty well optimized ELISA protocol. We are using (b) (5)

Barney

Sent from my iPhone

On Feb 25, 2020, at 9:30 AM, Munster, Vincent (NIH/NIAID) [E] <(b) (6)> wrote:

Hi VRC team, we are looking for Elisa reagents to set-up here at RML,

We are interested in either protein or plasmids (with a good expression / purification protocol),

Preferably (b) (5) if available,

Vincent Munster, PhD
Chief, Virus Ecology Section
Laboratory of Virology
Rocky Mountain Laboratories
NIAID/NIH

From: Graham, Barney (NIH/VRC) [E]
Sent: Tue, 21 Apr 2020 16:56:09 +0000
To: Roberts, Jacqueline (NIH/OD) [E]
Subject: Accepted: WebEx/VTC test with Dr. Barney Graham for COVID-19 lecture

From: Graham, Barney (NIH/VRC) [E]
Sent: Fri, 24 Jan 2020 13:04:10 +0000
To: Conrad, Patricia (NIH/NIAID) [E]
Cc: Rebeka Yasmin; Young, Monique (NIH/VRC) [E]; Suhana, Tina (NIH/VRC) [E]
Subject: Re: Change for Tomorrow - Please READ

I'll be Available.

BG

Sent from my iPhone

On Jan 24, 2020, at 7:59 AM, Conrad, Patricia (NIH/NIAID) [E] (b) (6)> wrote:

I think we can make 5:30 pm ET tonight work for Dr Fauci but again – our schedule is changing by the minute. Will do our best

Adding Dr. Graham to make sure he is avail at 5:30 pm ET.

Patricia L. Conrad
Public Health Analyst and
Special Assistant to the Director
National Institute of Allergy and Infectious Diseases
The National Institutes of Health
31 Center Drive, MSC 2520 - Room 7A03
Bethesda, Maryland 20892
(b) (6)
301-496-4409 fax

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From: Rebeka Yasmin (b) (6)
Sent: Friday, January 24, 2020 7:51 AM
To: Conrad, Patricia (NIH/NIAID) [E] (b) (6)>

Cc: Marston, Hilary (NIH/NIAID) [E] (b) (6); Folkers, Greg (NIH/NIAID) [E] (b) (6); Barasch, Kimberly (NIH/NIAID) [C] (b) (6) Mascola, John (NIH/VRC) [E] (b) (6); Graham, Barney (NIH/VRC) [E] (b) (6) Suhana, Tina (NIH/VRC) [E] (b) (6); Austin, Sarah (NIH/NIAID) [E] (b) (6); Young, Monique (NIH/VRC) [E] (b) (6); Joseph Simmonds-Issler (b) (6) Richard Hatchett (b) (6)

Subject: RE: Change for Tomorrow - Please READ

Hi Patty,

Let's pencil in 5.30pm ET/10.30pm GMT today – I'll send an updated calendar invite with dial in details.

Best wishes,

Rebeka

From: Conrad, Patricia (NIH/NIAID) [E] (b) (6)

Sent: 24 January 2020 12:22

To: Rebeka Yasmin (b) (6)

Cc: Marston, Hilary (NIH/NIAID) [E] (b) (6); Folkers, Greg (NIH/NIAID) [E] (b) (6); Barasch, Kimberly (NIH/NIAID) [C] (b) (6); Mascola, John (NIH/VRC) [E] (b) (6); Graham, Barney (NIH/VRC) [E] (b) (6); Suhana, Tina (NIH/VRC) [E] (b) (6); Austin, Sarah (NIH/NIAID) [E] (b) (6); Young, Monique (NIH/VRC) [E] (b) (6); Joseph Simmonds-Issler (b) (6); Richard Hatchett (b) (6)

Subject: Re: Change for Tomorrow - Please READ

Sorry but this afternoon will not work due to changes to our calendar. We might be able to make end of day work but I realize that might be late for your side.

Sent from my iPhone

On Jan 24, 2020, at 7:10 AM, Rebeka Yasmin (b) (6) wrote:

Hi Patricia

I'm just double checking if after 12pm ET works on our end and will confirm asap. For the time-being, please can I check whether 2.30pm ET would work on your end?

Thank you

Rebeka

From: Conrad, Patricia (NIH/NIAID) [E] (b) (6)

Sent: 23 January 2020 20:30

To: Rebeka Yasmin (b) (6)

Cc: Marston, Hilary (NIH/NIAID) [E] (b) (6); Folkers, Greg (NIH/NIAID) [E] (b) (6); Barasch, Kimberly (NIH/NIAID) [C] (b) (6); Mascola, John (NIH/VRC) [E] (b) (6); Graham, Barney (NIH/VRC) [E] (b) (6); Suhana, Tina (NIH/VRC) [E] (b) (6); Austin, Sarah (NIH/NIAID) [E] (b) (6); Young, Monique (NIH/VRC) [E] (b) (6); Barasch, Kimberly (NIH/NIAID) [C] (b) (6); Joseph Simmonds-Issler (b) (6) Richard Hatchett (b) (6)

(b) (6)

Subject: Change for Tomorrow - Please READ

Apologies but Dr. Fauci has been called to an important meeting for the current Coronavirus situation tomorrow. He will now not be able to participate in a call tomorrow at 10:00 am ET.

If you want to move the meeting to later in the day – we hope to be able to do the afternoon after 12 noon.

Please let us know and again, sorry for this unforeseen change.

Best,
-patty

Patricia L. Conrad
Public Health Analyst and
Special Assistant to the Director
National Institute of Allergy and Infectious Diseases
The National Institutes of Health
31 Center Drive, MSC 2520 - Room 7A03
Bethesda, Maryland 20892

(b) (6)

301-496-4409 fax

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From: Rebeka Yasmin (b) (6)

Sent: Thursday, January 23, 2020 5:00 AM

To: Conrad, Patricia (NIH/NIAID) [E] (b) (6)>

Cc: Marston, Hilary (NIH/NIAID) [E] (b) (6); Folkers, Greg (NIH/NIAID) [E]

(b) (6)>; Barasch, Kimberly (NIH/NIAID) [C] (b) (6)>; Mascola,

John (NIH/VRC) [E] (b) (6); Graham, Barney (NIH/VRC) [E] (b) (6)

Suhana, Tina (NIH/VRC) [E] (b) (6)>; Austin, Sarah (NIH/NIAID) [E]

(b) (6)>; Young, Monique (NIH/VRC) [E] (b) (6)>; Barasch, Kimberly

(NIH/NIAID) [C] (b) (6); Joseph Simmonds-Issler (b) (6)

Subject: RE: My notes from WHO SAG call this morning

Dear Patricia,
Apologies for our delay in getting back to you.

Is Dr Fauci still available tomorrow (Friday 24th)? if so, please can we confirm 11am ET? I'll send a calendar invite with dial in details once I hear back from you.

Best wishes,
Rebeka

From: Conrad, Patricia (NIH/NIAID) [E] (b) (6)>
Sent: 21 January 2020 13:30
To: Richard Hatchett (b) (6)
Cc: Marston, Hilary (NIH/NIAID) [E] (b) (6)>; Folkers, Greg (NIH/NIAID) [E] (b) (6); Barasch, Kimberly (NIH/NIAID) [C] (b) (6)>; Mascola, John (NIH/VRC) [E] (b) (6)>; Graham, Barney (NIH/VRC) [E] (b) (6); Suhana, Tina (NIH/VRC) [E] (b) (6)>; Austin, Sarah (NIH/NIAID) [E] (b) (6)>; Young, Monique (NIH/VRC) [E] (b) (6)>; Barasch, Kimberly (NIH/NIAID) [C] (b) (6)>
Subject: RE: My notes from WHO SAG call this morning

Dr. Fauci can be available for a call:

Jan 22	8:00 am – 8:30 am ET 11:00 am – 12:30 pm ET
Jan 23	12:30 pm – 2:00 pm ET 3:00 pm – 4:00 pm ET
Jan 24	10:00 am – 2:00 pm ET 3:00 pm – 4:00 pm ET

Will you send a call in number to all?

Patricia L. Conrad
Public Health Analyst and
Special Assistant to the Director
National Institute of Allergy and Infectious Diseases
The National Institutes of Health
31 Center Drive, MSC 2520 - Room 7A03
Bethesda, Maryland 20892
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From: Fauci, Anthony (NIH/NIAID) [E] <(b) (6)>
Sent: Monday, January 20, 2020 9:43 AM
To: Richard Hatchett <(b) (6)>
Cc: Marston, Hilary (NIH/NIAID) [E] (b) (6)>; Folkers, Greg (NIH/NIAID) [E] (b) (6); Conrad, Patricia (NIH/NIAID) [E] (b) (6) Barasch, Kimberly (NIH/NIAID) [C] (b) (6)>; Mascola, John (NIH/VRC) [E] (b) (6) Graham, Barney (NIH/VRC) [E] (b) (6)>
Subject: RE: My notes from WHO SAG call this morning

Richard:

Thanks for reaching out. I understand that Hilary was on a parallel Global Coordination Mechanism call, and from your notes, it looks as though similar content was covered during the WHO call. As for the VRC mRNA work, Hilary has kept me apprised of the team's conversations with CEPI. This could be a nice opportunity to partner, testing a promising antigen approach in a rapid response platform. If it would be helpful to have a call this week, please reach out to my Special Assistant, Patty Conrad (copied here), to arrange for a mutually convenient time.

Best regards,
Tony

From: Richard Hatchett (b) (6)>
Sent: Monday, January 20, 2020 7:38 AM
To: Fauci, Anthony (NIH/NIAID) [E] (b) (6)
Cc: Marston, Hilary (NIH/NIAID) [E] (b) (6)>
Subject: My notes from WHO SAG call this morning

Dear Tony,

Belated best wishes for 2020 and I hope this finds you well. In case helpful, I just wanted to share my notes from the WHO call this morning, which was convened on short notice and before US working hours, in light of the dramatic increase of cases and new cases in Beijing and South Korea over the weekend. On the call we also heard about new cases in Shanghai. I joined a bit late so am not sure if Hilary was on that call.

I know that our team is working closely with Barney and Hilary to support the VRC's efforts to get the proposed mRNA candidate into P1s as quickly as possible and that we're both coordinating closely with WHO. Everything I'm hearing suggests our teams are working well together, but if any value from your perspective in having a call to coordinate efforts or share information (which could also include Rick), please let me know. As things gear up, we might consider reviving/adapting the approach we adopted internally within the USG during Zika.

Best regards,
Richard

From: Graham, Barney (NIH/VRC) [E]
Sent: Mon, 20 Apr 2020 16:37:01 +0000
To: Michael McCarthy
Subject: RE: Hello from Royal Caribbean

Thank you for your email. I am an infectious diseases physician, but am primarily focused on research and vaccine development. I am not actively seeing patients and am not an epidemiologist and not an expert on antivirals. It would also be complicated as a federal employee to help with this.

I recommend someone like Dr. William Schaffner at Vanderbilt University Medical Center. He is an epidemiologist and could recommend someone in that field. Alternatively, if you want someone with more research and antiviral credentials, Dr. Mark Denison at Vanderbilt is Chief of Pediatric Infectious Diseases and is a coronavirus expert.

Best wishes,

Barney

Barney S. Graham, MD, PhD
Senior Investigator
Deputy Director, Vaccine Research Center
Chief, Viral Pathogenesis Laboratory
National Institute of Allergy and Infectious Diseases, NIH
40 Convent Drive, MSC 3017
Bldg 40, Room 2502
Bethesda, MD 20892-3017
Phone (b) (6)
URL: <https://www.niaid.nih.gov/research/barney-graham-md-phd>

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From: Michael McCarthy <mmccarthy@rccl.com>
Sent: Saturday, April 18, 2020 9:33 PM
To: Graham, Barney (NIH/VRC) [E] (b) (6)>
Subject: Hello from Royal Caribbean

Hello Dr. Graham,

I have seen you many in the media and have been very impressed

We are looking to the world's best to help guide our return to service as part of our task force.

We are looking for an infectious disease expert who specializes in prevention, screening, testing etc. And to be a spokesperson.

Would you be open to having an initial call to see if this is something that makes sense to explore further? Or would someone you know be a good fit for this?

Looking forward to hearing from you.

Thank you,

Michael

Michael McCarthy

Vice President

Royal Caribbean Cruises LTD. | 1050 Caribbean Way | Miami, FL 33132

T 305.982.2127 | M (b) (6)

mmccarthy@rccl.com | www.royalcaribbean.com



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From: Graham, Barney (NIH/VRC) [E]
Sent: Mon, 16 Mar 2020 21:51:24 +0000
To: Corbett, Kizzmekia (NIH/VRC) [E]
Cc: Alvarado, Gabriela (NIH/VRC) [C]; Sullivan, Nancy (NIH/VRC) [E]; Mascola, John (NIH/VRC) [E]; Morabito, Kaitlyn (NIH/VRC) [E]; Bok, Karin (NIH/VRC) [E]
Subject: Re: CoV cross-training

Barbara Flynn from Bob Seder's lab could also be on the list.

BG

Sent from my iPhone

On Mar 16, 2020, at 5:28 PM, Corbett, Kizzmekia (NIH/VRC) [E]

(b) (6) wrote:

(Graham & Mascola):
Olubukola Abiona
Cynthia Ziwawo
Geoffrey Hutchinson
Yi Zhang
Linghsu Wang
Catherine Liu

I would suggest only **one skilled technician from each external group** is enough as a backup. Dr. Graham can comment if he is tapping into Tracy and Masasu's talent pool.

--

Kizzmekia S. Corbett, PhD
Senior Research Fellow | Scientific Lead
Coronavirus Vaccines & Immunopathogenesis (coVip) Team
Viral Pathogenesis Laboratory | Vaccine Research Center
National Institutes of Allergy and Infectious Diseases
National Institutes of Health

Building 40 Room 2608
40 Convent Drive
Bethesda MD 20892
Laboratory: (b) (6)
Personal: (b) (6)
Fax: (301) 480-2771

From: "Alvarado, Gabriela (NIH/VRC) [C]" (b) (6) >
Date: Monday, March 16, 2020 at 5:25 PM
To: "Sullivan, Nancy (NIH/VRC) [E]" <(b) (6)>, "Mascola, John (NIH/VRC) [E]" (b) (6)
Cc: Barney Graham (b) (6), Kaitlyn Morabito (b) (6), "Bok, Karin (NIH/VRC) [E]" (b) (6), Kizzmekia Corbett (b) (6)
Subject: CoV cross-training

Hello Dr. Sullivan and Dr. Mascola,

Dr. Graham mentioned there are people within your groups who have experience with serology assays, specifically pseudovirus assays and ELISAs, who might be willing to cross-train with the CoV team and fill in if needed on the CoV response. We'd like to organize a meeting before the end of the week where we can discuss this. Who from your groups would you like me to invite?

Best regards,
Gaby

--

Gabriela S. Alvarado, Ph.D.
Scientific Program Manager, Vaccine Development for Influenza Viruses
Viral Pathogenesis Laboratory, Vaccine Research Center
National Institute of Allergy and Infectious Diseases, NIH
Bldg. 40, Rm. 2508
40 Convent Drive
Bethesda, MD 20892

(b) (6)

From: Graham, Barney (NIH/VRC) [E]
Sent: Sat, 25 Apr 2020 20:49:56 +0000
To: Arnaud Didierlaurent; Subbarao, Kanta; Robert Chen; Chuan Qin; Perlman, Stanley; Baric, Ralph; Paul Henri Lambert; Steve Black; Corry Dekker; Andrew Pollard
Cc: Imanol Urcola Lecuona; Ángel Honrado; Jakob Cramer; Svein Rune Andersen; Donna Ambrosino
Subject: RE: Proposed manuscript: BC/CEPI Consensus meeting on the assessment of the risk of disease enhancement with COVID-19 vaccines
Attachments: Consensus Report Summary Clean 041920RBSAAPPLSPKSAD_BG.docx

Hi Corry,

I've attached my edits and comments on the document. Two of the paragraphs and 2 figures will need to be removed because this is unpublished data that is being prepared as an original manuscript.

(b) (4)

Barney

-----Original Message-----

From: Arnaud Didierlaurent <(b) (6)>
Sent: Thursday, April 23, 2020 1:31 PM
To: Subbarao, Kanta (b) (6)>; Robert Chen <(b) (6)>; Chuan Qin (b) (6)>; Perlman, Stanley (b) (6)>; Baric, Ralph (b) (6)>; Graham, Barney (NIH/VRC) [E] (b) (6)>; Paul Henri Lambert (b) (6)>; Steve Black (b) (6)>; Corry Dekker <(b) (6)>; Andrew Pollard (b) (6)>
Cc: Imanol Urcola Lecuona (b) (6)>; Ángel Honrado (b) (6)>; Jakob Cramer (b) (6)>; Svein Rune Andersen (b) (6)>; Donna Ambrosino (b) (6)>
Subject: RE: Proposed manuscript: BC/CEPI Consensus meeting on the assessment of the risk of disease enhancement with COVID-19 vaccines

Dear colleagues,

Thanks Donna and her team for the manuscript. Attached are my comments/suggestions on the version sent earlier by Kanta.

Regards,

Arnaud

Arnaud Didierlaurent, PhD
Assistant Professor, Center of Vaccinology Department of Pathology and Immunology Faculty of Medicine,
University of Geneva Centre Medical Universitaire,
1 Michel-Servet, 1211 Geneva 4, Switzerland
Tel: (b) (6)
(b) (6)

-----Original Message-----

From: Subbarao, Kanta (b) (6)
Sent: Wednesday, 22 April 2020 15:39
To: Robert Chen (b) (6); Chuan Qin (b) (6); Perlman, Stanley <(b) (6)>;
Ralph Baric (b) (6); Barney Graham (b) (6); Arnaud
Didierlaurent <(b) (6)>; Paul Henri Lambert <(b) (6)>; Steve Black
(b) (6); Corry Dekker (b) (6); Andrew Pollard
(b) (6)
Cc: Imanol Urcola Lecuona (b) (6); Ángel Honrado (b) (6); Jakob
Cramer <(b) (6)>; Svein Rune Andersen (b) (6); Donna Ambrosino
(b) (6)
Subject: Re: Proposed manuscript: BC/CEPI Consensus meeting on the assessment of the risk of disease
enhancement with COVID-19 vaccines

With the attachment.

From: "Subbarao, Kanta" <(b) (6)>
Date: Wednesday, 22 April 2020 at 11:37 pm
To: Robert Chen (b) (6); Chuan Qin <(b) (6)>; "Perlman, Stanley" (b) (6);
, Ralph Baric <(b) (6)>; Barney Graham (b) (6); "Arnaud
.Didierlaurent" (b) (6); Paul Henri Lambert (b) (6); Steve Black
(b) (6); Corry Dekker (b) (6); Andrew Pollard
(b) (6)>
Cc: Imanol Urcola Lecuona (b) (6); Ángel Honrado (b) (6); Jakob
Cramer (b) (6); Svein Rune Andersen (b) (6); Donna Ambrosino
(b) (6)>
Subject: Re: Proposed manuscript: BC/CEPI Consensus meeting on the assessment of the risk of disease
enhancement with COVID-19 vaccines

Dear Donna and Bob-

Thanks for summarizing so much information! My comments and suggestions are tracked.

I have one minor and one major concern:

Minor: (b) (4)
(b) (4)

Major: I note that (b) (4)
(b) (4)

Best wishes,
Kanta

From: Robert Chen (b) (6)
Date: Friday, 17 April 2020 at 6:03 am
To: Chuan Qin <(b) (6)>, "Subbarao, Kanta" (b) (6), "Perlman, Stanley" (b) (6), Ralph Baric (b) (6), Barney Graham (b) (6), "Arnaud .Didierlaurent" (b) (6), Paul Henri Lambert (b) (6), Steve Black <(b) (6)>, Corry Dekker (b) (6), Andrew Pollard (b) (6)
Cc: Imanol Urcola Lecuona (b) (6), Ángel Honrado (b) (6), Jakob Cramer (b) (6), Svein Runc Andersen <(b) (6)>, Donna Ambrosino (b) (6)
Subject: Re: Proposed manuscript: BC/CEPI Consensus meeting on the assessment of the risk of disease enhancement with COVID-19 vaccines

Dear colleagues,

Thanks to Donna Ambrosino and her writing team, here is the draft manuscript (attached and link: (b) (4), (b) (6)). Note the final consensus statement is unchanged from the meeting as the wording is already approved by WHO, CEPI, FDA and EMA and we don't wish to tinker with it now. Please provide your edits on the rest of the manuscript (directly on the link preferred, though email attachment also accepted) by NLT Monday Apr. 27 @5PM EDT (New York).

We'll work on the title page, key words, etc. in the meantime.

Best regards,

Robert (Bob) Chen MD MA
Scientific Director, Brighton Collaboration
Land: (b) (6) Cell: (b) (6)
email: (b) (6)
<(b) (6)>

On Mon, Apr 6, 2020 at 11:07 PM Robert Chen (b) (6) wrote:
Dear Colleagues,

Thanks again for all your help in making the Mar. 11-12 CEPI/BC Consensus meeting on the assessment of the risk of disease enhancement with COVID-19 vaccines a success. Given how busy all of you are, to expedite converting our meeting products into a report for the journal Vaccine (example attached), I've recruited Dr. Donna Ambrosino, a longstanding student of this issue (CV attached). If you agree, she and her writing team have completed review the video and other meeting products and target to produce a first draft based on the attached outline in ~7 days for your review. Once you return your comments, we hope to arrive at a revised version during the following 7 days. Please reply only if you prefer NOT to be a coauthor. Otherwise you'll receive the draft manuscript for your review in ~7 days.

Best regards,

Robert (Bob) Chen MD MA
Scientific Director, Brighton Collaboration
Land: (b) (6) Cell: (b) (6)
email: (b) (6)>

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From: Graham, Barney (NIH/VRC) [E]
Sent: Tue, 21 Jan 2020 21:42:31 +0000
To: Cohen, Jeffrey (NIH/NIAID) [E]; Corbett, Kizzmekia (NIH/VRC) [E]
Cc: Morabito, Kaitlyn (NIH/VRC) [E]; Marston, Hilary (NIH/NIAID) [E]
Subject: RE: coronavirus

Hi Jeff,

We are working on it, mostly on vaccine and mAb development.

The sequences were just released 10 days ago and we are synthesizing proteins that could be used in ELISA. However, PCR would be more valuable for diagnostics and the clinical lab should coordinate with CDC so that if they develop PCR primers they are compatible.

BG

From: Cohen, Jeffrey (NIH/NIAID) [E] (b) (6) >
Sent: Tuesday, January 21, 2020 3:40 PM
To: Corbett, Kizzmekia (NIH/VRC) [E] (b) (6) >; Graham, Barney (NIH/VRC) [E]
(b) (6)
Subject: coronavirus

I was called by hospital epi who works with the Division of Lab Medicine to find out if anyone is working on the Wuhan coronavirus.

They are interested in making sure they can make a diagnosis if someone were to show up at the clinical center and were looking for reagents, vector that expresses a Wuhan coronavirus viral protein, transfected cells, or something else that they might be able to use as positive controls in assays that they have for coronavirus in the clinical lab or for setting up a reverse transcriptase PCR for the new virus.

Can you let me know if this is something you might be working on?

Thanks
Jeff

From: Graham, Barney (NIH/VRC) [E]
Sent: Sun, 15 Mar 2020 18:44:30 +0000
To: Stein, Judy (NIH/VRC) [C]
Subject: Re: You probably already saw this but just in case you haven't

Drama.

BG

Sent from my iPhone

On Mar 15, 2020, at 1:31 PM, Stein, Judy (NIH/VRC) [C] (b) (6) wrote:

I sent it to Kaitlyn, Kizzmekia and Jason

<https://www.cnn.com/2020/03/15/coronavirus-germany-tries-to-stop-us-luring-away-firm-seeking-vaccine.html>

From: Graham, Barney (NIH/VRC) [E]
Sent: Tue, 24 Mar 2020 19:21:08 +0000
To: (b) (6)
Subject: Fwd: eTicket Itinerary and Receipt for Confirmation (b) (6)

Looks like the reservation was finally confirmed.

(b) (6)

Sent from my iPhone

Begin forwarded message:

From: "United Airlines, Inc." <Receipts@united.com>
Date: March 24, 2020 at 3:09:36 PM EDT
To: "Graham, Barney (NIH/VRC) [E]" (b) (6)
Subject: eTicket Itinerary and Receipt for Confirmation (b) (6)



Tue, Mar 24, 2020

Thank you for choosing United.

A receipt of your purchase is shown below. Please retain this email receipt for your records.

Note: There are travel restrictions in place due to the coronavirus. Check our [Important notices page](#) for the latest updates

Confirmation Number:

(b) (6)

(b) (6)

Award Rules

Additional charges may apply for changes in addition to any fare rules listed.

RWD/NONEND/-TRAN;VALID UA/LH;NOT VALID AFTER 3/24/2021

MileagePlus Accrual Details

Ineligible to accrue mileage or Premier qualifying credit.

Baggage allowance and charges for this itinerary

Origin and destination for checked baggage	1st bag charge	2nd bag charge	1st bag weight and dimensions	2nd bag weight and dimensions
Tue, Jul 21, 2020 Los Angeles, CA, US (LAX) to Salzburg, AT (SZG)	0 USD	100 USD	50lbs(23kg) - 62in(158cm)	50lbs(23kg) - 62in(158cm)
Mon, Jul 27, 2020 Salzburg, AT (SZG) to Frankfurt, DE (FRA)	0 USD	100 USD	50lbs(23kg) - 62in(158cm)	50lbs(23kg) - 62in(158cm)
Mon, Jul 27, 2020 Frankfurt, DE (FRA) to Washington, DC, US (IAD - Dulles)	0 USD	0 USD	70lbs(32kg) - 62in(157cm)	70lbs(32kg) - 62in(157cm)
Mon, Jul 27, 2020 Washington, DC, US (IAD - Dulles) to Los Angeles, CA, US (LAX)	0 USD	0 USD	70lbs(32kg) - 62in(157cm)	70lbs(32kg) - 62in(157cm)

In compliance with U.S. Department of Transportation regulations, checked baggage policies for your entire itinerary are determined by Deutsche Lufthansa AG. Visit [united.com/baggage](https://www.united.com/baggage) for more information.

Important Information about MileagePlus Earning

Accruals vary based on the terms and conditions of the traveler's frequent flyer program, the traveler's frequent flyer status and the itinerary selected. United MileagePlus® mileage accrual is subject to the rules of the MileagePlus program

Once travel has started, accruals will no longer display. You can view your MileagePlus account for posted accrual

You can earn up to 75,000 award miles per ticket. The 75,000 award miles cap may be applied to your posted flight activity in an order different than shown

Accrual is only displayed for MileagePlus members who choose to accrue to their MileagePlus account.

Our Premier Program changes January 1, 2020. If your itinerary includes travel with a scheduled departure in 2020, you may see our old Premier accrual metrics if

1) you booked prior to May 1, 2019 and are viewing an emailed receipt or 2) you booked prior to August 1, 2019 and are viewing a receipt online. The terms and conditions of Premier qualification can be found at united.com/qualify.

Data Protection Notice

Your personal data will be processed in accordance with the applicable carrier's privacy policy and if your booking is made via a reservation system provider ("GDS"), with its privacy policy. These are available at <http://www.iatatravelcenter.com/privacy> or from the carrier or GDS directly. You should read this documentation, which applies to your booking and specifies, for example, how your personal data is collected, stored, used, disclosed and transferred

Hazardous materials

Federal law forbids the carriage of hazardous materials on board aircraft in your luggage or on your person. A violation can result in five years' imprisonment and penalties of \$250,000 or more (49 U.S.C. 5124). Hazardous materials include explosives, compressed gases, flammable liquids and solids, oxidizers, poisons, corrosives and radioactive materials. Common examples of hazardous materials/dangerous goods include spare or loose lithium batteries, fireworks, strike-anywhere matches, aerosols, pesticides, bleach and corrosive materials. Additional information can be found on:

[united.com restricted items page](#)

[FAA website Pack Safe page](#)

[TSA website Prohibited Items page](#)

Refunds Within 24 Hours

When you book and ticket a reservation through united.com, the United mobile app, the United Customer Contact Center, at our ticket counters or city ticket offices, or if you use MileagePlus® miles to book an award ticket, we will allow you to cancel the ticketed reservation without penalty and receive a 100 percent refund of the ticket price to the original form of payment if you cancel the reservation within 24 hours of purchase and if the reservation is made one week or more prior to scheduled flight departure.

Disinsection Notice

Certain countries require that the passenger cabins of aircraft be treated with insecticides. For additional information and a list of those countries, please visit the [U.S. Department of Transportation's disinsection website](#).

IMPORTANT CONSUMER NOTICES

Tickets - For tickets issued March 3 through March 31, 2020, customers will be permitted to change free of charge to a flight of equal or lesser value up to 12 months from the original ticket issue date. If the new flight is priced higher, customer may change for no fee but must pay the fare difference. If the new flight is priced lower, the customer may change for free but no residual value will be given. If the customer decides to cancel their flight, they can retain the value of the ticket to be applied to a new ticket without fee for travel up to 12 months from the original ticket issue date.

Cancellations: If the customer decides to cancel the flight they booked between March 3 and March 31, 2020, they

can retain the value of the ticket to be applied to a new ticket without fee for travel up to 12 months from the original ticket issue date.

Fare Validity: This applies to all tickets, all fare types, all destinations, all points-of-sale, all travel dates available for sale, provided ticket is issued on 016-stock.

Minimum Stay: No minimum stay.

Blackout Dates: No blackout dates.

Miscellaneous: Fares, fees, rules and offers are subject to change without notice. Seats are capacity-controlled and may not be available on all flights or days. Fares are nonrefundable except during the first 24 hours after purchase. Other restrictions may apply.

Notice of Baggage Liability Limitations - For domestic travel between points within the United States (except for domestic portions of international journeys), United's liability for loss of, damage to, or delay in delivery of a customer's checked baggage is limited to \$3,500 per ticketed customer unless a higher value is declared in advance and additional charges are paid (not applicable to wheelchairs or other assistive devices). For such travel, United assumes no liability for high value, fragile, perishable, or otherwise excluded items; excess valuation may not be declared on certain types of valuable articles. Further information may be obtained from the carrier. For international travel governed by the Warsaw Convention (including the domestic portions of the trip), maximum liability is approximately 640 USD per bag for checked baggage, and 400 USD per passenger for unchecked baggage. For international travel governed by the Montreal Convention (including the domestic portions of the trip), maximum liability is 1,288 SDRs per passenger for baggage, whether checked or unchecked. For baggage lost, delayed, or damaged in connection with domestic travel, United requires that customers provide preliminary notice within 24 hours after arrival of the flight on which the baggage was or was to be transported and submit a written claim within 45 days of the flight. For baggage damaged or delayed in connection with most international travel (including domestic portions of international journeys), the Montreal Convention and United require customers to provide carriers written notice as follows: (a) for damaged baggage, within seven days from the date of receipt of the damaged baggage; (b) for delayed baggage, within 21 days from the date the baggage should have been returned to the customer. Please refer to Rule 28 of United's Contract of Carriage for important information relating to baggage and other limitations of liability.

Notice of Incorporated Terms - Transportation is subject to the terms and conditions of United's Contract of Carriage, which are incorporated herein by reference. Incorporated terms may include, but are not limited to: 1. Limits on liability for personal injury or death of the customer, and for loss, damage, or delay of goods and baggage, including high value, fragile, perishable, or otherwise excluded items. 2. Claims restrictions, including time periods within which customers must file a claim or bring an action against the carrier. 3. Rights of the carrier to change terms of the contract. 4. Rules about reconfirmation of reservations, check-in times, and refusal to carry. 5. Rights of the carrier and limits on liability for delay or failure to perform service, including schedule changes, substitution of an alternate air carrier or aircraft, and rerouting. The full text of United's Contract of Carriage is available at united.com or you may request a copy at any United ticket counter. Passengers have the right, upon request at any location where United's tickets are sold within the United States, to receive free of charge by mail or other delivery service the full text of United's Contract of Carriage.

Notice of Certain Terms - If you have purchased a restricted ticket, depending on the rules applicable to the fare

paid, one or more restrictions including, but not limited to, the following may apply to your travel: (1) the ticket may not be refundable but can be exchanged for a fee for another restricted fare ticket meeting all the rules/restrictions of the original ticket (including the payment of any difference in fares); (2) a fee may apply for changing/canceling reservations; or (3) select tickets may not be eligible for refunds or changes even for a fee; (4) select tickets have no residual value and cannot be applied towards the purchase of future travel; or (5) travel may be restricted to specific flights and/ or times and a minimum and/or maximum stay may be required. United reserves the right to refuse carriage to any person who has acquired a ticket in violation of any United tariffs, rules, or regulations, or in violation of any applicable national, federal, state, or local law, order, regulation, or ordinance. Notwithstanding the foregoing, you are entitled to a full refund if you cancel a ticket purchased at least a week prior to departure within 24 hours of purchase.

Notice of Boarding Times - For Domestic flights, customers must be at the boarding gate at least 15 minutes prior to scheduled departure. For International flights, customers must be at the boarding gate at least 30 minutes prior to scheduled departure. The time limits provided by United in this Notice are minimum time requirements. Customer and baggage processing times may differ from airport to airport. Please visit united.com for information regarding airport-specific boarding times. It is the customer's responsibility to arrive at the airport with enough time to complete check-in, baggage, and security screening processes within these minimum time limits. Please be sure to check flight information monitors for the correct boarding gate and the departure time of your flight. Failure to be at the boarding gate by the required time could result in the loss of your seat without compensation, regardless of whether you are already checked in or have a confirmed seat and boarding pass.

ADVICE TO INTERNATIONAL PASSENGERS ON LIMITATIONS OF LIABILITY -

Passengers embarking upon a journey involving an ultimate destination or a stop in a country other than the country of departure are advised that the provisions of an international treaty (the Warsaw Convention, the 1999 Montreal Convention, or other treaty), as well as a carrier's own contract of carriage or tariff provisions, may be applicable to their entire journey, including any portion entirely within the countries of departure and destination. The applicable treaty governs and may limit the liability of carriers to passengers for death or personal injury, destruction or loss of, or damage to, baggage, and for delay of passengers and baggage.

Additional protection can usually be obtained by purchasing insurance from a private company. Such insurance is not affected by any limitation of the carrier's liability under an international treaty. For further information please consult your airline or insurance company representative.

Notice - Overbooking of Flights - Airline flights may be overbooked, and there is a slight chance that a seat will not be available on a flight for which a person has a confirmed reservation. If the flight is overbooked, no one will be denied a seat until airline personnel first ask for volunteers willing to give up their reservation in exchange for compensation of the airline's choosing. If there are not enough volunteers, the airline will deny boarding to other persons in accordance with its particular boarding priority. With few

exceptions, including failure to comply with the carrier's check-in deadlines, which are available upon request from the air carrier, persons, denied boarding involuntarily are entitled to compensation. The complete rules for the payment of compensation and each airline's boarding priorities are available at all airport ticket counters and boarding locations. *Some airlines do not apply these consumer protections to travel from some foreign countries, although other consumer protections may be available. Check with your airline or your travel agent.*



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From: Graham, Barney (NIH/VRC) [E]
Sent: Wed, 12 Feb 2020 02:35:01 +0000
To: Corbett, Kizzmekia (NIH/VRC) [E]
Cc: Valantine, Hannah (NIH/OD) [E]
Subject: Re: Follow-up on Meeting Re: Kizzmekia Corbett

Dr. Valentine,

I look forward to any help or suggestions you have for advancing Dr. Corbett's career.

Best wishes,

Barney

Sent from my iPhone

On Feb 12, 2020, at 2:05 AM, Corbett, Kizzmekia (NIH/VRC) [E]

(b) (6) wrote:

Good evening Dr. Valantine,

Thanks again for meeting with me today. Attached here is my CV, for your use. Please distribute as you see fit. All NIAID related media/press is included, per your request. I am also cc'ing my PI, Dr. Graham, so that you two can become acquainted. Please don't hesitate to let me know if you need anything else.

--

Kizzmekia S. Corbett, PhD

Senior Research Fellow | Scientific Lead

Coronavirus Vaccines & Immunopathogenesis (coVip) Team

Viral Pathogenesis Laboratory | Vaccine Research Center

National Institutes of Allergy and Infectious Diseases

National Institutes of Health

Building 40 Room 2608

40 Convent Drive

Bethesda MD 20892

Laboratory: (b) (6)

Personal: (b) (6)

Fax: (301) 480-2771

<Kizzmekia S. Corbett_CV_20200211.pdf>

From: Graham, Barney (NIH/VRC) [E]
Sent: Sat, 1 Feb 2020 12:15:28 +0000
To: Koen K Van Rompay
Subject: Re: Coronavirus - NHP model?

Thanks Koen. Sorry for late reply. I'm not keeping up. Vincent Munster at RML is also developing NHP models. We already agreed to work with him during internal NIAID discussions. I think there is a lot to do. People will be making mAbs and vaccines and will be anxious to test. CDC has isolated virus and depositing in BEI soon. It grows in Vero cells. You might want to get on the list. I will give more thought to how we might work together.

Best wishes,

Barney

Sent from my iPhone

On Jan 30, 2020, at 1:40 AM, Koen K Van Rompay <(b) (6)> wrote:

Hi Barney,

I was just reading some of the online articles, and glad to see you and your lab are actively pursuing a vaccine. Let me know if we can be of any help, whether it's just for immunogenicity or efficacy. I don't know if anyone has determined whether it infects macaques. But assuming that just like SARS, it is classified as BSL3, we have our NPH BSL3 facility up and running and just completed a (b) (4) study, so the animal room is empty again, while the staff is trained to work there.

Thanks,
Koen

Koen Van Rompay, D.V.M. Ph.D.
Full Research Virologist
California National Primate Research Center
University of California
County Road 98 & Hutchison
Davis, CA 95616
USA
Phone (b) (6)
Fax + 530-752-2880
E-mail: (b) (6)

Make a difference...visit <http://www.sahaya.org>
<http://vimeo.com/65517422>

From: Graham, Barney (NIH/VRC) [E]
Sent: Sat, 14 Mar 2020 10:54:05 +0000
To: Mascola, John (NIH/VRC) [E]
Cc: Kong, Wing-Pui (NIH/VRC) [E]
Subject: FW: Plate Layout and (b) (4)

FYI

BG

From: Emilie Lameignere (b) (6)
Sent: Saturday, March 14, 2020 2:12 AM
To: Corbett, Kizzmekia (NIH/VRC) [E] (b) (6) >
Cc: Kathryn Westendorf (b) (6); Stefanie Zentelis
(b) (6); Ester Falconer (b) (6) >; Bok, Karin
(NIH/VRC) [E] (b) (6); Graham, Barney (NIH/VRC) [E] (b) (6); Payal
Sipahimalani <(b) (6)>; Morabito, Kaitlyn (NIH/VRC) [E]
(b) (6) >; Zhang, Yi (NIH/NIAID) [C] (b) (6) >; Wang, Lingshu (NIH/VRC)
[E] (b) (6)
Subject: Re: Plate Layout and (b) (4)

Hi Kizzmekia,

We just finished to (b) (4) and I confirm that we will be able to
send you the amount you requested: (b) (4).

(b) (4).

Thank you and have a great week-end,
Emilie

On Fri, Mar 13, 2020 at 7:23 PM Emilie Lameignere <(b) (6)> wrote:
Hello Yi and Kizzmekia,

We will have (b) (4)
(b) (4)

Thank you,
Emilie

On Fri, Mar 13, 2020 at 6:24 PM Corbett, Kizzmekia (NIH/VRC) [E] (b) (6) wrote:
Yi, could you answer these questions? Taking into account we prefer (b) (4)
for the first test?

Sent from the mobile device of:

Kizzmekia S. Corbett, PhD

Senior Research Fellow

coVip Scientific Lead

VRC | NIAID | NIH

(b) (6)

From: "Emilie Lameignere" (b) (6) >

Date: Thursday, March 12, 2020 at 6:36:50 PM

To: "Kathryn Westendorf" (b) (6) >

Cc: "Corbett, Kizzmekia (NIH/VRC) [E]" (b) (6) "Stefanie Zentelis"

(b) (6) >, "Ester Falconer" < (b) (6) >, "Bok, Karin

(NIH/VRC) [E]" (b) (6) >, "Graham, Barney (NIH/VRC) [E]" (b) (6) >, "Payal

Sipahimalani" (b) (6) >, "Morabito, Kaitlyn (NIH/VRC) [E]"

(b) (6) >, "Wang, Lingshan (FDA/CDER) (CTR)" < (b) (6) >,

"Zhang, Yi (NIH/NIAID) [C]" (b) (6)

Subject: Re: Plate Layout and (b) (4)

Hi Kizzmekia,

We (b) (4)
(b) (4)

I would have a couple questions for you:

(b) (4)

Thank you

Emilie

On Tue, Mar 10, 2020 at 12:07 PM Kathryn Westendorf (b) (6) > wrote:

Hi Kizzmekia,

We will be running validation this weekend/finishing Monday.

The plan is as follows:

(b) (4)

(b) (4) Emilie will follow with those details later when we meet.

We will share the (b) (4) details with you, in case you need to (b) (4)

Kathryn

On Tue, Mar 10, 2020 at 6:03 AM Corbett, Kizzmekia (NIH/VRC) [E] (b) (6) wrote:

Good morning,

We prefer to (b) (4)
(b) (4)
(b) (4) please

confirm that is okay with you. After all data from both sides is collected, we will (b) (4)

(b) (4)

Could you please share your (b) (4) plan with us?

Kizzmekia S. Corbett, PhD

Senior Research Fellow | Scientific Lead

Coronavirus Vaccines & Immunopathogenesis (coVip) Team

Viral Pathogenesis Laboratory | Vaccine Research Center

National Institutes of Allergy and Infectious Diseases

National Institutes of Health

Building 40 Room 2608

40 Convent Drive

Bethesda MD 20892

Laboratory: (b) (6)

Personal: (b) (6)

Fax: (301) 480-2771

From: Emilie Lameignere <(b) (6)>

Date: Friday, March 6, 2020 at 5:57 PM

To: Kathryn Westendorf (b) (6)>

Cc: Kizzmekia Corbett (b) (6)>, Ester Falconer

(b) (6)>, "Bok, Karin (NIH/VRC) [E]" <(b) (6)>, Barney

Graham (b) (6)>, Payal Sipahimalani (b) (6)>,"Morabito, Kaitlyn (NIH/VRC) [E]"

(b) (6)>, "Wang, Lingshan (FDA/CDER)

(CTR)" (b) (6)>, "Zhang, Yi (NIH/NIAID) [C]" (b) (6)>

Subject: Re: Plate Layout and (b) (4)

Hi Kizzmekia,

Yes, we can aim for (b) (4) I will update you on Thursday

next week (March12), when we have (b) (4)

(b) (4)

(b) (4)

Thanks,

Emilie

On Fri, Mar 6, 2020 at 11:08 AM Kathryn Westendorf (b) (6) wrote:
Hi Kizzmekia,

Thanks for the heads up. I'm sending this on to Emilie our (b) (4) group leader. She can confirm if (b) (4).

Thanks,

Kathryn

On Mar 6, 2020, at 10:42 AM, Corbett, Kizzmekia (NIH/VRC) [E] <(b) (6)> wrote:

Hi All,

On Monday there was to be sent (b) (4) We would prefer (b) (4) if possible. We would like to (b) (4)
Additionally, please send me a (b) (4)
(b) (4) for me to fill in.

Thank you.

--

Kizzmekia S. Corbett, PhD

Senior Research Fellow | Scientific Lead

Coronavirus Vaccines & Immunopathogenesis (coVip) Team

Viral Pathogenesis Laboratory | Vaccine Research Center

National Institutes of Allergy and Infectious Diseases

National Institutes of Health

Building 40 Room 2608

40 Convent Drive

Bethesda MD 20892

Laboratory: (b) (6)

Personal: (b) (6)

Fax: (301) 480-2771

From: (b) (6)

When: 11:00 AM - 1:00 PM March 6, 2020

Subject: Invitation: AbCellera | VRC (b) (4) @ Fri 2020-03-06 8am - 10am (PST)
(b) (6)

You have been invited to the following event.

AbCellera | VRC (b) (4)

When Fri 2020-03-06 8am – 10am Pacific Time -
Vancouver

Calendar (b) (6)

Who

- Sherie Duncan - creator
- (b) (6)
- (b) (6)
- (b) (6)
- Kathryn Westendorf
- Payal Sipahimalani
- (b) (6)

[more details »](#)

Topic: AbCellera | VRC (b) (4)

Time: Mar 6, 2020 08:00 AM Vancouver

Join Zoom Meeting

(b) (6)

Meeting ID: (b) (6)

One tap mobile

+ (b) (6) Canada

Dial by your location

+1 647 558 0588 Canada

+1 669 900 9128 US (San Jose)

+1 646 558 8656 US (New York)

Meeting ID: (b) (6)

Find your local number:

(b) (6)

Going (b) (6) [Yes](#) - [Maybe](#) - [No](#) [more options »](#)

Invitation from [Google Calendar](#)

You are receiving this courtesy email at the account (b) (6) because you are an attendee of this event.

To stop receiving future updates for this event, decline this event. Alternatively you can sign up for a Google account at <https://www.google.com/calendar/> and control your notification settings for your entire calendar.

Forwarding this invitation could allow any recipient to send a response to the organizer and be added to the guest list, or invite others regardless of their own invitation status, or to modify your RSVP. [Learn More](#).

From: Graham, Barney (NIH/VRC) [E]
Sent: Wed, 5 Feb 2020 13:18:42 +0000
To: Hiatt, Nissa (NIH/VRC) [C];Routh, Jennifer (NIH/NIAID) [E]
Subject: Fwd: Forbes journalist question about coronavirus vaccine

FYI.

BG

Sent from my iPhone

Begin forwarded message:

From: "Rosenbaum, Leah" <lrosenbaum@forbes.com>
Date: February 4, 2020 at 6:55:41 PM EST
To: "Graham, Barney (NIH/VRC) [E]" <(b) (6)>
Subject: Forbes journalist question about coronavirus vaccine

Hi Dr. Graham,

My name is Leah Rosenbaum, I'm a healthcare reporter at Forbes. I'm working on a story about organizations working on creating a vaccine for 2019-nCoV, and was wondering if you would be able to speak on this subject? Let me know if you have time for a quick phone call in the next few days. Thanks!

Best,
Leah

Leah Rosenbaum

Assistant Editor of Healthcare and Science, Forbes

Phone: (b) (6) (cell), 415-544-4836 (office)

Email: lrosenbaum@forbes.com

Send secure messages & tips to me via [Signal](#) at (415) 816-6465

From: Graham, Barney (NIH/VRC) [E]
Sent: Sat, 18 Apr 2020 12:30:15 +0000
To: Corbett, Kizzmekia (NIH/VRC) [E]; Alvarado, Gabriela (NIH/VRC) [C]; Morabito, Kaitlyn (NIH/VRC) [E]; Bok, Karin (NIH/VRC) [E]
Cc: Ruckwardt, Tracy (NIH/VRC) [E]
Subject: FW: Announcement--ASM's COVID-19 Research Registry

FYI. Worth keeping track of.

Barney

From: Casseti, Cristina (NIH/NIAID) [E] (b) (6)>
Sent: Wednesday, April 15, 2020 10:31 AM
To: Embry, Alan (NIH/NIAID) [E] (b) (6) Marston, Hilary (NIH/NIAID) [E] (b) (6); Stemmy, Erik (NIH/NIAID) [E] (b) (6)>; Mascola, John (NIH/VRC) [E] (b) (6); Graham, Barney (NIH/VRC) [E] (b) (6)>
Cc: Erbeling, Emily (NIH/NIAID) [E] (b) (6)
Subject: FW: Announcement--ASM's COVID-19 Research Registry

FYI- see below. Really useful resource

From: Bertuzzi, Stefano <sbertuzzi@asmusa.org>
Sent: Wednesday, April 15, 2020 10:21 AM
To: Fauci, Anthony (NIH/NIAID) [E] (b) (6)>; Erbeling, Emily (NIH/NIAID) [E] (b) (6)>; Casseti, Cristina (NIH/NIAID) [E] (b) (6)>; Beigel, John (NIH) [E] (b) (6)>
Subject: Announcement--ASM's COVID-19 Research Registry

Dear Tony and NIAID friends –

the mission of the American Society for Microbiology (ASM) to promote and advance the microbial sciences has perhaps never been more clearly in focus than during the current SARS-CoV-2 pandemic. Accelerating basic research is key to ASM's mission– it is where cure and prevention begin. It is impressive how rapidly research on SARS-CoV-2 /COVID-19 has advanced in just a few weeks, but easily accessing new and relevant research has been a challenge for basic researchers. When ASM's [Council on Microbial Sciences](#) held a [COVID-19 summit](#) to identify the most significant scientific work on the virus, the coronavirus researchers and clinical microbiologists raised the need for the scientific community to curate important COVID-19 research.

ASM is excited to announce the launch of the [COVID-19 Research Registry](#), a platform curated and vetted by experts in the field of virology and related disciplines to provide immediate access to top COVID-19 research.

I am proud that **Lynn Enquist**, Ph.D., Henry L. Hillman Professor in Molecular Biology, Princeton University and former ASM President, will serve as Chief Curator for this Registry. **Dr. Harold Varmus**,

Lewis Thomas University Professor of Medicine, Weill Cornell Medicine has agreed to join us as Chief Consultant on the project.

We are honored to have the following as Assistant Curators-in-Chief:

- Rozanne M. Sandri-Goldin, Ph.D., Chancellor's Professor, Microbiology & Molecular Genetics, University of California, Irvine and Editor-in-Chief of ASM's [Journal of Virology](#)
- Vaughn Cooper, Ph.D., Professor, Microbiology & Molecular Genetics, University of Pittsburgh, and current [ASM Board](#) member

The [entire curatorial board](#) is listed on the Registry site.

ASM is proud to add this initiative to our ongoing efforts. Through its capillary network of clinical microbiologists around the country and the world, ASM has accelerated communication and cleared roadblocks to ramp up SARS-CoV-2 testing. We continue to work closely with our dedicated colleagues, the indefatigable clinical microbiologists manning the front lines in hospitals and testing labs during this unprecedented global emergency. We send our thanks—and admiration—to these ASM members who are contributing directly to saving lives in this perilous time.

Our [COVID-19 resource page](#) provides important ASM updates and current information on the coronavirus. We are also working with the news media to provide authoritative ASM experts and reliable material on the microbiology of viral epidemics. ASM journals is also providing free access to more than [50 research articles published over the last year](#) in our [16 scholarly journals](#) and expediting review for submitted papers related to coronavirus, ensuring that new research is quickly made available to the scientific community.

We are hoping that researchers will find the COVID-19 Research Registry a useful resource. We look forward to your comments, questions or suggestions, since your input will be critical for improving this platform and making it useful for the scientific community. All feedback can be sent to covid19registry@asmusa.org. We are all in this together.

Sincerely,

(b) (6)

Stefano Bertuzzi
Chief Executive Officer, ASM

Stefano Bertuzzi, Ph.D., M.P.H.
Chief Executive Officer
American Society for Microbiology (ASM)
1752 N St., NW
Washington, DC 20036-2904
Phone +1 202 737 3600

From: Graham, Barney (NIH/VRC) [E]
Sent: Thu, 16 Apr 2020 19:41:15 +0000
To: science_editor@the-jci.org
Cc: Joel Blankson;Corbett, Kizzmekia (NIH/VRC) [E]
Subject: invited JCI viewpoint
Attachments: COVID-19 viewpoint for JCI _ final.docx

Dear Lisa,

Please find a brief commentary attached reviewing some of our thoughts on COVID-19 and pandemic preparedness.

Thank you for the opportunity to publish in the Journal of Clinical Investigation. Please let me know if you need any additional information. If there are going to be any publication charges I would need to know prior to acceptance.

Best wishes and take care,

Barney

Barney S. Graham, MD, PhD
Senior Investigator
Deputy Director, Vaccine Research Center
Chief, Viral Pathogenesis Laboratory
National Institute of Allergy and Infectious Diseases, NIH
40 Convent Drive, MSC 3017
Bldg 40, Room 2502
Bethesda, MD 20892-3017
Phone: (b) (6)
URL: <https://www.niaid.nih.gov/research/barney-graham-md-phd>

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From: Graham, Barney (NIH/VRC) [E]
Sent: Wed, 11 Mar 2020 22:40:05 +0000
To: Hiatt, Nissa (NIH/VRC) [C]; Lavelle, Judith (NIH/NIAID) [E]
Cc: Young, Monique (NIH/VRC) [E]
Subject: RE: Media Inquiry: Vaccine development for Covid-19

Yes, we can try to find a time. I will be out of the office for a few days next week, but can be on the phone.

Barney

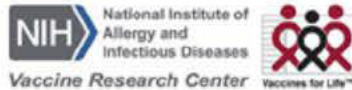
From: Hiatt, Nissa (NIH/VRC) [C] (b) (6)>
Sent: Wednesday, March 11, 2020 4:19 PM
To: Lavelle, Judith (NIH/NIAID) [E] (b) (6)>; Graham, Barney (NIH/VRC) [E]
(b) (6)>
Cc: Young, Monique (NIH/VRC) [E] (b) (6)
Subject: RE: Media Inquiry: Vaccine development for Covid-19

Hi Judy,

I am looping in Monique in Dr. Graham's office in the hopes that she can help to schedule this podcast interview with Wendy.

Best,
Nissa

Nissa Hiatt
Communications
Vaccine Research Center, NIAID, NIH
40 Convent Drive, Bldg. 40, Room 1107
Bethesda, MD 20892
office: (b) (6)
mobile: (b) (6)
(b) (6)



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From: Lavelle, Judith (NIH/NIAID) [E] (b) (6)
Sent: Wednesday, March 11, 2020 3:26 PM

To: Graham, Barney (NIH/VRC) [E] <(b) (6)>
Cc: Hiatt, Nissa (NIH/VRC) [C] (b) (6)
Subject: RE: Media Inquiry: Vaccine development for Covid-19

Hi Dr. Graham,

This interview has been cleared. Would you like me to connect you or your office directly with Wendy to schedule 15 min over the phone sometime before her new deadline of 3/20?

Very best,
Judy

Judith Lavelle
Technical Writer-Editor
National Institute of Allergy and Infectious Diseases
5601 Fishers Ln., Room 6G37
Rockville, MD 20852
O: (b) (6) | M: (b) (6)
Pronouns: she/her | (b) (6)

From: Lavelle, Judith (NIH/NIAID) [E]
Sent: Monday, March 9, 2020 5:03 PM
To: Graham, Barney (NIH/VRC) [E] (b) (6)>
Cc: Hiatt, Nissa (NIH/VRC) [C] (b) (6)
Subject: RE: Media Inquiry: Vaccine development for Covid-19

Hi Dr. Graham—Glad to hear it. I will send this forward for clearance and follow up once it has been cleared. Her deadline is not until EOB 3/18. We can do by phone, and I can ask for closer to 15 min if you'd prefer.

Very best,
Judy

Judith Lavelle
Technical Writer-Editor
National Institute of Allergy and Infectious Diseases
5601 Fishers Ln., Room 6G37
Rockville, MD 20852
O: (b) (6) | M: (b) (6)
Pronouns: she/her | (b) (6)

From: Graham, Barney (NIH/VRC) [E] <(b) (6)>
Sent: Monday, March 9, 2020 3:24 PM
To: Lavelle, Judith (NIH/NIAID) [E] (b) (6)>; Routh, Jennifer (NIH/NIAID) [E] (b) (6)>; Hiatt, Nissa (NIH/VRC) [C] (b) (6)>; Oplinger, Anne (NIH/NIAID) [E] (b) (6)>
Cc: Pekoc, Ken (NIH/NIAID) [E] (b) (6)>; Deatrick, Elizabeth (NIH/NIAID) [C]

(b) (6)

Subject: RE: Media Inquiry: Vaccine development for Covid-19

I can do it if you think it is a good one.

All my trips are being canceled, so maybe I can catch up.

BG

From: Lavelle, Judith (NIH/NIAID) [E] (b) (6)>

Sent: Monday, March 9, 2020 3:21 PM

To: Routh, Jennifer (NIH/NIAID) [E] (b) (6); Hiatt, Nissa (NIH/VRC) [C]
<(b) (6)>; Graham, Barney (NIH/VRC) [E] (b) (6)>; Oplinger, Anne
(NIH/NIAID) [E] (b) (6)>

Cc: Pekoc, Ken (NIH/NIAID) [E] (b) (6)>; Deatrick, Elizabeth (NIH/NIAID) [C]

(b) (6)

Subject: RE: Media Inquiry: Vaccine development for Covid-19

Hi all,

Wendy sent me the following:

Dear Judy, Thanks for this. Yes that's correct someone working on mRNA-1273. We'd be keen to speak with anyone on the team - including Dr Kizzmekia Corbett. So not necessarily Dr Graham. Anyway who can walk us through - **how did they find the current target and how are they now testing it.**

Over the phone would be fine - but preferably would could get someone to record the interview properly. So we would organise someone to hold the microphone, while I ask the questions from New York. If that's too much though, we can just do over the phone.

We'd want around 30 minutes.

Thank you

Wendy

Thanks!

Judy

Judith Lavelle

Technical Writer-Editor

National Institute of Allergy and Infectious Diseases

5601 Fishers Ln., Room 6G37

Rockville, MD 20852

O: (b) (6) | M: (b) (6)

Pronouns: she/her | (b) (6)

From: Routh, Jennifer (NIH/NIAID) [E] (b) (6) >
Sent: Monday, March 9, 2020 3:20 PM
To: Hiatt, Nissa (NIH/VRC) [C] (b) (6); Graham, Barney (NIH/VRC) [E] (b) (6); Oplinger, Anne (NIH/NIAID) [E] (b) (6)
Cc: Pekoc, Ken (NIH/NIAID) [E] (b) (6); Lavelle, Judith (NIH/NIAID) [E] (b) (6); Deatrick, Elizabeth (NIH/NIAID) [C] (b) (6) >
Subject: RE: Media Inquiry: Vaccine development for Covid-19

Of NIAID group would prefer to have Dr. Graham do this one if he is avail. Can someone on my team find a little more about this first though.

Jennifer Routh [E]
News and Science Writing Branch
Office of Communications and Government Relations
National Institute of Allergy and Infectious Diseases (NIAID)
NIH/HHS
31 Center Drive Room 7A17C
Bethesda, MD 20892
Direct: (b) (6)
(b) (6)

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From: Hiatt, Nissa (NIH/VRC) [C] (b) (6) >
Sent: Monday, March 9, 2020 3:17 PM
To: Graham, Barney (NIH/VRC) [E] (b) (6); Routh, Jennifer (NIH/NIAID) [E] (b) (6); Oplinger, Anne (NIH/NIAID) [E] <(b) (6)>
Cc: Pekoc, Ken (NIH/NIAID) [E] (b) (6)
Subject: RE: Media Inquiry: Vaccine development for Covid-19

They pinged Dr. Corbett and Dr. Sullivan as well -if you are interested, please let us know, Dr. Graham. I was waiting to hear if Dr. Corbett is interested in doing the podcast too. Ken offered to decline for Dr. Sullivan.

Best,
Nissa

Nissa Hiatt
Communications
Vaccine Research Center, NIAID, NIH
40 Convent Drive, Bldg. 40, Room 1107
Bethesda, MD 20892
office: (b) (6)
mobile: (b) (6)

(b) (6)



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From: Graham, Barney (NIH/VRC) [E] (b) (6)
Sent: Monday, March 9, 2020 3:15 PM
To: Routh, Jennifer (NIH/NIAID) [E] (b) (6)>; Oplinger, Anne (NIH/NIAID) [E] (b) (6)>; Hiatt, Nissa (NIH/VRC) [C] (b) (6)>
Subject: FW: Media Inquiry: Vaccine development for Covid-19

FYI. They seem to never end.

BG

From: Wendy Zukerman <wendyz@gimletmedia.com>
Sent: Monday, March 9, 2020 2:19 PM
To: Graham, Barney (NIH/VRC) [E] (b) (6)>
Subject: Media Inquiry: Vaccine development for Covid-19

Dear Barney,

My name is Wendy Zukerman, I'm a science journalist and [host of the podcast Science Vs](#). We are doing an update of our coronavirus and would like to interview you about the process of vaccine development: how it works? Where are we up to?

If you're interested, and available, it would be great to interview you sometime this week, or early next week.

Looking forward to hearing from you

Wendy

--

Wendy Zukerman
Host and Executive Producer
[Science Vs podcast](#)
wzukerman@spotify.com

From: Graham, Barney (NIH/VRC) [E]
Sent: Thu, 23 Apr 2020 22:11:23 +0000
To: Gaudinski, Martin (NIH/NIAID) [E]; Corbett, Kizzmekia (NIH/VRC) [E]; Misasi, John (NIH/VRC) [E]; Ledgerwood, Julie (NIH/NIAID) [E]
Cc: Morabito, Kaitlyn (NIH/VRC) [E]; Alvarado, Gabriela (NIH/VRC) [C]
Subject: RE: (b) (5)

Maybe (b) (5)

Thanks,

BG

From: Gaudinski, Martin (NIH/NIAID) [E] <(b) (6)>
Sent: Thursday, April 23, 2020 5:52 PM
To: Graham, Barney (NIH/VRC) [E] (b) (6); Corbett, Kizzmekia (NIH/VRC) [E] <(b) (6)>; Misasi, John (NIH/VRC) [E] (b) (6); Ledgerwood, Julie (NIH/NIAID) [E] (b) (6)
Cc: Morabito, Kaitlyn (NIH/VRC) [E] <(b) (6)>; Alvarado, Gabriela (NIH/VRC) [C] (b) (6)>
Subject: Re: (b) (5)

Hi Barney,

It's true that we only have (b) (5) in the clinic.

I was calculating on the basis of recent acquisitions we have done for other coronavirus subjects. We can obtain the samples necessary to answer a scientific question, (b) (5) just let me know and happy to make it all work out.

Martin

--

Martin Gaudinski MD
LCDR, US Public Health Service
Medical Director, Clinical Trials Program
Vaccine Research Center, NIAID, NIH
Work phone: (b) (6)
Mobile phone: (b) (6)
Building 10-CRC, Room 5-2448
10 Center Drive
Bethesda, MD 20814

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From: "Graham, Barney (NIH/VRC) [E]" (b) (6) >
Date: Thursday, April 23, 2020 at 5:03 PM
To: "Gaudinski, Martin (NIH/NIAID) [E]" (b) (6) >, "Corbett, Kizzmekia (NIH/VRC) [E]" (b) (6) >, "Misasi, John (NIH/VRC) [E]" (b) (6) >, Julie Ledgerwood (b) (6)
Cc: "Morabito, Kaitlyn (NIH/VRC) [E]" (b) (6) >, "Alvarado, Gabriela (NIH/VRC) [C]" (b) (6)
Subject: RE: (b) (5)

Just to translate.

These are (b) (5)

(b) (5)

BG

From: Gaudinski, Martin (NIH/NIAID) [E] (b) (6) >
Sent: Thursday, April 23, 2020 4:59 PM
To: Corbett, Kizzmekia (NIH/VRC) [E] (b) (6) >; Misasi, John (NIH/VRC) [E] (b) (6) >; Ledgerwood, Julie (NIH/NIAID) [E] (b) (6) >
Cc: Graham, Barney (NIH/VRC) [E] <(b) (6)>; Morabito, Kaitlyn (NIH/VRC) [E] (b) (6) >; Alvarado, Gabriela (NIH/VRC) [C] (b) (6) >
Subject: Re: (b) (5)

Hi Everyone,

We won't be able to get an (b) (5)

(b) (5)

If we get (b) (5) would that suffice?

Thanks,
Martin

--

Martin Gaudinski MD

LCDR, US Public Health Service
Medical Director, Clinical Trials Program
Vaccine Research Center, NIAID, NIH
Work phone: (b) (6)
Mobile phone: (b) (6)
Building 10-CRC, Room 5-2448
10 Center Drive
Bethesda, MD 20814

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From: "Corbett, Kizzmekia (NIH/VRC) [E]" <(b) (6)>
Date: Thursday, April 23, 2020 at 4:46 PM
To: "Misasi, John (NIH/VRC) [E]" (b) (6)>, Julie Ledgerwood
(b) (6)>, "Gaudinski, Martin (NIH/NIAID) [E]" (b) (6)>
Cc: "Graham, Barney (NIH/VRC) [E]" <(b) (6)>, "Morabito, Kaitlyn (NIH/VRC) [E]" (b) (6)>, "Alvarado, Gabriela (NIH/VRC) [C]" (b) (6)>
Subject: FW: (b) (5)

Just following up on Dr. Graham's email below.

Drs. Ledgerwood and Gaudinski, is it feasible to have the (b) (5).
(b) (5)

From: "Graham, Barney (NIH/VRC) [E]" (b) (6)>
Date: Wednesday, April 22, 2020 at 17:33
To: "Corbett, Kizzmekia (NIH/VRC) [E]" <(b) (6)>, John Misasi (b) (6)>
Cc: "Chen, Grace (NIH/NIAID) [V]" (b) (6)>, "Ledgerwood, Julie (NIH/NIAID) [E]" (b) (6)>
Subject: RE: (b) (5)

I agree with that schedule if feasible for all.

Barney

From: Corbett, Kizzmekia (NIH/VRC) [E] <(b) (6)>
Sent: Saturday, April 18, 2020 1:55 PM
To: (b) (6) (NIH/VRC) [E] (b) (6)
Cc: Graham, Barney (NIH/VRC) [E] (b) (6)>
Subject: Re: (b) (5)

Good afternoon (b) (6), Thanks for following up.

(b) (6), (b) (5)

--

Kizzmekia S. Corbett, PhD
Senior Research Fellow | Scientific Lead
Coronavirus Vaccines & Immunopathogenesis (coVip) Team
Viral Pathogenesis Laboratory | Vaccine Research Center
National Institutes of Allergy and Infectious Diseases
National Institutes of Health

Building 40 Room 2608
40 Convent Drive
Bethesda MD 20892
Laboratory: (b) (6)
Personal: (b) (6)
Fax: (301) 480-2771

From: (b) (6) (NIH/VRC) [E]" <(b) (6)>
Date: Friday, April 17, 2020 at 4:47 PM
To: Kizzmekia Corbett (b) (6)
Subject: (b) (5)

Hey,

Did you figure out (b) (5), (b) (6)

(b) (6)

NIH/NIAID

Vaccine Research Center

Biodefense Research Section

Rm 2510

40 Convent Drive

Bethesda, MD 20892

(b) (6)

(b) (6)

From: (b) (6)
Sent: Wed, 4 Mar 2020 17:29:43 -0500
To: Barton Haynes, M.D.
Cc: Marston, Hilary (NIH/NIAID) [E]; Ledgerwood, Julie (NIH/NIAID) [E]; Degrace, Marciela (NIH/NIAID) [E]; Gregory Sempowski; Thomas Denny; Kelly Soderberg; Mascola, John (NIH/VRC) [E]; David Kordys, Ph.D.; Stein, Judy (NIH/VRC) [C]; Morabito, Kaitlyn (NIH/VRC) [E]; Corbett, Kizzmekia (NIH/VRC) [E]; Bok, Karin (NIH/VRC) [E]
Subject: Re: coronavirus (b) (4) samples

(b) (4) so that should be no problem.

BG

Sent from my iPhone

On Mar 4, 2020, at 3:33 PM, Barton Haynes, M.D. (b) (6) > wrote:

Hi Barney: thanks for this. I have cc'd this to david Kordys here at duke who is our tech transfer contact.

Just let us know what paper work needs to be done to get the (b) (4) (b) (4), we can study whatever is available. All the best Bart

Barton F. Haynes, M.D.
Director, Duke Human Vaccine Institute
Frederic M. Hanes Professor of Medicine and Immunology
2 Genome Court
MSRBII Bldg. Room 4090
DUMC 103020
Duke University Medical Center
Durham, NC 27710
Ph: (b) (6)
Fx: 919-684-5230
(b) (6)

From: Graham, Barney (NIH/VRC) [E] [mailto: (b) (6)]
Sent: Tuesday, March 3, 2020 11:41 AM
To: Marston, Hilary (NIH/NIAID) [E] (b) (6) Barton Haynes, M.D.
(b) (6); Bozick, Brooke (NIH/OD) [E] (b) (6); Ledgerwood, Julie (NIH/NIAID) [E] (b) (6)
Cc: Degrace, Marciela (NIH/NIAID) [E] < (b) (6) >; Gregory Sempowski (b) (6) >; Thomas Denny (b) (6) >; Kelly Soderberg

(b) (6)>; Mascola, John (NIH/VRC) [E] (b) (6)>
Subject: RE: coronavirus (b) (4) samples

We are still working on finding (b) (4) have been distributed so far.

We do have (b) (4)
(b) (4)

Barney

From: Marston, Hilary (NIH/NIAID) [E] (b) (6)
Sent: Tuesday, March 3, 2020 11:05 AM
To: Barton Haynes, M.D. (b) (6)>; Bozick, Brooke (NIH/OD) [E] (b) (6); Graham, Barney (NIH/VRC) [E] (b) (6)>; Ledgerwood, Julie (NIH/NIAID) [E] <(b) (6)>
Cc: Degrace, Marciela (NIH/NIAID) [E] (b) (6)>; Gregory Sempowski (b) (6)>; Thomas Denny (b) (6)>; Kelly Soderberg (b) (6)>; Mascola, John (NIH/VRC) [E] (b) (6)
Subject: RE: coronavirus (b) (4) samples

Adding John, Julie and Barney back to the string for responses. (bear with John and Barney if they are a bit delayed in responding today).

From: Barton Haynes, M.D. (b) (6)>
Sent: Tuesday, March 3, 2020 10:57 AM
To: Bozick, Brooke (NIH/OD) [E] (b) (6)>
Cc: Degrace, Marciela (NIH/NIAID) [E] (b) (6)>; Marston, Hilary (NIH/NIAID) [E] (b) (6); Gregory Sempowski (b) (6)>; Thomas Denny (b) (6)>; Kelly Soderberg (b) (6)>
Subject: RE: coronavirus (b) (4) samples

Hi Hilary, John and Barney:

It would be great if we could access (b) (4)
(b) (4)

(b) (4)

(b) (4). Would be great to collaborate on this as well.

Many thanks for your consideration.

All the very best, Bart

Barton F. Haynes, M.D.
Director, Duke Human Vaccine Institute
Frederic M. Hanes Professor of Medicine and Immunology
2 Genome Court
MSRBII Bldg. Room 4090
DUMC 103020
Duke University Medical Center
Durham, NC 27710
Ph: (b) (6)
Fx: 919-684-5230
(b) (6)

From: Bozick, Brooke (NIH/OD) [E] [\(b\) \(6\)](mailto:(b) (6))
Sent: Saturday, February 29, 2020 12:39 PM
To: Barton Haynes, M.D. (b) (6) >
Cc: Degrace, Marciela (NIH/NIAID) [E] <(b) (6)>; Marston, Hilary (NIH/NIAID) [E] <(b) (6)>; Gregory Sempowski <(b) (6)>; Thomas Denny <(b) (6)>; Kelly Soderberg <(b) (6)>
Subject: RE: coronavirus (b) (4) samples

Perfect, thank you Bart. I've added your information to our list.

I am only coordinating (b) (4) Barney, John or Hilary would probably know more about accessing (b) (4)

Brooke

From: Barton Haynes, M.D. (b) (6) >
Sent: Friday, February 28, 2020 7:08 AM
To: Bozick, Brooke (NIH/OD) [E] (b) (6) >
Cc: Degrace, Marciela (NIH/NIAID) [E] (b) (6) >; Marston, Hilary (NIH/NIAID) [E] (b) (6) >; Gregory Sempowski (b) (6) >; Thomas Denny (b) (6); Kelly Soderberg (b) (6)
Subject: RE: coronavirus (b) (4) samples

Here you go Brooke. Let me know if you need any additional information.

Don't know if it comes through on the form but we have an NIAID build Regional Biocontainment Lab at Duke with BSL-3+ capabilities.

Hilary and Brooke; we would also like a (b) (4)

|
spoke with Barney and John re this as well.

We would like samples from both (b) (4) and stand ready to process both immediately.

All the very best Bart

From: Bozick, Brooke (NIH/OD) [E] (b) (6) >
Sent: Thursday, February 20, 2020 5:13 PM
To: Barton Haynes, M.D. (b) (6) >
Cc: Degrace, Marciela (NIH/NIAID) [E] (b) (6)
Subject: RE: coronavirus (b) (4) samples

Hi Bart,

My name is Brooke Bozick and I am serving as a NIAID point of contact for SARS-COV2 reagent requests. Your emailed was forwarded to me because we are compiling a list of investigator requests and working to assess (b) (4) needs while we wait for patient samples to become available. I've attached the information request form for you to fill out so that we can add your request to our list. It will be very helpful if you could be as detailed as possible in terms of your scientific need and expected outcomes of the work.

Thank you,
Brooke Bozick

Brooke A. Bozick, Ph.D.
AAAS Science & Technology Policy Fellow, Health Scientist
Respiratory Diseases Branch
Division of Microbiology and Infectious Diseases
NIAID/NIH/DHHS
5601 Fishers Lane, Room 8A16, Rockville, MD 20852

Phone: (b) (6)

Begin forwarded message:

From: "Barton Haynes, M.D." (b) (6) >

Date: February 17, 2020 at 4:02:18 PM EST

To: "Marston, Hilary (NIH/NIAID) [E]" (b) (6)

Cc: "Embry, Alan (NIH/NIAID) [E]" <(b) (6)>, "Degrace, Marciela (NIH/NIAID) [E]" (b) (6)

Subject: RE: coronavirus (b) (4) samples

Hi Hilary; would be great to have (b) (4) (we will take what we can get!)

All the very best Bart

From: Marston, Hilary (NIH/NIAID) [E] (b) (6)

Sent: Monday, February 17, 2020 3:45 PM

To: Barton Haynes, M.D. <(b) (6)>

Cc: Embry, Alan (NIH/NIAID) [E] (b) (6); Degrace, Marciela (NIH/NIAID) [E] (b) (6) >

Subject: Re: coronavirus (b) (4) samples

Bart - for listing purposes, (b) (4)

Thanks!

On Feb 17, 2020, at 2:53 PM, Graham, Barney (NIH/VRC) [E] (b) (6) > wrote:

Hi Bart. I'll make sure your lab is also on the list for (b) (4). This has been a painful process with so much urgency and so long a wait.

For the (b) (4) you are right that we are planning to do what you propose. I will comment on your request to DMID since it is being done through the VTEUs. It would make sense that they would want groups in the CIVICs to have reagents.

Best wishes,

Barney

Sent from my iPhone

On Feb 17, 2020, at 12:44 PM, Barton Haynes, M.D. (b) (6) wrote:

Hi Barney: In addition to what Greg Sempowski is doing with the DOD (b) (4)
(b) (4)

In the meantime, would it be possible to obtain (b) (4)

I realize most if not all of this is also being done there so more than happy to consider all this a direct collaboration. Our (b) (4)

All the very best Bart

Barton F. Haynes, M.D.
Director, Duke Human Vaccine Institute
Frederic M. Hanes Professor of Medicine and Immunology
2 Genome Court
MSRBII Bldg. Room 4090
DUMC 103020
Duke University Medical Center
Durham, NC 27710
Ph: (b) (6)
Fx: 919-684-5230

(b) (6)

From: Graham, Barney (NIH/VRC) [E]
Sent: Tue, 7 Apr 2020 13:26:36 +0000
To: Carlton, Kevin (NIH/VRC) [E]; Corbett, Kizzmekia (NIH/VRC) [E]
Subject: RE: [EXTERNAL] [REDACTED] (b) (4)

Just FYI, Lingshu sent [REDACTED] (b) (4), (b) (5)

We have other relationships with [REDACTED] (b) (4), (b) (5), so there needs to be an overall game plan that I guess I am responsible for, and then a way of executing the plan.

BG

From: Carlton, Kevin (NIH/VRC) [E] [REDACTED] (b) (6)
Sent: Tuesday, April 7, 2020 9:14 AM
To: Corbett, Kizzmekia (NIH/VRC) [E] [REDACTED] (b) (6) >
Cc: Graham, Barney (NIH/VRC) [E] [REDACTED] (b) (6)
Subject: RE: [EXTERNAL] [REDACTED] (b) (4)

Hi Kizzmekia,

For [REDACTED] (b) (5) correspondence, I think we take a approach different from [REDACTED] (b) (5)
[REDACTED] (b) (5)

If I understood Barney's concerns on external communication, we have 3 issues to address:

[REDACTED] (b) (5)

Kevin

From: Corbett, Kizzmekia (NIH/VRC) [E] <(b) (6)>

Sent: Monday, April 6, 2020 10:39 PM

To: Carlton, Kevin (NIH/VRC) [E] (b) (6)

Cc: Graham, Barney (NIH/VRC) [E] <(b) (6)>

Subject: FW: [EXTERNAL] (b) (4)

Sweet Lord, Save me with email lists, asap. Haha. Not replying, until told what to do. Generally the work flow is (b) (5)

(b) (5) I

am happy with the structure but agree that everyone who needs to be included should be.

--

Kizzmekia S. Corbett, PhD

Senior Research Fellow | Scientific Lead

Coronavirus Vaccines & Immunopathogenesis (coVip) Team

Viral Pathogenesis Laboratory | Vaccine Research Center

National Institutes of Allergy and Infectious Diseases

National Institutes of Health

Building 40 Room 2608

40 Convent Drive

Bethesda MD 20892

Laboratory: (b) (6)

Personal: (b) (6)

Fax: (301) 480-2771

From: Andrea Ferrante (b) (6)

Date: Monday, April 6, 2020 at 8:54 PM

To: Payal Sipahimalani (b) (6)>, Bryan Edward Jones

<(b) (6)>, Julian Davies (b) (6) Qing Chai

(b) (6) Donald Lee <(b) (6)> Kristi M Huntington

(b) (6) Kizzmekia Corbett (b) (6)>

Cc: Ester Falconer (b) (6)>, Rodrigo Goya

(b) (6), Kathryn Westendorf (b) (6)

Subject: RE: [EXTERNAL] (b) (4)

Hi Payal,

I'll be ready (b) (4) and provide a timely feedback.

Thank you.

Andrea

From: Payal Sipahimalani <(b) (6)>

Sent: Monday, April 6, 2020 5:50 PM

To: Bryan Edward Jones (b) (6); Julian Davies (b) (6)
Andrea Ferrante (b) (6); Qing Chai <(b) (6)> Donald Lee
(b) (6); Kristi M Huntington (b) (6) Corbett, Kizzmekia
(NIH/VRC) [E] (b) (6)>
Cc: Ester Falconer <(b) (6)> Rodrigo Goya (b) (6);
Kathryn Westendorf (b) (6)
Subject: [EXTERNAL] (b) (4)

EXTERNAL EMAIL: Use caution before replying, clicking links, and opening attachments.

Hello Lilly team and Kizzmekia,

We now have (b) (4) While we're working out the details of the
(b) (4) for these, we'd like to trigger the (b) (4)

(b) (4) would you
be willing/able to (b) (4) by Wednesday?

All: We'd like to have one of our first round (b) (4) on Wednesday. Please let me know if 12pm
PT / 3pm ET will NOT work for you. I'll put a tentative hold in our calendars for now, with apologies in
advance if we end up having to move it.

Thanks,
Payal.

--

Payal Sipahimalani, MSc, PMP
Senior Project Manager
AbCellera Biologics Inc.

2215 Yukon Street
Vancouver BC V5Y 0A1

T: (b) (6)

M: (b) (6)

abcellera.com

From: Graham, Barney (NIH/VRC) [E]
Sent: Fri, 28 Feb 2020 15:07:45 +0000
To: William Dowling
Cc: Marston, Hilary (NIH/NIAID) [E]
Subject: RE: Webex meeting scheduled: Monoclonal Antibodies against COVID-19 - CANCELLED

Thanks, I am on, but sounds like we are near the end.

BG

From: William Dowling [REDACTED] (b) (6)>
Sent: Friday, February 28, 2020 10:02 AM
To: Graham, Barney (NIH/VRC) [E] [REDACTED] (b) (6)
Cc: Marston, Hilary (NIH/NIAID) [E] [REDACTED] (b) (6)
Subject: RE: Webex meeting scheduled: Monoclonal Antibodies against COVID-19 - CANCELLED

I will send you minutes and other information and give you access to a shared data site. Apologies – this was put together very fast. But will all be together for next week.

From: Graham, Barney (NIH/VRC) [E] [REDACTED] (b) (6)
Sent: Friday, February 28, 2020 3:54 PM
To: William Dowling [REDACTED] (b) (6)
Cc: Marston, Hilary (NIH/NIAID) [E] [REDACTED] (b) (6)
Subject: RE: Webex meeting scheduled: Monoclonal Antibodies against COVID-19 - CANCELLED

I'm obviously not keeping up with email, but I sent you the signed agreement.

BG

From: William Dowling [REDACTED] (b) (6)
Sent: Friday, February 28, 2020 9:35 AM
To: Graham, Barney (NIH/VRC) [E] [REDACTED] (b) (6)>
Cc: Marston, Hilary (NIH/NIAID) [E] [REDACTED] (b) (6)>
Subject: RE: Webex meeting scheduled: Monoclonal Antibodies against COVID-19 - CANCELLED

Barney you should have gotten that email the CDA but I am re sending

From: William Dowling
Sent: Friday, February 28, 2020 3:34 PM
To: Graham, Barney (NIH/VRC) [E] (b) (6)>
Cc: Marston, Hilary (NIH/NIAID) [E] (b) (6)>
Subject: RE: Webex meeting scheduled: Monoclonal Antibodies against COVID-19 - CANCELLED

We sent a CDA that needs to be signed before getting on the call.
Can you please sign and return ? I will then send the invite.
Also, the call is happening now.

From: Graham, Barney (NIH/VRC) [E] (b) (6)>
Sent: Friday, February 28, 2020 3:31 PM
To: William Dowling (b) (6)>
Cc: Marston, Hilary (NIH/NIAID) [E] (b) (6)>
Subject: RE: Webex meeting scheduled: Monoclonal Antibodies against COVID-19 - CANCELLED

Hi Bill,

I don't see a number for the animal model working group call. I think I need to be on that call and based on this email it is happening in about 90 minutes.

I see an email from you on Feb 26th mentioning this, but I did not get a calendar invite.

Barney

From: COSTA, Alejandro Javier (b) (6)>
Sent: Friday, February 28, 2020 5:21 AM
To: Mellors, John W <(b) (6)> Graham, Barney (NIH/VRC) [E] (b) (6)
(b) (6)
(b) (6)
(b) (6)
(b) (6) William Dowling
(b) (6); Emma Collins (b) (6)>; Julia Tree
(b) (6)>; HENAO RESTREPO, Ana Maria <(b) (6)>; DANMADJI
NADLAOU, Severine (b) (6)>; GSELL, Pierre (b) (6)>; RIVEROS BALTA, Alina
Ximena (b) (6)>; SALAMI, Kolawole (b) (6)>; COSTA, Alejandro Javier
(b) (6)
Subject: RE: Webex meeting scheduled: Monoclonal Antibodies against COVID-19 - CANCELLED

Dear all, apologies, we will have to postpone the call to next week. We realized this call was at the same time as the Animal Model Working group call this afternoon.
We will send another invite.
best regards

Alejandro Costa
Scientist,
R&D Blueprint
Health Emergency Program (WHE)
World Health Organization (WHO)
Office: 1156
Tel: (b) (6)
Mobile: (b) (6)
Email: (b) (6)

-----Original Appointment-----

From: COSTA, Alejandro Javier **On Behalf Of** Cisco Webex

Sent: 27 February 2020 16:04

To: Cisco Webex; (b) (6) COSTA, Alejandro Javier; (b) (6) (b) (6)

(b) (6); 'William Dowling'; (b) (6) Emma Collins; Julia Tree; HENAO RESTREPO, Ana Maria; DANMADJI NADLAOU, Severine; GSELL, Pierre; RIVEROS BALTA, Alina Ximena

Subject: FW: Webex meeting scheduled: Monoclonal Antibodies against COVID-19

When: 28 February 2020 16:00-17:00 Europe/Paris.

Where: (b) (6)

Dear all, we are inviting you to have a teleconference with the main parties involved in the development of mAbs against COVID-19.

The objectives are:

1. Update on the development plans
2. Estimated timeframe for in vitro/in vivo
3. Production of clinical material for clinical trials

Best regards,

Alejandro Costa
Scientist,
R&D Blueprint
Health Emergency Program (WHE)
World Health Organization (WHO)
Office: 1156
Tel: (b) (6)
Mobile: (b) (6)
Email: (b) (6)

-----Original Appointment-----

From: Cisco Webex <messenger@webex.com>

Sent: 27 February 2020 16:00

To: Cisco Webex; COSTA, Alejandro Javier

Subject: Webex meeting scheduled: Monoclonal Antibodies against COVID-19

When: 28 February 2020 16:00-17:00 Europe/Paris.

Where: (b) (6)

You are the host for this Webex meeting.

When it's time, start your Webex meeting here.

Meeting number (access code): (b) (6)

Meeting password: (b) (6)

Host key: (b) (6)

Friday, February 28, 2020

4:00 pm | (UTC+01:00) Brussels, Copenhagen, Madrid, Paris | 1 hr

[Start meeting](#)

Join by phone

Tap to call in from a mobile device (attendees only)

(b) (6) SWITZERLAND Toll

(b) (6) US Toll

[Global call-in numbers](#)

Join from a video system or application

Dial (b) (6)

You can also dial (b) (6) and enter your meeting number.

Join using Microsoft Lync or Microsoft Skype for Business

Dial (b) (6)

Need help? Go to <http://help.webex.com>

From: Graham, Barney (NIH/VRC) [E]
Sent: Mon, 27 Jan 2020 21:54:01 +0000
To: Cruz, Phil (NIH/NIAID) [C]
Cc: Morabito, Kaitlyn (NIH/VRC) [E]; McCarthy, Meghan (NIH/NIAID) [C]; Corbett, Kizzmekia (NIH/VRC) [E]
Subject: Re: Coronavirus 3D print

Hi Phil. It's a little hard to tell without spinning. I think it is the gold. There are two helices in the middle of the molecule connected by a short loop at the top, somewhat hidden. We would like to be able to see the top end of those helices.

BG

Sent from my iPhone

On Jan 27, 2020, at 4:43 PM, Cruz, Phil (NIH/NIAID) [C] <(b) (6)> wrote:

Kaitlyn and Barney,

Is the "central helix" the one closest to the central three-fold symmetry axis, e.g., residues 970-1014 of the A chain that are colored purple in the attached image (the rest of the A chain is red)? If so, this helix is almost completely occluded by surfaces if all three protomers have surface representations, so it won't be visible if we print it as a ribbon. If it is a different helix, please let me know.

Just so I am clear, two of the protomers will each be its own solid colored surface, and the third protomer will have each of its domains a separate color. If so, I am also going to need a bit of help in identifying the boundaries of the various domains you mentioned.

Thanks for your help,

Phil

--

Phillip Cruz, Ph.D.

Contractor, Medical Science & Computing

Computational Structural Biologist
Computational Biology Section
Bioinformatics and Computational Biosciences Branch (BCBB)
OCICB/OSMO/OD/NIAID/NIH

31 Center Dr., Room 3B62

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From: "Graham, Barney (NIH/VRC) [E]" <(b) (6)>

Date: Monday, January 27, 2020 at 4:03 PM

To: "Morabito, Kaitlyn (NIH/VRC) [E]" (b) (6)

Cc: "Cruz, Phil (NIH/NIAID) [C]" (b) (6), Meghan McCarthy

(b) (6) "Corbett, Kizzmekia (NIH/VRC) [E]"

(b) (6)

Subject: Re: Coronavirus 3D print

I think it would be reasonable to make a surface model if you could keep the central helix on S2 of one of the protomers. Agree with distinguishing RBD and NTD. If 2 of the protomers were solid colors and on the 3rd one with the helix preserved you could make the surfaces of NTD, RBD, and the 2 subdomains different colors from red to blue.

BG

Sent from my iPhone

On Jan 27, 2020, at 3:48 PM, Morabito, Kaitlyn (NIH/VRC) [E] (b) (6) wrote:

Hi All,

I think the closest to the Wuhan would be the SARS S-2P with all RBDs down (attached). Wuhan is closer to SARS than it is to MERS, and most of the differences have been shown between Wuhan and SARS. So I would use this to start if you want to color the difference, and I've attached some references here.

I think coloring by chain makes sense, but you could also color the RBD and NTD on each chain differently. The NTD is where most of the differences are. Kizzmekia and Barney may have additional input.

Kaitlyn

From: "Cruz, Phil (NIH/NIAID) [C]" <(b) (6)>
Date: Monday, January 27, 2020 at 3:01 PM
To: "Morabito, Kaitlyn (NIH/VRC) [E]" <(b) (6)>, "McCarthy, Meghan (NIH/NIAID) [C]" <(b) (6)>
Cc: Kizzmekia Corbett <(b) (6)>, Barney Graham <(b) (6)>, "Cruz, Phil (NIH/NIAID) [C]" <(b) (6)>
Subject: Re: Coronavirus 3D print

Hi Kaitlyn,

I've been looking at James' session files. Is the "1 RBD up" format related to the flap in the middle part of sequence of the H chain that is turned "up" relative to this stretch in the other two chains (reddish surface in upper left of attached image)? If so, I think I should be able to make the connections to the other surfaces more robust.

From a printing point of view, the hard part is the ribbons. It would be much quicker for us, and stronger for the prints, to make a surface-only model. I don't know if that would convey the important structural elements of the spike, however, and how (or where) it might be different in the Wuhan strain. Would it make sense to show all three chains as differently colored surfaces, with the flap a separate color. We could then make 2 surface models to show each of the conformations. We could also color differently any locations that are different between MERS and Wuhan.

Thanks for any guidance.

Phil

--

Phillip Cruz, Ph.D.

Contractor, Medical Science & Computing

Computational Structural Biologist

Computational Biology Section

Bioinformatics and Computational Biosciences Branch (BCBB)

OCICB/OSMO/OD/NIAID/NIH

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From: "Cruz, Phil (NIH/NIAID) [C]" (b) (6)
Date: Monday, January 27, 2020 at 2:29 PM
To: "Morabito, Kaitlyn (NIH/VRC) [E]" (b) (6) Meghan McCarthy
(b) (6) >
Cc: "Corbett, Kizzmekia (NIH/VRC) [E]" (b) (6) "Graham, Barney (NIH/VRC) [E]" (b) (6), "Cruz, Phil (NIH/NIAID) [C]" (b) (6)
Subject: Re: Coronavirus 3D print

Hi Kaitlyn,

Also, is there a model of a CoV virion anywhere that you know of?

Thanks,

Phil

--

Phillip Cruz, Ph.D.

Contractor, Medical Science & Computing

Computational Structural Biologist

Computational Biology Section

Bioinformatics and Computational Biosciences Branch (BCBB)

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From: "Morabito, Kaitlyn (NIH/VRC) [E]" (b) (6) >
Date: Monday, January 27, 2020 at 2:11 PM
To: Meghan McCarthy (b) (6)
Cc: "Cruz, Phil (NIH/NIAID) [C]" (b) (6) >, "Corbett, Kizzmekia (NIH/VRC) [E]" (b) (6), "Graham, Barney (NIH/VRC) [E]" (b) (6) >
Subject: Re: Coronavirus 3D print

Hi Meghan,

James printed a MERS CoV spike protein for us, just before Bill gates came to visit for the VR (if this helps with timing). This had a "1 RBD up" format, which is quite fragile. We could provide a pdb file for the "3 RBD down" coronavirus spike which would be much more stable.

Does this work?

Thanks,
Kaitlyn

From: "McCarthy, Meghan (NIH/NIAID) [C]" <(b) (6)>
Date: Monday, January 27, 2020 at 2:08 PM
To: "Morabito, Kaitlyn (NIH/VRC) [E]" (b) (6)
Cc: "Cruz, Phil (NIH/NIAID) [C]" (b) (6) >
Subject: FW: Coronavirus 3D print

Hi Kaitlyn,

We need to create a model relevant to the new coronavirus for Dr. Fauci to use in upcoming congressional briefings and the media. We've done some digging around but aren't quite sure of what structure to start with, or what may have come from the VRC.

Could you please work with Phil to help him design the model from available structure data? We want to deliver something to Dr. Fauci before the end of the week, so we need to get the printer running tomorrow, the earlier the better.

Thanks,
Meghan

Meghan McCarthy, Ph.D.
Program Lead, 3D Printing and Biovisualization
Project Lead, [NIH 3D Print Exchange](#)

[Bioinformatics and Computational Biosciences Branch \(BCBB\)](#)

NIH/NIAID/OD/OSMO/OCICB

Contractor, Medical Science and Computing, Inc.

Room 4A31, 5601 Fishers Lane, Rockville MD 20852

O: (b) (6) | M: (b) (6)

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From: Marston, Hilary (NIH/NIAID) [E] (b) (6)>
Sent: Monday, January 27, 2020 1:59 PM
To: Billet, Courtney (NIH/NIAID) [E] (b) (6)>; McCarthy, Meghan (NIH/NIAID) [C] (b) (6)>
Cc: Cruz, Phil (NIH/NIAID) [C] (b) (6)>; Folkers, Greg (NIH/NIAID) [E] (b) (6)>; Routh, Jennifer (NIH/NIAID) [E] (b) (6)>; Haskins, Melinda (NIH/NIAID) [E] (b) (6)>
Subject: RE: Coronavirus 3D print

I would think that a model of the virion as a whole (showing the corona spikes) and of the stabilized spike protein. VRC (Kaitlyn Morabito) would be able to advise on the latter. Does that help?

From: Billet, Courtney (NIH/NIAID) [E] (b) (6)>
Sent: Monday, January 27, 2020 1:53 PM
To: McCarthy, Meghan (NIH/NIAID) [C] (b) (6)>
Cc: Cruz, Phil (NIH/NIAID) [C] (b) (6)>; Folkers, Greg (NIH/NIAID) [E] (b) (6)>; Marston, Hilary (NIH/NIAID) [E] (b) (6)>; Routh, Jennifer (NIH/NIAID) [E] (b) (6)>; Haskins, Melinda (NIH/NIAID) [E] (b) (6)>
Subject: RE: Coronavirus 3D print

This week, but a lot is still in play, but there will be more in the foreseeable future. Early next week isn't too late to be useful. Whenever you can get it done will be great. Thanks again!

From: McCarthy, Meghan (NIH/NIAID) [C] (b) (6)
Sent: Monday, January 27, 2020 1:44 PM
To: Billet, Courtney (NIH/NIAID) [E] (b) (6)
Cc: Cruz, Phil (NIH/NIAID) [C] (b) (6)>; Folkers, Greg (NIH/NIAID) [E] (b) (6)>; Marston, Hilary (NIH/NIAID) [E] (b) (6)>; Routh, Jennifer (NIH/NIAID) [E] (b) (6)>; Haskins, Melinda (NIH/NIAID) [E] (b) (6)>
Subject: RE: Coronavirus 3D print

Hi Courtney,

When are the briefings? If we can finalize the model by end of the day tomorrow we can shoot for Monday or Tuesday. I think Friday would be the earliest turn around time.

Greg and Hilary, let us know what the narrative is and we can work together to find something appropriate.

Thanks,
Meghan

Meghan McCarthy, Ph.D.
Program Lead, 3D Printing and Biovisualization
Project Lead, [NIH 3D Print Exchange](#)
[Bioinformatics and Computational Biosciences Branch](#) (BCBB)
NIH/NIAID/OD/OSMO/OCICB
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From: Billet, Courtney (NIH/NIAID) [E] <(b) (6)>
Sent: Monday, January 27, 2020 1:31 PM
To: McCarthy, Meghan (NIH/NIAID) [C] (b) (6)
Cc: Cruz, Phil (NIH/NIAID) [C] (b) (6); Folkers, Greg (NIH/NIAID) [E] (b) (6); Marston, Hilary (NIH/NIAID) [E] (b) (6); Routh, Jennifer (NIH/NIAID) [E] (b) (6); Haskins, Melinda (NIH/NIAID) [E] (b) (6)
Subject: RE: Coronavirus 3D print

Oh, YES – that would be great. Thanks so much for reaching out! I've copied in Greg and Hilary Marston, in case they have thoughts about whether there is some particular aspect of the structure they'd like to see illustrated.

How long does it take to turn the model around? I ask because he does have some Hill briefings coming up, and the model could come in handy for those. (I've copied Melinda Haskins so she will know this is in development.)

Thank you again!

From: McCarthy, Meghan (NIH/NIAID) [C] (b) (6)
Sent: Monday, January 27, 2020 1:16 PM
To: Billet, Courtney (NIH/NIAID) [E] (b) (6)>
Cc: Cruz, Phil (NIH/NIAID) [C] (b) (6)
Subject: Coronavirus 3D print

Hi Courtney,

Would Dr. Fauci like a 3D printed model related to the Wuhan coronavirus? There is one protease structure available for the current strain, and we have been looking at published structures related to SARS and MERS. If there is a particular talking point to illustrate, please let me know. Phil Cruz is a structural biologist from our team. He is in Building 31 and would be happy to stop by and see what the requirements might be.

Best,
Meghan

Meghan McCarthy, Ph.D.
Program Lead, 3D Printing and Biovisualization
Project Lead, [NIH 3D Print Exchange](#)
[Bioinformatics and Computational Biosciences Branch](#) (BCBB)
NIH/NIAID/OD/OSMO/OCICB
Contractor, Medical Science and Computing, Inc.
Room 4A31, 5601 Fishers Lane, Rockville MD 20852
O: (b) (6) | M: (b) (6)

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<5x58[1].pdb>
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<betaCoV_tree_structure_GISAID_2020-01-20.pptx>
<Updated CoV for ASF 27Jan2020[2] - Read-Only.pptx>
<MERS central helix.jpg>

From: Graham, Barney (NIH/VRC) [E]
Sent: Mon, 9 Mar 2020 15:11:12 +0000
To: Erbelding, Emily (NIH/NIAID) [E]; Casseti, Cristina (NIH/NIAID) [E]; Embry, Alan (NIH/NIAID) [E]; Beigel, John (NIH) [E]; Roberts, Chris (NIH/NIAID) [E]
Cc: Kathleen Neuzil; Morabito, Kaitlyn (NIH/VRC) [E]; Ledgerwood, Julie (NIH/NIAID) [E]; Mascola, John (NIH/VRC) [E]; Hiatt, Nissa (NIH/VRC) [C]; Corbett, Kizzmekia (NIH/VRC) [E]; Marston, Hilary (NIH/NIAID) [E]; Bok, Karin (NIH/VRC) [E]; Routh, Jennifer (NIH/NIAID) [E]; Oplinger, Anne (NIH/NIAID) [E]
Subject: talking points
Attachments: talking points for vaccine enhanced disease 9Mar2020.docx

Hi Emily et al.,

There has been a lot of email traffic and documents circulating this weekend about how to manage the vaccine-enhanced illness questions surrounding CoV vaccines. This needs to be thought through at the level of investigators, IRBs, journalist, etc. and eventually it will end up going to Tony. This consortium has come together incredibly fast and done a great job, but I think we need to set up a more formal communication plan and sets of talking points to deal with the inevitable questions. It seems like NIAID OD, DMID, VRC, VTEU steering committee, VTEU investigators, and probably Moderna all need to be using the same messaging before Friday. It looks like this is going to come up on today's Ops call.

I've attached a way I would lay out the information and key points depending on the depth of knowledge and the group being addressed. It's probably still too technical. Ideally I think these should be prepared for Dr. Fauci and then we could all stay in line behind him.

Barney

Barney S. Graham, MD, PhD
Senior Investigator
Deputy Director, Vaccine Research Center
Chief, Viral Pathogenesis Laboratory
National Institute of Allergy and Infectious Diseases, NIH
40 Convent Drive, MSC 3017
Bldg 40, Room 2502
Bethesda, MD 20892-3017
Phone (b) (6)
URL: <https://www.niaid.nih.gov/research/barney-graham-md-phd>

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statements made that are sender's own and not expressly made on behalf of the NIAID by one of its representatives.

From: Graham, Barney (NIH/VRC) [E]
Sent: Fri, 1 May 2020 13:40:05 +0000
To: Corbett, Kizzmekia (NIH/VRC) [E]; Hiatt, Nissa (NIH/VRC) [C]
Subject: RE: Request- Youth Event

Yes, fine. I'm hoping to do a similar thing with a school in Nashville run by a family friend. Maybe you can help with that as well.

Barney

From: Corbett, Kizzmekia (NIH/VRC) [E] <[REDACTED]> (b) (6)
Sent: Friday, May 1, 2020 5:48 AM
To: Hiatt, Nissa (NIH/VRC) [C] [REDACTED] (b) (6)
Cc: Graham, Barney (NIH/VRC) [E] [REDACTED] (b) (6)
Subject: FW: Request- Youth Event

Nissa, Olu and I would like to do this together. Please submit for approval upon Dr. Graham's approval.

--

Kizzmekia S. Corbett, PhD
Senior Research Fellow | Scientific Lead
Coronavirus Vaccines & Immunopathogenesis (coVip) Team
Viral Pathogenesis Laboratory | Vaccine Research Center
National Institutes of Allergy and Infectious Diseases
National Institutes of Health

Building 40 Room 2608
40 Convent Drive
Bethesda MD 20892
Laboratory: [REDACTED] (b) (6)
Personal [REDACTED] (b) (6)
Fax: (301) 480-2771

From: "Abiona, Olubukola (NIH/VRC) [F]" [REDACTED] (b) (6)>
Date: Friday, May 1, 2020 at 12:32 AM
To: Kizzmekia Corbett [REDACTED] (b) (6)
Subject: Re: Request- Youth Event

Sure, sounds like fun!

-Olu

From: "Corbett, Kizzmekia (NIH/VRC) [E]" (b) (6) >
Date: Thursday, April 30, 2020 at 9:35:02 PM
To: "Abiona, Olubukola (NIH/VRC) [F]" (b) (6)
Subject: FW: Request- Youth Event

Wanna do this together?

--

Kizzmekia S. Corbett, PhD
Senior Research Fellow | Scientific Lead
Coronavirus Vaccines & Immunopathogenesis (coVip) Team
Viral Pathogenesis Laboratory | Vaccine Research Center
National Institutes of Allergy and Infectious Diseases
National Institutes of Health

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40 Convent Drive
Bethesda MD 20892
Laboratory: (b) (6)
Personal: (b) (6)
Fax: (301) 480-2771

(b) (6)



(b) (6)



From: Graham, Barney (NIH/VRC) [E]
Sent: Sat, 21 Mar 2020 20:42:44 +0000
To: Harper, Jill (NIH/NIAID) [E]; Mascola, John (NIH/VRC) [E]
Cc: Auchincloss, Hugh (NIH/NIAID) [E]; Lane, Cliff (NIH/NIAID) [E]
Subject: RE: Positive COVID-19 test result for NIAID staff-- (b) (6)

We will be clarifying the contacts this afternoon and are in contact with Jim Schmidt from OMS.

We appreciate any guidance and help available to help get the area cleaned up.

Barney

From: Harper, Jill (NIH/NIAID) [E] (b) (6)>
Sent: Saturday, March 21, 2020 4:38 PM
To: Mascola, John (NIH/VRC) [E] (b) (6); Graham, Barney (NIH/VRC) [E] (b) (6)
Cc: Auchincloss, Hugh (NIH/NIAID) [E] (b) (6)>; Lane, Cliff (NIH/NIAID) [E] (b) (6)
Subject: Fwd: Positive COVID-19 test result for NIAID staff-- (b) (6)

John and Barney, please see below. Note Colleen comments about contact tracing and ORF cleanup.

I'm available to discuss. My cell is (b) (6).

Jill

From: "McGowan, Colleen (NIH/OD/ORS) [E]" (b) (6)
Date: Saturday, March 21, 2020 at 4:17:56 PM
To: "Holland, Steven (NIH/NIAID) [E]" <(b) (6)>, "Fauci, Anthony (NIH/NIAID) [E]" <(b) (6)>, "Lane, Cliff (NIH/NIAID) [E]" (b) (6), "Harper, Jill (NIH/NIAID) [E]" (b) (6), "McGowan, John J. (NIH/NIAID) [E]" (b) (6)
Subject: Positive COVID-19 test result for NIAID staff-- (b) (6)

I'm writing to share that we have received a positive COVID-19 test result of an NIAID staff member (b) (6)

(b) (6) I'm not permitted to share PHI, but I am told that OMS has notified the employee, (b) (6)
They will not divulge a positive test result for COVID-19, (b) (6)

(b) (6)

(b) (6) We ask that you take great care in keeping that information as confidential as you can.

Thanks
Colleen

Colleen A. McGowan, MHA, FACHE
Director, NIH Office of Research Services
Bldg 31, Room 4B54
Office Phone: (b) (6)



From: Graham, Barney (NIH/VRC) [E]
Sent: Fri, 20 Mar 2020 11:34:42 +0000
To: Corbett, Kizzmekia (NIH/VRC) [E]
Subject: Re: WHO call-in

I think it starts at 8am.

BG

Sent from my iPhone

> On Mar 20, 2020, at 7:33 AM, Corbett, Kizzmekia (NIH/VRC) [E] <(b) (6)> wrote:

>

> Is this now?

>

> --

> Kizzmekia S. Corbett, PhD

> Senior Research Fellow | Scientific Lead

> Coronavirus Vaccines & Immunopathogenesis (coVip) Team

> Viral Pathogenesis Laboratory | Vaccine Research Center

> National Institutes of Allergy and Infectious Diseases

> National Institutes of Health

>

> Building 40 Room 2608

> 40 Convent Drive

> Bethesda MD 20892

> Laboratory: (b) (6)

> Personal: (b) (6)

> Fax: (301) 480-2771

>

>

> On 3/20/20, 7:30 AM, "Graham, Barney (NIH/VRC) [E]" <(b) (6)> wrote:

>

> WHO HQ EOC1 COVID-19 is inviting you to a scheduled Zoom meeting.

>

> Join Zoom Meeting

> (b) (6)

>

> Meeting ID: (b) (6)

>

>

> One tap mobile

> (b) (6):

>

> (b) (6) US

> JS Toll-free

> JS Toll-free

> Meeting ID: (b) (6)

>

>

> I think this will get you in.

>

> BG
>
>
>
>
>
>
> Sent from my iPhone
>
>

From: Graham, Barney (NIH/VRC) [E]
Sent: Thu, 26 Mar 2020 16:36:09 +0000
To: Morabito, Kaitlyn (NIH/VRC) [E]
Subject: Re: Cost Summary Reports - Mar

Probably Karin, but we should check with her.

Barney

Sent from my iPhone

On Mar 26, 2020, at 12:25 PM, Morabito, Kaitlyn (NIH/VRC) [E] [REDACTED] (b) (6) wrote:

Hi Barney,

Met with Hope yesterday [REDACTED] (b) (5)
[REDACTED] (b) (5)

Kaitlyn

From: Hope Wilson [REDACTED] (b) (6) >
Date: Monday, March 23, 2020 at 1:35 PM
To: Barney Graham [REDACTED] (b) (6), "Morabito, Kaitlyn (NIH/VRC) [E]"
[REDACTED] (b) (6) "Royal, Thomas (NIH/NIAID) [E]" [REDACTED] (b) (6)
Cc: Monique Young [REDACTED] (b) (6) >
Subject: Cost Summary Reports - Mar

Hi Barney and Kaitlyn,

Attach is the Cost Summary Reports for our review on Wednesday. These reports are for your lab and core groups.

I believe [REDACTED] (b) (5)
[REDACTED] (b) (5)

Let me know if you have an urgent question otherwise we'll review on Wednesday.

Thanks,

<Cost Summary - Mar.pdf>

From: Graham, Barney (NIH/VRC) [E]
Sent: Mon, 23 Mar 2020 17:36:09 +0000
To: Jason McLellan
Cc: Meagan Phelan; Sinatra, Christine; Young, Monique (NIH/VRC) [E]; Gadi Ben-Yehuda
Subject: Re: Today's Facebook Live: stats and links to Facebook and YouTube versions

That's very cool.

Thanks,

Barney

Sent from my iPhone

On Mar 23, 2020, at 1:28 PM, Jason McLellan <(b) (6)> wrote:

Hi Meagan,

Just wanted to let you know that my postdoc found our Q&A online in China and after only 2 days we have been viewed 127,000 times (attached). He thinks once they add subtitles the viewership will go up even more.

Cheers,
Jason

From: Jason McLellan
Sent: Saturday, March 21, 2020 5:27 PM
To: Meagan Phelan <(b) (6)>; Graham, Barney (NIH/VRC) [E] <(b) (6)>
Cc: Sinatra, Christine <(b) (6)>; Young, Monique (NIH/VRC) [E] <(b) (6)>; Gadi Ben-Yehuda <gbyehuda@aaas.org>
Subject: RE: Today's Facebook Live: stats and links to Facebook and YouTube versions

Hi Meagan,

It was my pleasure. Had a lot of fun doing it, and have heard great feedback from people who watched it. Maybe we can consider doing it again once we have some data from the vaccine trials.

Best regards,
Jason

From: Meagan Phelan <mphelelan@aaas.org>

Sent: Friday, March 20, 2020 11:20 AM

To: Graham, Barney (NIH/VRC) [E] (b) (6); Jason McLellan

(b) (6)

Cc: Sinatra, Christine (b) (6); Young, Monique (NIH/VRC) [E]

(b) (6); Gadi Ben-Yehuda <gbyehuda@aaas.org>

Subject: Today's Facebook Live: stats and links to Facebook and YouTube versions

Hi Jason and Barney,

Thank you so much for your time this morning. That was a terrific event. Gadi said our viewership—including James Bell from the ISS—was among the highest for any FBL to date. The questions reflected an audience of both general public and more “expert” individuals, and your answers to their questions (and mine) were terrific. Thank you, Jason, too, for so capably moderating when I dropped out!

Below my signature, I’ve included some of the viewership stats from Gadi. Thank you again, Gadi.

Here, too, are links to Facebook and YouTube versions (the latter for people who don’t have Facebook).

Facebook version: <https://www.facebook.com/ScienceMagazine/videos/631121874133472>

YouTube version: <https://youtu.be/nOzEx3OpKe8>

It occurred to me our audience could be very interested to hear more from you both as things develop. Perhaps I could check in with you both again in six weeks or so, to see if you may be interested (and available) to do a second FBL – this time on where progress with the candidate mRNA vaccine stands, and also on new and related cryo-em developments. If you may be interested in this, please let me know.

Most of all, again, thank you for today. And may you stay very safe and well!

best,

Meagan Phelan, Science Press Package Executive Director
American Association for the Advancement of Science (AAAS)
1200 New York Avenue, NW | Washington, DC 20005

Office Phone: 202-326-6436

Cell Phone: (b) (6)

E-mail: mphelelan@aaas.org

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Immediate

535 peak live viewers (this is among our highest, if not the highest. We normally see a peak of about 350, which was just above the average for this broadcast)

Between 500-525 viewers for most of the broadcast (this is our highest to date)

4.9K 3-second views

2.7K 10-second views

2K (77%) with sound (this is also among our highest for this metric)

1.1K 1-minute views

2.8K reactions

1.5K likes

280 loves

45 comments

589 shares (this is among our highest, if not our highest)

Three hours post (numbers are in thousands)

	Live	3 hours later	Absolutely increase	Percent increase
3-second views	4.9	8.5	3.6	73%
10-second views	2.7	4.7	2	74%
1-minute views	1.1	1.8	0.7	64%
10-second views with sound	2	3.4	1.4	70%
Engagements	2.8	3.2	0.4	14%

From: Meagan Phelan

Sent: Thursday, March 19, 2020 7:56 PM

To: Graham, Barney (NIH/VRC) [E] (b) (6); Jason McLellan

(b) (6) >

Cc: Sinatra, Christine (b) (6); Young, Monique (NIH/VRC) [E]

(b) (6); Gadi Ben-Yehuda <gbyehuda@aaas.org>

Subject: Final notes for tomorrow's Facebook Live + small change to opening remarks

Importance: High

Dear Jason and Barney,

It was great talking to you yesterday and I'm looking very forward to our Facebook Live tomorrow. Interest is very high!

<https://www.facebook.com/ScienceMagazine/videos/631121874133472>

Below, I send a reminder of where to log in tomorrow, as well as an overview of the event format, including one small format change (related to your opening remarks—an effort to make them even more “engaging”). Could you please read over the below before we convene tomorrow?

Again, thank you for your time on this event. It is much appreciated. See you online tomorrow at 8:45 US ET!

best,
Meagan

++++++

Log in here at 8:45 US ET tomorrow, Friday:

(b) (6)

Please contact Gadi, here copied, if you have any issues.

Event Format Reminders (with the notes in red below being perhaps most important—and in the case of the opening remarks, being different than what we discussed this week)

I'll open the event with language welcoming the audience and addressing the scope of the event ("Just weeks after the genome sequence of the recently emerged coronavirus was published online, researchers reported the cryogenic electron microscopy structure of the spike protein the virus uses to gain entry to host cells in a 19 February Science paper. The insights from that study are already helping to inform vaccines against SARS-CoV-2. Earlier this week, as one example, the first human Phase I trial of an mRNA vaccine developed leveraging these findings began. Today two coauthors of this study join us to discuss how they visualized the spike protein, as well as how their work will inform therapeutics against this virus going forward. They are at the forefront of this effort and we are delighted to have them here.")

I will then promise the listeners that as part of tuning in, they'll learn more about where we are in vaccine development for the novel coronavirus and what factors got us here so quickly, including excellent structure insights + past coronavirus research + ready vaccine platform design from pharma.

I'll introduce you both with brief introductions.

I'll pause after I introduce you, Jason, so you can say something akin to "thanks for having me," if you wish (makes for great moderator-guest vibe).

I'll pause after I introduce, Barney, so you can say something similar, if you wish.

I'll then invite you both for opening remarks—Jason first, then Barney.

***I'm going to do something slightly different than we discussed. Instead of just saying, "take it away," since I know what you are going to say per our discussion this week, I'll start your opening remarks, in both cases, by asking you a unique question.

1. Jason: Can you tell us about the technology you used to better visualize the novel coronavirus and how that really changed the game in terms of setting up those who would create vaccine candidate?
2. Barney: We already have a vaccine candidate based in part on the structure Jason described in Phase 1 human trials. Can you tell us about how the efforts to create this vaccine compare to past timelines for vaccine development? How much faster are we moving?

***A reminder that your remarks / responses to me should only be about a minute.

After your opening remarks, I'm going to ask these two "planted" questions, so you know:

1. How have your lives been affected since the publication of your 19 Feb paper, now a month ago? What has the reaction been from the scientific community? Jason, do you want to start?
2. There are several different types of vaccines. The one your research helped support is an mRNA vaccine. Barney: Could you explain to the audience what an mRNA vaccine is and what its benefits are?

After that, questions will rotate between my own for you (samples below) or those the audience raises.

The event could wrap at 30 minutes; we might go longer if questions are excellent.

The lightning-round question at end will be: How has the need for social distancing affected work as you are continuing it? Can we start with Barney?

Any final remarks? (Both of you can offer.)

Meagan will close, reviewing what we learned and thanking Jason and Barney, respectively, with notes that “dip” back into the value they brought in the discussion.

Candidate questions:

- Did this start with animal models?
- We don't have a SARS vaccine 8 years after that outbreak—why do we think we'll be more successful with COVID?
- And, why haven't we tested a MERS vaccine in humans? It's still circulating in the Middle East and it's a problem there.
- Is Moderna's candidate mRNA vaccine using your paper's info? Please explain.
- What about associated risks?
- About vaccine design: Rational design says you can figure out from EMs and the like how to best develop a vaccine candidate. History says you can also have success by just killing the virus or weakening it through passaging and then empirically testing it. Are they covering the empirical base, or just the rational one here?
- I have kids. Do you think it'll be safe on them? What about our parents in their 70s or 80s who are on this or that medication?
- Lightning round: How is your own lab work disrupted—how are you and colleagues dealing with closed labs, social distancing, etc.?

Meagan Phelan, *Science* Press Package Executive Director
American Association for the Advancement of Science (AAAS)
1200 New York Avenue, NW | Washington, DC 20005
Office Phone: 202-326-6436
Cell Phone: (b) (6)
E-mail: mphelan@aaas.org
Follow me on [Twitter](#)

From: Meagan Phelan

Sent: Wednesday, March 18, 2020 10:10 AM

To: Graham, Barney (NIH/VRC) [E] (b) (6) Jason McLellan

(b) (6); Young, Monique (NIH/VRC) [E] (b) (6); Gadi Ben-Yehuda <gbyehuda@aaas.org>

Cc: Olivia Tarantino <otarantino@aaas.org>; Walter Beckwith <wbeckwith@aaas.org>; Matthew Wright <mwright@aaas.org>; Valeria Sabate <vsabate@aaas.org>; Sinatra, Christine

(b) (6)>

Subject: RE: Promotional link to Friday March 20 9am US ET Science Facebook Live on SARS-CoV-2 vaccine

Hi Barney, thanks so much for this. This is very helpful. Speak with you in about 20 minutes. We'll be connecting here, as a reminder: (b) (6)

best,

Meagan Phelan, *Science Press Package Executive Director*
American Association for the Advancement of Science (AAAS)
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Cell Phone: (b) (6)
E-mail: mphelelan@aaas.org
Follow me on [Twitter](#)

From: Graham, Barney (NIH/VRC) [E] (b) (6)
Sent: Wednesday, March 18, 2020 9:05 AM
To: Jason McLellan (b) (6); Meagan Phelan <mphelelan@aaas.org>; Young, Monique (NIH/VRC) [E] (b) (6); Gadi Ben-Yehuda <gbyehuda@aaas.org>
Cc: Olivia Tarantino <otarantino@aaas.org>; Walter Beckwith <wbeckwith@aaas.org>; Matthew Wright <mwright@aaas.org>; Valeria Sabate <vsabate@aaas.org>; Sinatra, Christine (b) (6)
Subject: RE: Promotional link to Friday March 20 9am US ET Science Facebook Live on SARS-CoV-2 vaccine

If you need a bio, I have attached here.

Barney

From: Jason McLellan (b) (6) >
Sent: Tuesday, March 17, 2020 3:16 PM
To: Meagan Phelan <mphelelan@aaas.org>; Graham, Barney (NIH/VRC) [E] (b) (6); Young, Monique (NIH/VRC) [E] <(b) (6)>; Gadi Ben-Yehuda <gbyehuda@aaas.org>
Cc: Olivia Tarantino <otarantino@aaas.org>; Walter Beckwith <wbeckwith@aaas.org>; Matthew Wright <mwright@aaas.org>; Valeria Sabate <vsabate@aaas.org>; Sinatra, Christine (b) (6) >
Subject: RE: Promotional link to Friday March 20 9am US ET Science Facebook Live on SARS-CoV-2 vaccine

Hi Meagan,

I do have a personal FB account and will use that tomorrow. Attached is a very brief bio

Jason

From: Meagan Phelan <mphelan@aaas.org>

Sent: Tuesday, March 17, 2020 1:50 PM

To: Graham, Barney (NIH/VRC) [E] <(b) (6)>; Jason McLellan

(b) (6)>; Young, Monique (NIH/VRC) [E] (b) (6) Gadi Ben-Yehuda <gbyehuda@aaas.org>

Cc: Olivia Tarantino <otarantino@aaas.org>; Walter Beckwith <wbeckwith@aaas.org>; Matthew Wright <mwright@aaas.org>; Valeria Sabate <vsabate@aaas.org>; Sinatra, Christine

(b) (6)

Subject: Promotional link to Friday March 20 9am US ET Science Facebook Live on SARS-CoV-2 vaccine

Thanks so much, Barney and Jason. Below, please find the promotional link to Friday's FBL event, using this text. We would be thankful if you and your affiliated press officers (Monique and Christine) might share this from your institutional / personal accounts to help draw good audiences to this discussion. We will do the same, promoting from Science and AAAS, and from other accounts here at AAAS.

<https://www.facebook.com/ScienceMagazine/videos/631121874133472>

Barney and Jason, may I confirm you each have your own Facebook accounts? If so, logging in to the run-through at 10:30 US ET tomorrow will be quick and easy, at the link our social media director, Gadi, shared in a calendar invite yesterday. That link is also here: (b) (6) **if you do not have a FB account, you could create one for the week and then delete it, if needed.**

Tomorrow at our run-through, Gadi will review technical considerations and I will review how I will introduce the event, how I will introduce you both (I will ask you both: "Is this bio ok?"), questions I may pose as moderator (we will also take questions from the audience), and finally, how we will "wrap" (perhaps with a lightning-round question to you both). I will make sure I understand the scope of questions you are comfortable answering in this space, so as to stay within it.

Monique and Christine: If you have bios for Jason and Barney you might like me to have on hand to use to inform my introduction, please feel free to send them.

And again, thank you to all. See you tomorrow at 10:30 at our run-through.

Meagan Phelan, *Science* Press Package Executive Director
American Association for the Advancement of Science (AAAS)
1200 New York Avenue, NW | Washington, DC 20005
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From: Graham, Barney (NIH/VRC) [E] (b) (6)>

Sent: Tuesday, March 17, 2020 2:40 PM

To: Meagan Phelan <mphelan@aaas.org>; Jason McLellan (b) (6); Young, Monique (NIH/VRC) [E] (b) (6)>; Gadi Ben-Yehuda <gbyehuda@aaas.org>

Cc: Olivia Tarantino <otarantino@aaas.org>; Walter Beckwith <wbeckwith@aaas.org>; Matthew Wright <mwright@aaas.org>; Valeria Sabate <vsabate@aaas.org>; Sinatra, Christine

(b) (6) >

Subject: RE: Promotional language: Science Facebook Live on how viral structure informs vaccine design

I think this looks OK.

BG

From: Meagan Phelan <mphelel@aaas.org>

Sent: Tuesday, March 17, 2020 12:29 PM

To: Jason McLellan <jmclellan@aaas.org> (b) (6); Young, Monique (NIH/VRC) [E]

(b) (6); Gadi Ben-Yehuda <gbyehuda@aaas.org>; Graham, Barney (NIH/VRC) [E]

(b) (6) >

Cc: Olivia Tarantino <otarantino@aaas.org>; Walter Beckwith <wbeckwith@aaas.org>; Matthew Wright <mwright@aaas.org>; Valeria Sabate <vsabate@aaas.org>; Sinatra, Christine

(b) (6) >

Subject: RE: Promotional language: Science Facebook Live on how viral structure informs vaccine design

Hi Jason, thank you so much for that important correction (now noted in the updated text below). I also suggest text by which we could refer to the trial—great idea. I hope to talk more about it during Friday's FBL.

Barney, does the below text read ok to you, too? If you could let me know ASAP today (or by 5pm ET as a hard deadline), we'll use this in a promotional post we'll finalize so we can begin sharing about/promoting the FBL event first thing tomorrow. We will share the promotional link with you, too. Our colleagues in the Office of Government Relations at AAAS are eager to share the event link with Hill staffers, as one audience.

I also look forward to our 10:30 ET run-through tomorrow. I will bring a few candidate questions I plan to ask as moderator of the FBL. Gadi will talk about technical considerations.

Just weeks after the genome sequence of the recently emerged coronavirus was published online, researchers reported the cryogenic electron microscopy structure of the spike protein the virus uses to gain entry to host cells in a 19 February *Science* paper (<https://science.sciencemag.org/lookup/doi/10.1126/science.abb2507>). The insights from their study are already helping to inform vaccines against SARS-CoV-2. Earlier this week, as one example, the first human Phase I trial of an mRNA vaccine developed leveraging these findings began.

This Friday at 9am US ET, join coauthors of this study Jason McLellan and Barney Graham as they discuss how they visualized the spike protein, as well as how their work to improve understanding of SARS-CoV2 viral structure will inform therapeutics against this virus going forward.

best,

Meagan Phelan, Science Press Package Executive Director
American Association for the Advancement of Science (AAAS)
1200 New York Avenue, NW | Washington, DC 20005
Office Phone: 202-326-6436
Cell Phone: (b) (6)

E-mail: mphelan@aaas.org

Follow me on [Twitter](#)

From: Jason McLellan (b) (6) >

Sent: Tuesday, March 17, 2020 10:36 AM

To: Meagan Phelan <mphelan@aaas.org>; Young, Monique (NIH/VRC) [E] (b) (6) >;

Gadi Ben-Yehuda <gbyehuda@aaas.org>; Graham, Barney (NIH/VRC) [E] <(b) (6) >

Cc: Olivia Tarantino <otarantino@aaas.org>; Walter Beckwith <wbeckwith@aaas.org>; Matthew Wright <mwright@aaas.org>; Valeria Sabate <vsabate@aaas.org>; Sinatra, Christine (b) (6)

Subject: RE: Promotional language: Science Facebook Live on how viral structure informs vaccine design

Hi Meagan,

That all sounds good. Regarding the social media post, COVID-19 should be replaced with SARS-CoV-2. COVID-19 is the name of the disease, which is caused by the SARS-CoV-2 virus.

Depending on how Barney feels, you may want to include that the engineered spike protein that was used for structure determination is being tested as a vaccine antigen expressed from mRNA developed by Moderna. The first human in the Phase I trial was injected yesterday: <https://www.nih.gov/news-events/news-releases/nih-clinical-trial-investigational-vaccine-covid-19-begins> or <https://www.bostonglobe.com/2020/03/16/business/first-patient-dosed-with-potential-coronavirus-vaccine-cambridge-biotech/>

Cheers,

Jason

From: Meagan Phelan <mphelan@aaas.org>

Sent: Monday, March 16, 2020 5:28 PM

To: Young, Monique (NIH/VRC) [E] (b) (6) >; Jason McLellan

(b) (6) >; Gadi Ben-Yehuda <gbyehuda@aaas.org>; Graham, Barney (NIH/VRC) [E] (b) (6) >

Cc: Olivia Tarantino <otarantino@aaas.org>; Walter Beckwith <wbeckwith@aaas.org>; Matthew Wright <mwright@aaas.org>; Valeria Sabate <vsabate@aaas.org>; Sinatra, Christine

<(b) (6) >

Subject: Promotional language: Science Facebook Live on how viral structure informs vaccine design

Thanks so much, Jason and Barney and colleagues. It looks like we'll do our test call Wednesday at 10:30 US ET and our event Friday at 9am US ET, dialing in a little in advance to the latter (Friday's event).

Also, we will want to promote this excellent event in advance from our *Science* social media accounts. I drafted language, below, derived from our press package summary. Please let me know of any edits to it by noon US ET tomorrow, if/as you have them. Otherwise, we will prepare to post soon after, to promote this event! Again, thank you.

++++

Just weeks after the genome sequence of the recently emerged coronavirus – COVID-19 – was published online, researchers reported the cryogenic electron microscopy structure of the spike protein the virus uses to gain entry to host cells, in a 19 February *Science* paper (<https://science.sciencemag.org/lookup/doi/10.1126/science.abb2507>). The insights from their study will inform efforts to design a precision vaccine and antivirals against COVID-19. This Friday at 9am US ET, join coauthors Jason McLellan and Barney Graham as they discuss how they visualized the spike protein, as well as how their work to improve understanding of SARS-CoV2 viral structure will inform therapeutics against this virus.

From: Young, Monique (NIH/VRC) [E] (b) (6)
Sent: Monday, March 16, 2020 3:51 PM
To: Jason McLellan (b) (6); Gadi Ben-Yehuda <gbyehuda@aaas.org>; Meagan Phelan <mphehan@aaas.org>; Graham, Barney (NIH/VRC) [E] (b) (6)
Cc: Olivia Tarantino <otarantino@aaas.org>; Walter Beckwith <wbeckwith@aaas.org>; Matthew Wright <mwright@aaas.org>; Valeria Sabate <vsabate@aaas.org>; Sinatra, Christine (b) (6)>
Subject: RE: Possible Science Facebook Live on how viral structure informs vaccine design

Good Afternoon –

I will hold 10:30 am EDT on Wed for the walk through for Dr. Graham's calendar.

Thanks...Monique
301.594.8468

From: Jason McLellan (b) (6)>
Sent: Monday, March 16, 2020 11:41 AM
To: Gadi Ben-Yehuda <gbyehuda@aaas.org>; Young, Monique (NIH/VRC) [E] (b) (6)
Meagan Phelan <mphehan@aaas.org>; Graham, Barney (NIH/VRC) [E] (b) (6)>
Cc: Olivia Tarantino <otarantino@aaas.org>; Walter Beckwith <wbeckwith@aaas.org>; Matthew Wright <mwright@aaas.org>; Valeria Sabate <vsabate@aaas.org>; Sinatra, Christine (b) (6)>
Subject: RE: Possible Science Facebook Live on how viral structure informs vaccine design

That would work for me
Jason

From: Gadi Ben-Yehuda <gbyehuda@aaas.org>
Sent: Monday, March 16, 2020 10:32 AM
To: Young, Monique (NIH/VRC) [E] (b) (6); Jason McLellan (b) (6); Meagan Phelan <mphehan@aaas.org>; Graham, Barney (NIH/VRC) [E] (b) (6)
Cc: Olivia Tarantino <otarantino@aaas.org>; Walter Beckwith <wbeckwith@aaas.org>; Matthew Wright <mwright@aaas.org>; Valeria Sabate <vsabate@aaas.org>; Sinatra, Christine

(b) (6) >

Subject: Re: Possible Science Facebook Live on how viral structure informs vaccine design

Hello, all.

I'm free most of the day. How would 10:30 AM be for everyone? I can send a calendar invite with the link if that works!

Gadi.

From: Young, Monique (NIH/VRC) [E] (b) (6)

Sent: Sunday, March 15, 2020 6:30 PM

To: Jason McLellan (b) (6); Meagan Phelan <mphelelan@aaas.org>; Graham, Barney (NIH/VRC) [E] (b) (6) Gadi Ben-Yehuda <gbyehuda@aaas.org>

Cc: Olivia Tarantino <otarantino@aaas.org>; Walter Beckwith <wbeckwith@aaas.org>; Matthew Wright <mwright@aaas.org>; Valeria Sabate <vsabate@aaas.org>; Sinatra, Christine

(b) (6) >

Subject: RE: Possible Science Facebook Live on how viral structure informs vaccine design

Good Afternoon –

Dr. Graham's schedule is noted for Fri 9:00 am EDT.

Wed could be doable for the walk through, depending on the time.

Thanks...Monique
301.594.8468

From: Jason McLellan (b) (6)

Sent: Sunday, March 15, 2020 1:35 PM

To: Meagan Phelan <mphelelan@aaas.org>; Graham, Barney (NIH/VRC) [E] (b) (6); Gadi Ben-Yehuda <gbyehuda@aaas.org>

Cc: Olivia Tarantino <otarantino@aaas.org>; Young, Monique (NIH/VRC) [E] (b) (6); Walter Beckwith <wbeckwith@aaas.org>; Matthew Wright <mwright@aaas.org>; Valeria Sabate <vsabate@aaas.org>; Sinatra, Christine <(b) (6)>

Subject: RE: Possible Science Facebook Live on how viral structure informs vaccine design

8 am Central is so early, but I can make it work. I'll get some coffee on the way in to lab.

Wednesday is wide open for me, so that would be my preference for the walk through.

Cheers,
Jason

From: Meagan Phelan <mphelelan@aaas.org>

Sent: Saturday, March 14, 2020 9:13 PM

To: Graham, Barney (NIH/VRC) [E] <(b) (6)>; Gadi Ben-Yehuda <gbyehuda@aaas.org>; Jason McLellan <(b) (6)>
Cc: Olivia Tarantino <otarantino@aaas.org>; Young, Monique (NIH/VRC) [E] <(b) (6)>; Walter Beckwith <wbeckwith@aaas.org>; Matthew Wright <mwright@aaas.org>; Valeria Sabate <vsabate@aaas.org>; Sinatra, Christine <(b) (6)>
Subject: RE: Possible Science Facebook Live on how viral structure informs vaccine design

Thanks so much, Barney. I hope Friday at 9am US ET may work for Jason also. We will stand by to hear and confirm.

Would you and Jason have a preference for Tuesday vs. Wednesday, for the brief (20-minute) run-through? There, we'd review technical needs, as well as event format. I might run over a few candidate questions I'd pose as moderator, too.

Again, thank you!

Meagan Phelan, Science Press Package Executive Director
American Association for the Advancement of Science (AAAS)
1200 New York Avenue, NW | Washington, DC 20005
Office Phone: 202-326-6436
Cell Phone: (b) (6)
E-mail: mphelan@aaas.org
Follow me on [Twitter](#)

From: Graham, Barney (NIH/VRC) [E] <(b) (6)>
Sent: Saturday, March 14, 2020 6:28 PM
To: Gadi Ben-Yehuda <gbyehuda@aaas.org>; Meagan Phelan <mphelan@aaas.org>; Jason McLellan <(b) (6)>
Cc: Olivia Tarantino <otarantino@aaas.org>; Young, Monique (NIH/VRC) [E] <(b) (6)>; Walter Beckwith <wbeckwith@aaas.org>; Matthew Wright <mwright@aaas.org>; Valeria Sabate <vsabate@aaas.org>; Sinatra, Christine <(b) (6)>
Subject: RE: Possible Science Facebook Live on how viral structure informs vaccine design

I think I'll be free to do this at 9AM next Friday morning EDT. If Jason can do this at 8 and Monique Young verifies the time, we can do it then if you are available.

Barney

From: Gadi Ben-Yehuda <gbyehuda@aaas.org>
Sent: Saturday, March 14, 2020 6:03 PM
To: Meagan Phelan <mphelan@aaas.org>; Jason McLellan <(b) (6)>; Graham, Barney (NIH/VRC) [E] <(b) (6)>
Cc: Olivia Tarantino <otarantino@aaas.org>; Young, Monique (NIH/VRC) [E] <(b) (6)>; Walter Beckwith <wbeckwith@aaas.org>; Matthew Wright <mwright@aaas.org>; Valeria Sabate

<vsabate@aaas.org>; Sinatra, Christine (b) (6)>

Subject: Re: Possible Science Facebook Live on how viral structure informs vaccine design

Hello!

The broadcast itself will probably last for around 30 minutes. we recommend that all participants log in 30 minutes prior to ensure that if there are any technical difficulties we can get them sorted out before the broadcast begins.

Additionally, we schedule a technical run-through that lasts between 10 and 20 minutes. we do those at least 24 hours and preferably 48 to 72 hours prior to the broadcast.

if there's a lot of interest in our conversation there may be quite a few relevant questions from the viewers. In that case the broadcast may extend beyond 30 minutes, always with the consent of our participants.

Please let me know if you have any additional questions. I think that this will be a very well attended and interactive broadcast.

From: Graham, Barney (NIH/VRC) [E] (b) (6)

Sent: Saturday, March 14, 2020 5:16:16 PM

To: Meagan Phelan <mphehan@aaas.org>; Jason McLellan (b) (6)>

Cc: Olivia Tarantino <otarantino@aaas.org>; Young, Monique (NIH/VRC) [E] (b) (6);

Walter Beckwith <wbeckwith@aaas.org>; Matthew Wright <mwright@aaas.org>; Valeria Sabate

<vsabate@aaas.org>; Sinatra, Christine (b) (6); Gadi Ben-Yehuda

<gbyehuda@aaas.org>

Subject: RE: Possible Science Facebook Live on how viral structure informs vaccine design

Can you tell me again how long it will take? We can probably find a time next Thursday or Friday. Monique Young is copied here to help.

Barney

From: Meagan Phelan <mphehan@aaas.org>

Sent: Friday, March 13, 2020 10:31 AM

To: Jason McLellan (b) (6)>

Cc: Graham, Barney (NIH/VRC) [E] (b) (6); Olivia Tarantino <otarantino@aaas.org>;

Walter Beckwith <wbeckwith@aaas.org>; Matthew Wright <mwright@aaas.org>; Valeria Sabate

<vsabate@aaas.org>; Sinatra, Christine (b) (6); Gadi Ben-Yehuda

<gbyehuda@aaas.org>

Subject: RE: Possible Science Facebook Live on how viral structure informs vaccine design

Dear Jason,

Thanks so much for your reply and confirmation, and also for copying Christine. This is very helpful to keep us moving well now.

Barney,

I know you were still considering this event in your calendar. Perhaps you might let us know, as you can, if in fact this event would fit in your schedule. We could pick up planning from there, if so.

And again, thank you to all in this busy time! It is much appreciated. We believe this event would have great value to public audiences.

best,

Meagan Phelan, *Science* Press Package Executive Director
American Association for the Advancement of Science (AAAS)
1200 New York Avenue, NW | Washington, DC 20005
Office Phone: 202-326-6436
Cell Phone: (b) (6)
E-mail: mphelan@aaas.org
Follow me on [Twitter](#)

From: Jason McLellan (b) (6)
Sent: Friday, March 13, 2020 12:18 AM
To: Meagan Phelan <mphelan@aaas.org>
Cc: Graham, Barney (NIH/VRC) [E] (b) (6); Olivia Tarantino <otarantino@aaas.org>; Walter Beckwith <wbeckwith@aaas.org>; Matthew Wright <mwright@aaas.org>; Valeria Sabate <vsabate@aaas.org>; Sinatra, Christine (b) (6)>
Subject: RE: Possible Science Facebook Live on how viral structure informs vaccine design

Hi Meagan,

The Altmetrics data looks great! Good to see our paper being widely discussed and shared.

I would love to participate in a Facebook live event provided that Barney is able to participate. I'm sure many of the questions will be better addressed by him.

I have Cc'd Christine Sinatra, director of communications for the UT College of Natural Science. She can work with you to schedule the time and book a studio on campus.

Best regards,
Jason

From: Meagan Phelan <mphelan@aaas.org>
Sent: Thursday, March 12, 2020 7:36 AM
To: Jason McLellan (b) (6)>
Cc: Graham, Barney (NIH/VRC) [E] (b) (6); Olivia Tarantino <otarantino@aaas.org>;

Walter Beckwith <wbeckwith@aaas.org>; Matthew Wright <mwright@aaas.org>; Valeria Sabate <vsabate@aaas.org>

Subject: Possible Science Facebook Live on how viral structure informs vaccine design

Dear Dr. McLellan, I hope this note finds you well. Thank you for your help to us last month, it's been wonderful to see all the attention to your paper, much of which is captured on its Altmetrics tab, at the bottom of this page: <https://science.sciencemag.org/content/early/2020/02/19/science.abb2507/tab-article-info>

Separately, my team, the Science Press Package team (some of whom are copied here), has been considering holding one of our popular Facebook Live events—a way to connect the public with recently published experts—on your paper, with a focus on how cutting-edge viral structure information informs vaccine and antiviral design. I have already reached Dr. Graham, here copied, who expressed interest (if his communications office will confirm). He also recommended I reach you.

Is participating in such an event something you may wish to (and have availability) to do? If so, we'd be delighted for you to participate along with Dr. Graham (we do hope), in an event I would moderate. The event itself would require about an hour and a half, on the slated day (including prep time). A few days prior, we would hold a run-through (where your press officers would be welcome) to address both technical specs and event format – including likely questions you'd receive from the audience, and also how to pivot on questions not in your scope of expertise. We would plan the event as soon as might be feasible for you in the coming two weeks.

Thank you for considering participating in such a discussion, something we hope could help the public better understand how research into virus structure paves the way for the therapies from which they will benefit.

best,

Meagan Phelan, *Science* Press Package Executive Director
American Association for the Advancement of Science (AAAS)
1200 New York Avenue, NW | Washington, DC 20005
Office Phone: 202-326-6436
Cell Phone: (b) (6)
E-mail: mphelan@aaas.org
Follow me on [Twitter](#)

<IMG-20200323-WA0001.jpg>

From: Graham, Barney (NIH/VRC) [E]
Sent: Wed, 29 Apr 2020 15:10:17 +0000
To: (b) (6)
Subject: Re: Interview follow-up

Thanks for considering (b) (6)

Take care,

Barney

Sent from my iPhone

On Apr 29, 2020, at 10:00 AM, (b) (6)
(b) (6) wrote:

Dear Barney,

I want to thank you for the opportunity of meeting your team and for considering me for a position in your group. It was very exciting to learn about the outstanding research of your laboratory. I think the Project Management position for the Coronavirus vaccine projects is a great opportunity. However, I believe I would not be a good fit for the position. I think your laboratory could benefit from the experience of someone with a more solid project management training. I am very grateful to you for the opportunity, and to your team for taking time from their busy schedule to meet with me. I would appreciate if you could please extend my thanks to them. I hope we do get the opportunity to work together in the future.

Many thanks again, and my best regards,

(b) (6)

Phone: (b) (6)
Mobile: (b) (6)
(b) (6)

From: Graham, Barney (NIH/VRC) [E]
Sent: Mon, 24 Feb 2020 03:08:20 +0000
To: Rebecca Loomis
Subject: Fwd: Measles mAb questions

FYI

BG

Sent from my iPhone

Begin forwarded message:

From: "Graham, Barney (NIH/VRC) [E]" <(b) (6)>
Date: February 23, 2020 at 7:00:26 PM EST
To: (b) (6), (b) (4)>
Cc: Rebecca Loomis <(b) (6)>, "Bok, Karin (NIH/VRC) [E]"
(b) (6), "Young, Monique (NIH/VRC) [E]" (b) (6)>
Subject: Re: Measles mAb questions

Hi (b) (6), (b) (4) Would be good to talk measles. I've copied a few people here who should be on the call.

Best wishes,
Barney

Sent from my iPhone

On Feb 23, 2020, at 4:48 PM, (b) (6), (b) (4)> wrote:

Hi Barney,

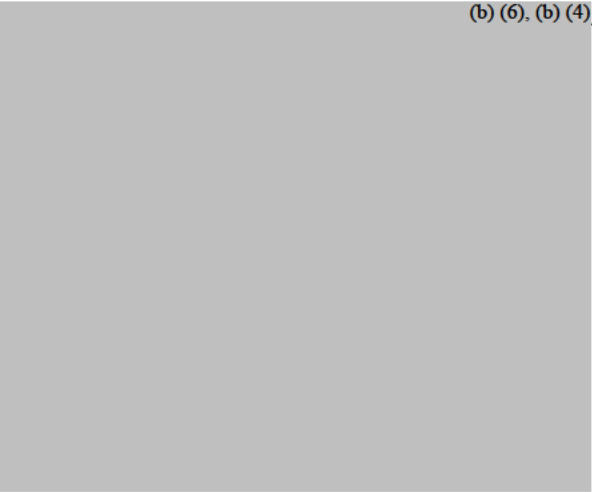
I hope all is good! I know you are swamped with coronavirus studies right now (b) (4), (b) (5)

Had a quick chat with Bob about several things and I mentioned the possibility of (b) (4). He mentioned you might be interested in this area. Should we set up a quick call soon?

In other news, hoping to be out at VRC for an afternoon sometime next month. But not sure when yet.

Thanks!
(b) (6), (b) (4)

(b) (6), (b) (4)



From: Graham, Barney (NIH/VRC) [E]
Sent: Fri, 6 Mar 2020 18:16:59 +0000
To: Milord, Brianna
Subject: RE: URGENT: Fact-checking coronavirus vaccine story

I could have a few minutes around 5pm EST.

Barney

(b) (6)

From: Milord, Brianna <brianna_milord@newyorker.com>
Sent: Friday, March 6, 2020 1:09 PM
To: Graham, Barney (NIH/VRC) [E] (b) (6)
Subject: URGENT: Fact-checking coronavirus vaccine story

Hi Barney,

I hope all is well. My name is Brianna Milord and I'm a fact-checker at The New Yorker working with our writer, Carolyn Kormann, on her story about the coronavirus vaccine.

Are you available to chat and confirm a few details we have in the piece?

Thanks,

--

Brianna Milord
The New Yorker
212-286-4295
1 World Trade Center, New York, NY 10007

From: Graham, Barney (NIH/VRC) [E]
Sent: Wed, 18 Mar 2020 11:42:34 +0000
To: Wing-Yun Cheung
Cc: Young, Monique (NIH/VRC) [E]
Subject: Re: WVCW IMPORTANT - Postponement to 27-29 Sep, CoV sessions
Attachments: image002.png

Yes we can move To 11am.

Barney

Sent from my iPhone

On Mar 18, 2020, at 7:36 AM, Wing-Yun Cheung <(b) (6)> wrote:

Dear Barney,

Is it possible to change this to 11 am EST (8AM West Coast)? Some West Coast based attendees have mentioned that 7AM is too early for them..

Many thanks for your flexibility.

Wing

Wing-yun Cheung, MSci
Congress Director, Life Sciences
Terrapinn Holdings
Mobile: (b) (6)
LinkedIn: (b) (6)

From: Wing-Yun Cheung
Sent: 16 March 2020 13:21
To: Graham, Barney (NIH/VRC) [E] (b) (6)
Cc: Young, Monique (NIH/VRC) [E] (b) (6)
Subject: RE: WVCW IMPORTANT - Postponement to 27-29 Sep, CoV sessions

Dear Barney,

Wonderful thank you for accommodating and I will keep "Dr" and drop md, phd.

Kind regards,

Wing

Wing-yun Cheung
Congress Director, Life Sciences
Terrapinn Holdings

[<image002.png>](#)

T: (b) (6)
E: (b) (6)

Warning: We DO NOT work with third parties or the "Exhibition Hotel Management" for accommodation. All speakers and delegates are advised to book through the official event website. This company has been targeting a number of conference companies so please be aware of them for any other event you are also participating in.

From: Graham, Barney (NIH/VRC) [E] (b) (6)
Sent: 16 March 2020 13:18
To: Wing-Yun Cheung (b) (6)
Cc: Young, Monique (NIH/VRC) [E] (b) (6)
Subject: RE: WVCW IMPORTANT - Postponement to 27-29 Sep, CoV sessions

I may have to move another meeting, but that should be feasible.

For my name should either drop "Dr" and keep MD, PhD or keep "Dr" and drop "MD, PhD"

Barney

From: Wing-Yun Cheung <(b) (6)>
Sent: Monday, March 16, 2020 6:46 AM
To: Graham, Barney (NIH/VRC) [E] <(b) (6)>
Cc: Young, Monique (NIH/VRC) [E] (b) (6)>
Subject: RE: WVCW IMPORTANT - Postponement to 27-29 Sep, CoV sessions

Dear Barney,

Regarding the webinar, would having you present on April 9 at 10AM EST (I can be flexible on time) work for you? I would like to do 3 presentations over 3 days (co-presenters welcome). Our webinar platform allows attendees to submit questions so we can have those as Q&As after the slide share.

April 7: 10 AM EST
SARS-CoV-2: Going Viral
[Dr Gregory A. Poland, Director of Mayo Vaccine Research Group, Mayo Clinic](#)

April 8: 10 AM EST

Coronaviruses in Livestock: Vaccines and International Transport of Virus

Dr Mark Kehrli, Center Director, National Animal Disease Center

April 9: 10 AM EST

COVID-19: A prototype pathogen demonstration project for pandemic preparedness

Dr Barney S. Graham, MD, Deputy Director, VRC, NIAID, NIH

Kind regards,

Wing

Wing-yun Cheung

Congress Director, Life Sciences

Terrapinn Holdings

[<image002.png>](#)

T: [REDACTED] (b) (6)

E: [REDACTED] (b) (6)

Warning: We DO NOT work with third parties or the "Exhibition Hotel Management" for accommodation. All speakers and delegates are advised to book through the official event website. This company has been targeting a number of conference companies so please be aware of them for any other event you are also participating in.

From: Graham, Barney (NIH/VRC) [E] [REDACTED] (b) (6)

Sent: 13 March 2020 16:45

To: Wing-Yun Cheung [REDACTED] (b) (6) >

Cc: Young, Monique (NIH/VRC) [E] [REDACTED] (b) (6)

Subject: RE: WVCW IMPORTANT - Postponement to 27-29 Sep, CoV sessions

External meetings have been canceled, but we are trying to advance the vaccine development so there are a lot of internal meetings.

Barney

From: Wing-Yun Cheung <[REDACTED] (b) (6)>

Sent: Friday, March 13, 2020 12:28 PM

To: Graham, Barney (NIH/VRC) [E] [REDACTED] (b) (6)

Cc: Young, Monique (NIH/VRC) [E] (b) (6)>

Subject: RE: WVCW IMPORTANT - Postponement to 27-29 Sep, CoV sessions

As soon as I can confirm direct timings I will send this across. Is this anything already in your calendar I should be aware of?

Kind regards,
Wing

Wing-yun Cheung, MSci
Congress Director, Life Sciences
Terrapinn Holdings
Direct line: (b) (6)
LinkedIn: (b) (6)

Warning: We DO NOT work with third parties for accommodation and will NOT call you directly to book for this. All speakers and delegates are advised to book through the official event website. Only trust correspondence from Terrapinn emails.

From: Graham, Barney (NIH/VRC) [E] <(b) (6)>

Sent: 13 March 2020 16:08

To: Wing-Yun Cheung (b) (6)>

Cc: Young, Monique (NIH/VRC) [E] (b) (6)>

Subject: RE: WVCW IMPORTANT - Postponement to 27-29 Sep, CoV sessions

I would be willing to do this, but it all depends on timing. Sometimes I am being pulled into meetings or phone calls at the last minute.

Barney

From: Wing-Yun Cheung (b) (6)>

Sent: Friday, March 13, 2020 12:00 PM

To: Graham, Barney (NIH/VRC) [E] (b) (6)

Cc: Young, Monique (NIH/VRC) [E] <(b) (6)>

Subject: RE: WVCW IMPORTANT - Postponement to 27-29 Sep, CoV sessions

I would try to do it AM EST, an hour or so at a time (or less) across the original congress dates, potentially one per day depending how many participating speakers/content we have.

Wing

From: Graham, Barney (NIH/VRC) [E] (b) (6)

Sent: 13 March 2020 15:05

To: Wing-Yun Cheung <(b) (6)>

Cc: Young, Monique (NIH/VRC) [E] (b) (6)
Subject: Re: WVCW IMPORTANT - Postponement to 27-29 Sep, CoV sessions

I'm not sure what you have in mind for the April virtual session. Could you say something about the time and day?

Barney

Sent from my iPhone

On Mar 13, 2020, at 10:50 AM, Wing-Yun Cheung (b) (6) > wrote:

Wonderful!

Is this for April virtually *and* September in person?

I'll keep you posted on the logistics.

Best,
Wing

From: Graham, Barney (NIH/VRC) [E] (b) (6)
Sent: 13 March 2020 14:45
To: Wing-Yun Cheung <(b) (6)>
Subject: RE: WVCW IMPORTANT - Postponement to 27-29 Sep, CoV sessions

It looks like I will be in town that week, so should be OK.

Barney

From: Wing-Yun Cheung (b) (6)
Sent: Friday, March 13, 2020 10:35 AM
To: Graham, Barney (NIH/VRC) [E] (b) (6)
Subject: RE: WVCW IMPORTANT - Postponement to 27-29 Sep, CoV sessions
Importance: High

Dear Barney,

Could you let me know if you can make the new dates? **27 - 29 September**, still at the Walter E Convention Center, D.C.

I'm trying to still put together a webinar for the COVID sessions, there's definitely a demand from the attendees. Would you still be willing to participate virtually over the original April dates?

Kind regards,
Wing

Wing-yun Cheung, MSci
Congress Director, Life Sciences
Terrapinn Holdings
Direct line: (b) (6)
LinkedIn: (b) (6)

Warning: We DO NOT work with third parties for accommodation and will NOT call you directly to book for this. All speakers and delegates are advised to book through the official event website. Only trust correspondence from Terrapinn emails.

From: Wing-Yun Cheung
Sent: 11 March 2020 14:29
To: Krause, Philip (b) (6); Poland, Gregory A., M.D. (b) (6);
Kehrli, Marcus - ARS (b) (6); 'Hotez, Peter Jay' (b) (6);
(b) (6); Sean Tucker (b) (6); Juan Andres
<(b) (6)>; Farshad Guirakhoo (b) (6); Alexander Kort
(b) (6); Graham, Barney (NIH/VRC) [E] (b) (6); Greg Glenn
(b) (6)>
Cc: Roberts, Joseph W. (b) (6); 'Soriano Osejo, Douglas'
<(b) (6)>; David Weiner <(b) (6)>; Joseph Kim
(b) (6); Emma Wheatley (b) (6); Joseph Simmonds-Issler
(b) (6); Kate Broderick (b) (6)
Subject: RE: WVCW IMPORTANT - Postponement to 27-29 Sep, CoV sessions
Importance: High

Dear all,

I wanted to let you know as soon as possible that today we have made the very difficult decision to postpone the World Vaccine Congress Washington to **27 - 29 September**, still at the Walter E Convention Center, D.C.

We did this in response to the travel restrictions that are increasingly in place and we want to be responsible in protecting the Congress, speakers and attendees. We were optimistic about the control of the COVID-19 outbreak, monitoring the situation daily but I feel we have reached the point where it has become in effect, impossible to deliver the event as we had planned, and safely.

I expect, if anything, better participation on the new dates as we work together to recruit more attendees, and develop the agenda to take into account the very latest developments, including a vaccine for COVID-19!

In the interest of still delivering some very timely information about COVID-19 to the attendees still, **would you all be willing to still prepare slides?** I'm exploring how we can still virtually support the community on this in April, and potentially providing some slides to attendees.

Regarding 27 – 29 September:

I will be sending out more details shortly, but the new dates are confirmed (so **please add to your calendar**), and I'd like to express my appreciation for your support and understanding at this time. I hope that you can still make it and I will be able to confirm the new session timings soon, if you have any restrictions please let me know personally.

These new dates will also mean the postponement to the ViE awards, new timelines will follow. An official statement will be sent to all attendees and be put on our website shortly.

Please contact me if you have any questions, I apologise in advance if it takes me a few days to answer back.

Best wishes,

Wing

Wing-yun Cheung, MSci
Congress Director, Life Sciences
Terrapinn Holdings
Direct line: (b) (6)
LinkedIn: (b) (6)

Warning: We DO NOT work with third parties for accommodation and will NOT call you directly to book for this. All speakers and delegates are advised to book through the official event website. Only trust correspondence from Terrapinn emails.

From: Wing-Yun Cheung

Sent: 28 February 2020 15:28

To: Krause, Philip (b) (6); Poland, Gregory A., M.D. <(b) (6)>; Kehrli, Marcus - ARS (b) (6); 'Hotez, Peter Jay' (b) (6); (b) (6); Sean Tucker (b) (6); Juan Andres (b) (6)>

Cc: Roberts, Joseph W. (b) (6); 'Soriano Osejo, Douglas' (b) (6); David Weiner (b) (6); Joseph Kim (b) (6); Emma Wheatley (b) (6); Joseph Simmonds-Issler <(b) (6)>

Subject: Corona workshop, WVC

Importance: High

Dear all,

I hope you're looking forward to the World Vaccine Congress! I know most of you are all well acquainted with Dr **Philip Krause**, Deputy Director, OVR, CBER, **FDA** already, I would like to announce that he will be our **workshop leader** and therefore assist in running the workshop and steering the discussion. If you have any Q&As you would like him to use after your talk, please send them over.

Below is an update to the **timings** on **April 6th**. If anything is incorrect or needs amending just let me know.

Outline: 2 – 5pm

2:00 **Workshop leader opening remarks**

[Dr Philip Krause](#), Deputy Director, OVR, CBER, **FDA**

2:05 **SARS-CoV-2: Going Viral**

[Dr Gregory A. Poland](#), Director of Mayo Vaccine Research Group, **Mayo Clinic**

2:25 **Coronaviruses in Livestock: Vaccines and International Transport of Virus**

[Dr Mark Kehrli](#), Center Director, **National Animal Disease Center**

What existing treatments and vaccine development platforms show promise to control the rate of infection and spread?

- How long will it be until we have a vaccine?
- Research and development for candidate vaccines and varying approaches

2:50 **Protein-based vaccines:** [Dr Peter Hotez](#), Dean, Professor, Co-Head of Pediatric Tropical Medicine, **Baylor College of Medicine & Co-Director, Texas Children's Hospital Center for Vaccine Development**

3:00 **DNA vaccines:** [Dr Jacqueline Shea](#), COO, **Inovio**

3:15 **RNA vaccines:** [Dr Juan Andres](#), CTO, **Moderna**

3:30 **Oral vaccine platform & mucosal immunity:** [Dr Sean Tucker](#), CSO and VP Research, **Vaxart Inc.**

3:45 **Adjuvant platforms:** [Dr Thomas Breuer](#), Senior Vice President, Chief Medical Officer, **GSK Vaccines - TBC**

4:00 **Vaccine platforms and funding:** [Senior representative](#), **CEPI**

4:15 – 5:00 **All speakers to join panel and Q&As with workshop participants: The race is on: Perspectives from industry, academia, global governing bodies and funders – strategic and collaborative opportunities**

For those of you interested, the additional corona sessions in the agenda include:

- Rick Bright, BARDA delivering a keynote on corona the next day (April 7th)
- Barney Graham, NIH, Gregory Glenn, Novavax and Farshad Guirakhoo, GeoVax (who's in collaboration with Chinese biotech BravoVax) will present on April 8th in the emerging disease sessions.

All your speaker registrations are complete but do plan the rest of your logistics if you have not done so already.

- Remember to only book [accommodation](#) through our website if you have not done so already - rooms ran out early last year so don't delay! There have been scammers claiming to be working with the congress and pressuring speakers to book accommodation through them. Please note that we would never do that so please don't share bank card details with them.

- If you haven't given me this already, I will need your **mobile number** in case I need to reach you on-site. To reach me on site my number is: (b) (6).

If you haven't sent this back filled, please do:

Please give us your arrival details to the conference (time and date)	
Please choose your April 7 th roundtables	https://form.jotform.com/200204520149339
Whether you're coming to the ViE awards Gala dinner (April 7) and other networking receptions	https://form.jotform.com/200212784070343
Your mobile/cell number (my number is: (b) (6))	
Your permission for sharing a PDF version of your slides after the congress where applicable. You may also provide an alternative deck for sharing but please specify	Y/N/alternative

@Phil, I will provide you with all the speaker bios and any Q&As the speakers may request in a brief for you, ahead of the congress.

Warm regards,
Wing

Wing-yun Cheung, MSci
Congress Director, Life Sciences
Terrapinn Holdings
Direct line: (b) (6)
LinkedIn: (b) (6)

Warning: We DO NOT work with third parties for accommodation and will NOT call you directly to book for this. All speakers and delegates are advised to book through the official event website. Only trust correspondence from Terrapinn emails.



From: Graham, Barney (NIH/VRC) [E]
Sent: Tue, 21 Apr 2020 17:02:27 +0000
To: Sharon, Elad (NIH/NCI) [E]; Walker, Mary (NIH/NCI) [E]; Ledgerwood, Julie (NIH/NIAID) [E]
Cc: Corbett, Kizzmekia (NIH/VRC) [E]; Streicher, Howard (NIH/NCI) [E]; Chen, Helen (NIH/NCI) [E]
Subject: RE: Use of mRNA-1273 vaccine for cancer patients and other immunologically vulnerable populations

We are glad to have a brief discussion, but just for full transparency the current IND is held by DMID and is being transferred to Moderna. Therefore, we can influence but do not control the design of clinical trials.

Take care,

Barney

From: Sharon, Elad (NIH/NCI) [E] (b) (6)
Sent: Tuesday, April 21, 2020 9:18 AM
To: Walker, Mary (NIH/NCI) [E] (b) (6)>; Graham, Barney (NIH/VRC) [E] (b) (6); Ledgerwood, Julie (NIH/NIAID) [E] (b) (6)
Cc: Corbett, Kizzmekia (NIH/VRC) [E] (b) (6)>; Streicher, Howard (NIH/NCI) [E] (b) (6)>; Chen, Helen (NIH/NCI) [E] (b) (6)>
Subject: RE: Use of mRNA-1273 vaccine for cancer patients and other immunologically vulnerable populations

Earlier would be better for me. Helen and Howard are optional, but there is also the AACR virtual meeting on the 27th and 28th of April. I have my calendar totally blocked off, but I will bump anything for a discussion with VRC.

From: Walker, Mary (NIH/NCI) [E] (b) (6)>
Sent: Tuesday, April 21, 2020 9:01 AM
To: Sharon, Elad (NIH/NCI) [E] <(b) (6)>; Graham, Barney (NIH/VRC) [E] (b) (6)>; Ledgerwood, Julie (NIH/NIAID) [E] (b) (6)>
Cc: Corbett, Kizzmekia (NIH/VRC) [E] <(b) (6)>; Streicher, Howard (NIH/NCI) [E] (b) (6)>; Chen, Helen (NIH/NCI) [E] (b) (6)>
Subject: RE: Use of mRNA-1273 vaccine for cancer patients and other immunologically vulnerable populations

Good morning,

Listed below are some possible date/times for a teleconference call. Please let me know what works best and I can arrange the call.

Monday, May 4th, 9 – 10 am or 3 – 4 pm ET (best time for all CTEP, IDB: 3 – 4 pm ET)

Tuesday, May 5th, 10 – 11 am ET

Tuesday, May 12th, 9 – 10 am ET

Monday, May 18th, 3 – 4 pm ET (best time for all CTEP, IDB: 3 – 4 pm ET)

Tuesday, May 26th, 9 – 10 am ET

Thursday, May 28th, 4 – 5 pm ET

Kind regards,

Mary Walker

Program Support Assistant

National Cancer Institute

Investigational Drug Branch

9609 Medical Center Drive

Room 5W508

Rockville, MD 20850

Phone: (b) (6)

Fax: 240-276-7894

E-mail: (b) (6)

Website: <http://ctep.cancer.gov>

From: Sharon, Elad (NIH/NCI) [E] <(b) (6)>

Sent: Tuesday, April 21, 2020 8:36 AM

To: Graham, Barney (NIH/VRC) [E] <(b) (6)>; Walker, Mary (NIH/NCI) [E]

(b) (6)

Cc: Corbett, Kizzmekia (NIH/VRC) [E] (b) (6); Ledgerwood, Julie (NIH/NIAID) [E]

(b) (6)>; Streicher, Howard (NIH/NCI) [E] (b) (6)>; Chen, Helen

(NIH/NCI) [E] <(b) (6)>

Subject: RE: Use of mRNA-1273 vaccine for cancer patients and other immunologically vulnerable populations

Thanks so much for the reply! Maybe we can arrange a brief call. (b) (4), (b) (5)

(b) (6)

(b) (6) I can have Mary Walker arrange for some times to discuss, if there is interest on your side.

From: Graham, Barney (NIH/VRC) [E] (b) (6)

Sent: Monday, April 20, 2020 5:45 PM

To: Graham, Barney (NIH/VRC) [E] (b) (6)>; Sharon, Elad (NIH/NCI) [E]

<(b) (6)>

Cc: Corbett, Kizzmekia (NIH/VRC) [E] <(b) (6)> Ledgerwood, Julie (NIH/NIAID) [E]

(b) (6); Streicher, Howard (NIH/NCI) [E] <(b) (6)>; Chen, Helen

(NIH/NCI) [E] (b) (6)>

Subject: RE: Use of mRNA-1273 vaccine for cancer patients and other immunologically vulnerable populations

With Dr. Ledgerwood.

Barney

From: Graham, Barney (NIH/VRC) [E] (b) (6)>

Sent: Monday, April 20, 2020 5:44 PM

To: Sharon, Elad (NIH/NCI) [E] (b) (6)>

Cc: Corbett, Kizzmekia (NIH/VRC) [E] (b) (6); Streicher, Howard (NIH/NCI) [E] (b) (6)>; Chen, Helen (NIH/NCI) [E] (b) (6)

Subject: Re: Use of mRNA-1273 vaccine for cancer patients and other immunologically vulnerable populations

Thank you for your proposal. (b) (5)

(b) (5)

(b) (5) I'm also including Dr. Julie Ledgerwood, the VRC Chief Medical Officer, who is also helping Moderna with advanced clinical trial planning.

Best wishes,

Barney

Sent from my iPhone

On Apr 20, 2020, at 4:38 PM, Sharon, Elad (NIH/NCI) [E] (b) (6)> wrote:

If there is any interest in this proposal, please let me know. (b) (5)

.

From: Sharon, Elad (NIH/NCI) [E]

Sent: Thursday, April 16, 2020 3:26 PM

To: Corbett, Kizzmekia (NIH/VRC) [E] (b) (6)

Cc: Auchincloss, Hugh (NIH/NIAID) [E] (b) (6)>; Palmore, Tara (NIH/CC/OD) [E]

(b) (6)>; Lane, Cliff (NIH/NIAID) [E] (b) (6)>; Holland, Steven

(NIH/NIAID) [E] <(b) (6)> Streicher, Howard (NIH/NCI) [E]

(b) (6); Chen, Helen (NIH/NCI) [E] (b) (6); Marston, Hilary
(NIH/NIAID) [E] (b) (6)>

Subject: Use of mRNA-1273 vaccine for cancer patients and other immunologically vulnerable populations

Dear Dr. Corbett,

My colleagues and I are extremely proud of the efforts put forth by you and your colleagues at the VRC.
I wanted to see if we could speak briefly about a proposal I have been discussing (b) (5)

(b) (5)

Basically, we wanted to collaborate with your colleagues at NIAID and the Vaccine Research Center.
Who runs the trial is less important to me, but we have mechanisms available if we can share resources.

This would help (b) (5)

(b) (5)

Please let me know if you would be open to discussing this. I am available to talk any time.

Best Regards,
Elad

Elad Sharon, MD, MPH
Senior Investigator, Cancer Therapy Evaluation Program
Co-Chair, Cancer Moonshot Adult Immunotherapy Implementation Team
Division of Cancer Treatment & Diagnosis
National Cancer Institute
Bethesda, Maryland
Phone: (b) (6)
Mobile: (b) (6)
Email: (b) (6)

From: Graham, Barney (NIH/VRC) [E]
Sent: Fri, 7 Feb 2020 22:43:12 +0000
To: Mascola, John (NIH/VRC) [E]
Subject: Fwd: IND - Enhanced Disease One pager and Mouse Immunogenicity Summary
Attachments: Enhanced Disease_KC_20200207_BG.docx, ATT00001.htm

FYI. Here are some initial thoughts about enhanced disease. It's not very formal and not referenced very well but is a start (b) (4)

BG

Sent from my iPhone

Begin forwarded message:

From: "Graham, Barney (NIH/VRC) [E]" <(b) (6)>
Date: February 7, 2020 at 3:32:00 PM EST
To: "Corbett, Kizzmekia (NIH/VRC) [E]" <(b) (6)>, "Morabito, Kaitlyn (NIH/VRC) [E]" <(b) (6)>
Subject: RE: IND - Enhanced Disease One pager and Mouse Immunogenicity Summary

My edits

BG

From: Corbett, Kizzmekia (NIH/VRC) [E] <(b) (6)>
Sent: Friday, February 7, 2020 8:43 AM
To: Graham, Barney (NIH/VRC) [E] <(b) (6)> Morabito, Kaitlyn (NIH/VRC) [E] <(b) (6)>
Subject: Re: IND - Enhanced Disease One pager and Mouse Immunogenicity Summary

Here is my enhancement draft.

Kizzmekia S. Corbett, PhD
Senior Research Fellow | Scientific Lead
Coronavirus Vaccines & Immunopathogenesis (coVip) Team
Viral Pathogenesis Laboratory | Vaccine Research Center
National Institutes of Allergy and Infectious Diseases
National Institutes of Health

Building 40 Room 2608

40 Convent Drive

Bethesda MD 20892

Laboratory: (b) (6)

Personal: (b) (6)

Fax: (301) 480-2771

From: Barney Graham (b) (6)

Date: Friday, February 7, 2020 at 7:33 AM

To: Kizzmekia Corbett <(b) (6)>, "Morabito, Kaitlyn (NIH/VRC) [E]"
(b) (6)>

Subject: RE: IND - Enhanced Disease One pager and Mouse Immunogenicity Summary

I'm on WHO calls at the moment, but want to finish this today, so I can finish your draft.

Barney

From: Corbett, Kizzmekia (NIH/VRC) [E] (b) (6)>

Sent: Friday, February 7, 2020 7:32 AM

To: Graham, Barney (NIH/VRC) [E] (b) (6)>; Morabito, Kaitlyn (NIH/VRC) [E]
(b) (6)

Subject: Re: IND - Enhanced Disease One pager and Mouse Immunogenicity Summary

It'll be done in 30 min. I'm here in lab on it now. I went to sleep last night out of necessity

Sent from the mobile device of:

Kizzmekia S. Corbett, PhD

Senior Research Fellow

coVip Scientific Lead

NIH | NIAID | VRC

(b) (6)

From: "Graham, Barney (NIH/VRC) [E]" (b) (6)>

Date: Friday, February 7, 2020 at 7:19:24 AM

To: "Corbett, Kizzmekia (NIH/VRC) [E]" (b) (6)>, "Morabito, Kaitlyn (NIH/VRC) [E]"
(b) (6)>

Subject: RE: IND - Enhanced Disease One pager and Mouse Immunogenicity Summary

Hi Kizzy,

Are you planning to take a shot at this or do I need to do it. I don't want to duplicate efforts or work on it at the same time.

I've attached my edits on the mouse protocol document.

Barney

From: Corbett, Kizzmekia (NIH/VRC) [E] (b) (6)
Sent: Thursday, February 6, 2020 9:02 PM
To: Morabito, Kaitlyn (NIH/VRC) [E] (b) (6); Graham, Barney (NIH/VRC) [E]
(b) (6)
Subject: Re: IND - Enhanced Disease One pager and Mouse Immunogenicity Summary

On it.

Sent from the mobile device of:
Kizzmekia S. Corbett, PhD
Senior Research Fellow
coVip Scientific Lead
NIH | NIAID | VRC
(b) (6)

From: "Morabito, Kaitlyn (NIH/VRC) [E]" (b) (6)
Date: Thursday, February 6, 2020 at 8:41:59 PM
To: "Graham, Barney (NIH/VRC) [E]" (b) (6); "Corbett, Kizzmekia (NIH/VRC) [E]"
(b) (6)>
Subject: IND - Enhanced Disease One pager and Mouse Immunogenicity Summary

Barney and Kizzmekia,

Can you review and edit these ASAP? DMID needs them tomorrow. For the Enhanced disease one pager, I took the text from Kizzmekia's slide and Barney's email to give us a place to start.

--

Kaitlyn M. Morabito, M.S., Ph.D.
Scientific Program Manager, Vaccine Development for RSV and Emerging Viral Diseases
Viral Pathogenesis Laboratory, Vaccine Research Center
National Institutes of Allergy and Infectious Diseases, NIH
Bldg. 40, Rm. 2508
40 Convent Drive
Bethesda, MD 20892
(b) (6)

From: Graham, Barney (NIH/VRC) [E]
Sent: Tue, 31 Mar 2020 17:01:09 +0000
To: (b) (4)
Cc: (b) (4); (b) (4) [E]; (b) (4)
Subject: RE: question on (b) (4) for RSV (b) (4)

Hi Niranjan,

We have typically used (b) (4)

(b) (4) and may be able to help you choose something else if you think there will be an incremental benefit.

Barney

From: (b) (4), (b) (6)
Sent: Tuesday, March 31, 2020 12:05 PM
To: Graham, Barney (NIH/VRC) [E] (b) (6) >
Cc: (b) (4), (b) (6)
(b) (4)
Subject: question on (b) (4) for RSV (b) (4)

Hi Barney

Hope all is well, and that you are staying safe. I hate to bother you with a question while you are busy with coronavirus during these times. Perhaps you might direct us to a person who might assist.

We are looking to measure (b) (4) (b) (4)

(b) (4) Realizing you must be terribly busy with COVID, would you consider directing us to someone who performed the (b) (4) so we could discuss any learnings? Please feel free to contact me for any questions or concerns, and look forward to connecting with you or your staff. Take care, and appreciate your understanding.

Regards (b) (4)

(b) (4)



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From: Graham, Barney (NIH/VRC) [E]
Sent: Mon, 16 Mar 2020 22:18:48 +0000
To: Corbett, Kizzmekia (NIH/VRC) [E]
Subject: RE: [REDACTED] (b) (6)... FW: CoV cross-training

Hi Kizzy,

(b) (5), (b) (6)

(b) (5) Sorry to catch you off guard.

Barney

From: Corbett, Kizzmekia (NIH/VRC) [E] [REDACTED] (b) (6)
Sent: Monday, March 16, 2020 5:56 PM
To: Graham, Barney (NIH/VRC) [E] [REDACTED] (b) (6)>
Subject: [REDACTED] (b) (6)... FW: CoV cross-training

(b) (5), (b) (6)

--
Kizzmekia S. Corbett, PhD

Senior Research Fellow | Scientific Lead

Coronavirus Vaccines & Immunopathogenesis (coVip) Team

Viral Pathogenesis Laboratory | Vaccine Research Center

National Institutes of Allergy and Infectious Diseases

National Institutes of Health

Building 40 Room 2608

40 Convent Drive

Bethesda MD 20892

Laboratory: (b) (6)

Personal: (b) (6)

Fax: (301) 480-2771

From: "Sullivan, Nancy (NIH/VRC) [E]" (b) (6)

Date: Monday, March 16, 2020 at 5:28 PM

To: "Alvarado, Gabriela (NIH/VRC) [C]" <(b) (6)>, "Mascola, John (NIH/VRC) [E]" (b) (6)>

Cc: Barney Graham (b) (6)>, Kaitlyn Morabito (b) (6)>, "Bok, Karin (NIH/VRC) [E]" (b) (6), Kizzmekia Corbett (b) (6)>, "Miller, Caitlyn (NIH/VRC) [C]" (b) (6)>, "Read, Michael (NIH/VRC) [E]" (b) (6)>, "Ploquin, Aurelie (NIH/VRC) [E]" (b) (6)>, "Tucker, Courtney (NIH/VRC) [C]" <(b) (6)>

Subject: RE: CoV cross-training

Gaby,

Tamar Murray and Caitlyn Miller are experienced in ELISA assays. Also Mike Read but he will be unavailable until March 24 (he can join planning meeting remotely). Aurelie Ploquin and Courtney Tucker may be able to assist with neuts.

Nancy

From: Alvarado, Gabriela (NIH/VRC) [C] (b) (6)

Sent: Monday, March 16, 2020 5:25 PM

To: Sullivan, Nancy (NIH/VRC) [E] <(b) (6)>; Mascola, John (NIH/VRC) [E] (b) (6)>

Cc: Graham, Barney (NIH/VRC) [E] (b) (6); Morabito, Kaitlyn (NIH/VRC) [E] (b) (6); Bok, Karin (NIH/VRC) [E] (b) (6)>; Corbett, Kizzmekia (NIH/VRC) [E] (b) (6)>

Subject: CoV cross-training

Hello Dr. Sullivan and Dr. Mascola,

Dr. Graham mentioned there are people within your groups who have experience with serology assays, specifically pseudovirus assays and ELISAs, who might be willing to cross-train with the CoV team and fill in if needed on the CoV response. We'd like to organize a meeting before the end of the week where we can discuss this. Who from your groups would you like me to invite?

Best regards,
Gaby

--

Gabriela S. Alvarado, Ph.D.
Scientific Program Manager, Vaccine Development for Influenza Viruses
Viral Pathogenesis Laboratory, Vaccine Research Center
National Institute of Allergy and Infectious Diseases, NIH
Bldg. 40, Rm. 2508
40 Convent Drive
Bethesda, MD 20892

(b) (6)

From: Graham, Barney (NIH/VRC) [E]
Sent: Sat, 25 Apr 2020 21:03:04 +0000
To: Andrew Pollard
Subject: RE: Proposed manuscript: BC/CEPI Consensus meeting on the assessment of the risk of disease enhancement with COVID-19 vaccines

Hi Andy,

Things are going smoothly so far.

(b) (4)

(b) (4)

Take care,

Barney

-----Original Message-----

From: Andrew Pollard (b) (6)>

Sent: Saturday, April 25, 2020 4:54 PM

To: Graham, Barney (NIH/VRC) [E] <(b) (6)>

Subject: RE: Proposed manuscript: BC/CEPI Consensus meeting on the assessment of the risk of disease enhancement with COVID-19 vaccines

Barney,

Are you having problems moving things along with the FDA? We heard that they were being ultra conservative.

(b) (4)

Andy

Andrew J Pollard FRCPCH PhD FMedSci

Professor of Paediatric Infection and Immunity, Director of Graduate Studies, Department of Paediatrics, Vice Master, St Cross College University of Oxford Room 02-46-07 Level 2, Children's Hospital Oxford OX3 9DU United Kingdom

Tel + (b) (6)

www.ovg.ox.ac.uk

pneumonepal.ovg.ox.ac.uk

vk.ovg.ox.ac.uk

@ajpollard1

-----Original Message-----

From: Graham, Barney (NIH/VRC) [E] (b) (6)

Sent: 25 April 2020 21:50

To: Arnaud Didierlaurent (b) (6); Subbarao, Kanta

(b) (6); Robert Chen (b) (6) Chuan Qin

(b) (6); Perlman, Stanley (b) (6); Baric, Ralph

(b) (6); Paul Henri Lambert (b) (6); Steve Black (b) (6);

Corry Dekker <(b) (6)>; Andrew Pollard (b) (6)

Cc: Imanol Urcola Lecuona (b) (6); Angel Honrado (b) (6); Jakob

Cramer (b) (6); Svein Rune Andersen (b) (6); Donna Ambrosino

(b) (6)

Subject: RE: Proposed manuscript: BC/CEPI Consensus meeting on the assessment of the risk of disease enhancement with COVID-19 vaccines

Hi Corry,

I've attached my edits and comments on the document. Two of the paragraphs and 2 figures will need to be removed because this is unpublished data that is being prepared as an original manuscript.

(b) (4)

Barney

-----Original Message-----

From: Arnaud Didierlaurent <(b) (6)>

Sent: Thursday, April 23, 2020 1:31 PM

To: Subbarao, Kanta (b) (6); Robert Chen <(b) (6)> Chuan Qin

(b) (6); Perlman, Stanley (b) (6); Baric, Ralph

(b) (6); Graham, Barney (NIH/VRC) [E] <(b) (6)>; Paul Henri Lambert

(b) (6); Steve Black (b) (6); Corry Dekker <(b) (6)>; Andrew

Pollard (b) (6)

Cc: Imanol Urcola Lecuona (b) (6); Angel Honrado (b) (6); Jakob

Cramer (b) (6); Svein Rune Andersen (b) (6); Donna Ambrosino

(b) (6)

Subject: RE: Proposed manuscript: BC/CEPI Consensus meeting on the assessment of the risk of disease enhancement with COVID-19 vaccines

Dear colleagues,

Thanks Donna and her team for the manuscript. Attached are my comments/suggestions on the version sent earlier by Kanta.

Regards,

Arnaud

Arnaud Didierlaurent, PhD

Assistant Professor, Center of Vaccinology Department of Pathology and Immunology Faculty of Medicine,

University of Geneva Centre Medical Universitaire,

1 Michel-Servet, 1211 Geneva 4, Switzerland

Tel: (b) (6)

(b) (6)

-----Original Message-----

From: Subbarao, Kanta (b) (6)
Sent: Wednesday, 22 April 2020 15:39
To: Robert Chen (b) (6)>; Chuan Qin (b) (6)>; Perlman, Stanley <(b) (6)>
(b) (6); Ralph Baric (b) (6)>; Barney Graham (b) (6)>; Arnaud
Didierlaurent (b) (6)>; Paul Henri Lambert (b) (6)>; Steve Black
(b) (6)>; Corry Dekker (b) (6); Andrew Pollard
(b) (6)
Cc: Imanol Urcola Lecuona (b) (6)>; Ángel Honrado (b) (6); Jakob
Cramer (b) (6)>; Svein Rune Andersen (b) (6)>; Donna Ambrosino
(b) (6)
Subject: Re: Proposed manucript: BC/CEPI Consensus meeting on the assessment of the risk of disease
enhancement with COVID-19 vaccines

With the attachment.

From: "Subbarao, Kanta" (b) (6)
Date: Wednesday, 22 April 2020 at 11:37 pm
To: Robert Chen (b) (6)>; Chuan Qin (b) (6)>; "Perlman, Stanley" (b) (6)
(b) (6); , Ralph Baric (b) (6)>; Barney Graham <(b) (6)>; "Arnaud
.Didierlaurent" (b) (6); Paul Henri Lambert (b) (6)>; Steve Black
(b) (6); Corry Dekker (b) (6); Andrew Pollard
(b) (6)>
Cc: Imanol Urcola Lecuona (b) (6)>; Ángel Honrado (b) (6)>; Jakob
Cramer (b) (6); Svein Rune Andersen (b) (6)>; Donna Ambrosino
(b) (6)
Subject: Re: Proposed manucript: BC/CEPI Consensus meeting on the assessment of the risk of disease
enhancement with COVID-19 vaccines

Dear Donna and Bob-

Thanks for summarizing so much information! My comments and suggestions are tracked.

I have one minor and one major concern:

Minor: (b) (4)
(b) (4)

Major: I note that (b) (4)
(b) (4)

(b) (4)

Best wishes,
Kanta

From: Robert Chen (b) (6)>
Date: Friday, 17 April 2020 at 6:03 am
To: Chuan Qin (b) (6), "Subbarao, Kanta" (b) (6)>, "Perlman, Stanley" (b) (6)>, Ralph Baric (b) (6)>, Barney Graham (b) (6), "Arnaud .Didierlaurent" (b) (6)>, Paul Henri Lambert (b) (6), Steve Black (b) (6), Corry Dekker (b) (6)>, Andrew Pollard (b) (6)>
Cc: Imanol Urcola Lecuona (b) (6)>, Ángel Honrado (b) (6)>, Jakob Cramer (b) (6), Svein Rune Andersen (b) (6)>, Donna Ambrosino (b) (6)
Subject: Re: Proposed manuscript: BC/CEPI Consensus meeting on the assessment of the risk of disease enhancement with COVID-19 vaccines

Dear colleagues,

Thanks to Donna Ambrosino and her writing team, here is the draft manuscript (attached and link: (b) (6), (b) (4)). Note the final consensus statement is unchanged from the meeting as the wording is already approved by WHO, CEPI, FDA and EMA and we don't wish to tinker with it now. Please provide your edits on the rest of the manuscript (directly on the link preferred, though email attachment also accepted) by NLT Monday Apr. 27 @5PM EDT (New York).

We'll work on the title page, key words, etc. in the meantime.

Best regards,

Robert (Bob) Chen MD MA
Scientific Director, Brighton Collaboration
Land: (b) (6) Cell: (b) (6)
email: (b) (6)
(b) (6)

On Mon, Apr 6, 2020 at 11:07 PM Robert Chen (b) (6) wrote:
Dear Colleagues,

Thanks again for all your help in making the Mar. 11-12 CEPI/BC Consensus meeting on the assessment of the risk of disease enhancement with COVID-19 vaccines a success. Given how busy all of you are, to expedite converting our meeting products into a report for the journal Vaccine (example attached), I've recruited Dr. Donna Ambrosino, a longstanding student of this issue (CV attached). If you agree, she and her writing team have completed review the video and other meeting products and target to produce a first draft based on the attached outline in ~7 days for your review. Once you return your comments, we hope to arrive at a revised version during the following 7 days. Please reply only if you prefer NOT to be a coauthor. Otherwise you'll receive the draft manuscript for your review in ~7 days.

Best regards,

Robert (Bob) Chen MD MA
Scientific Director, Brighton Collaboration
Land: (b) (6) Cell: (b) (6)
email: (b) (6)

WARNING: This message originated from outside the Northern/Melbourne/Western Health e-mail network. The sender cannot be validated. Caution is advised. Contact IT Services for more information.

From: Graham, Barney (NIH/VRC) [E]
Sent: Tue, 25 Feb 2020 15:48:28 +0000
To: Morabito, Kaitlyn (NIH/VRC) [E]
Subject: UNTITLED.pptx
Attachments: UNTITLED.pptx

Here is the partially edited slide

BG

From: Graham, Barney (NIH/VRC) [E]
Sent: Sun, 15 Mar 2020 18:55:58 +0000
To: Corey MD, Larry
Subject: Re: remdisovir

I think [REDACTED] (b) (5) [REDACTED] (b) (6), (b) (5)
[REDACTED] (b) (5)

[REDACTED] (b) (5)

BG

Sent from my iPhone

On Mar 15, 2020, at 2:41 PM, Corey MD, Larry [REDACTED] (b) (6) wrote:

What do you think [REDACTED] (b) (5)
[REDACTED]

From: Graham, Barney (NIH/VRC) [E]
Sent: Thu, 19 Mar 2020 01:35:24 +0000
To: Grady, Denise
Cc: Corbett, Kizzmekia (NIH/VRC) [E]
Subject: Re: phone interview

Thanks.

BG

Sent from my iPhone

On Mar 18, 2020, at 9:17 PM, Grady, Denise <grady@nytimes.com> wrote:

Here it is.

<https://www.nytimes.com/2020/03/16/health/coronavirus-vaccine.html?searchResultPosition=2>

On Wed, Mar 18, 2020 at 6:40 PM Graham, Barney (NIH/VRC) [E] (b) (6) wrote:

Ok. Thank you. I haven't read this yet, but I've heard it was well done and balanced. I've copied Dr. Corbett here so you can find her in the future.

Best wishes,

Barney

From: Grady, Denise <grady@nytimes.com>
Sent: Wednesday, March 18, 2020 4:02 PM
To: Graham, Barney (NIH/VRC) [E] (b) (6)>
Subject: Re: phone interview

Dr. Graham,

A belated thank-you for speaking with me the other night about the vaccine trial.

It was a great help. I apologize for not getting Dr. Corbett into the article, but I'd like to speak with her and you in the future about the Moderna trial and other coronavirus vaccines.

Again, thank you.

Denise Grady

NY Times

917 930 6593

On Mon, Mar 16, 2020 at 5:36 PM Graham, Barney (NIH/VRC) [E] (b) (6) wrote:

I am available to talk any time this evening. My number is (b) (6)

Barney

Barney S. Graham, MD, PhD

Senior Investigator

Deputy Director, Vaccine Research Center

Chief, Viral Pathogenesis Laboratory

National Institute of Allergy and Infectious Diseases, NIH

40 Convent Drive, MSC 3017

Bldg 40, Room 2502

Bethesda, MD 20892-3017

Phone: (b) (6)

URL: <https://www.niaid.nih.gov/research/barney-graham-md-phd>

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--

Denise Grady

Science Department

~~The New York Times~~

grady@nytimes.com

Twitter: @nytDeniseGrady

212-556-7447

Articles: <https://www.nytimes.com/search?query=Denise+Grady>

--

Denise Grady

Science Department

~~The New York Times~~

grady@nytimes.com

Twitter: @nytDeniseGrady

212-556-7447

Articles: <https://www.nytimes.com/search?query=Denise+Grady>

From: Graham, Barney (NIH/VRC) [E]
Sent: Sun, 5 Apr 2020 20:45:22 +0000
To: Jay Johnson
Subject: Re: Meeting on Saturday April 4, 9:00AM

Sounds good.

BG

Sent from my iPhone

On Apr 5, 2020, at 1:16 PM, Jay Johnson <(b) (6)> wrote:

Hey Barney,

Is it ok if I leave it in the (b) (6)

Thanks,

Jay

From: Graham, Barney (NIH/VRC) [E] (b) (6)>
Sent: Sunday, April 5, 2020 1:01 PM
To: Jay Johnson (b) (6)
Subject: Re: Meeting on Saturday April 4, 9:00AM

Hi Jay,

You can have the Men's Retreat (b) (6).

Thanks,

Barney

Sent from my iPhone

On Mar 31, 2020, at 8:05 PM, Jay Johnson (b) (6) wrote:

Great! I think this should be focused on COVID-19.

Get [Outlook for iOS](#)

From: Graham, Barney (NIH/VRC) [E] (b) (6)>
Sent: Tuesday, March 31, 2020 7:57:05 PM
To: Jay Johnson (b) (6)
Subject: Meeting on Saturday April 4, 9:00AM

Hi Jay,

Here is the invitation.

We should probably talk a little about what you want. Initially you said more about heart disease, but I've also heard you want to hear about COVID-19.

(b) (6) is inviting you to a scheduled Zoom meeting.

Topic: My Meeting
Time: Apr 4, 2020 09:00 AM Eastern Time (US and Canada)

Join Zoom Meeting

(b) (6)

Meeting ID: (b) (6)

One tap mobile

(b) (6) # US (New York)

(b) (6) # US (Chicago)

Dial by your location

(b) (6) (New York)

(Chicago)

(San Jose)

(Houston)

Meeting ID: (b) (6)

Find your local number: <https://unige.zoom.us/j/abJM9JJMnf>

Join by SIP

(b) (6)

Join by H.323

(b) (6) US West)

US East)

(China)

India Mumbai)

(b) (6)
India Hyderabad)
EMEA)
Australia)
ong Kong)
Brazil)
anada)
(Japan)
Meeting ID: (b) (6)

Barney S. Graham, MD, PhD
Senior Investigator
Deputy Director, Vaccine Research Center
Chief, Viral Pathogenesis Laboratory
National Institute of Allergy and Infectious Diseases, NIH
40 Convent Drive, MSC 3017
Bldg 40, Room 2502
Bethesda, MD 20892-3017
Phone: (b) (6)

URL: <https://www.niaid.nih.gov/research/barney-graham-md-phd>

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From: Graham, Barney (NIH/VRC) [E]
Sent: Tue, 24 Mar 2020 20:05:57 +0000
To: Malloy, Allison; Corbett, Kizzmekia (NIH/VRC) [E]
Subject: RE: hACE2 mice

There is probably a long line waiting for these. Ralph Baric is sending to Jackson.

BG

From: Malloy, Allison (b) (6)
Sent: Tuesday, March 24, 2020 3:59 PM
To: Graham, Barney (NIH/VRC) [E] <(b) (6)>; Corbett, Kizzmekia (NIH/VRC) [E]
(b) (6)>
Subject: hACE2 mice

Hi Barney and Kizzmekia,

We are collaborating with a team at (b) (4)
(b) (4)

Hope you all are doing well. (I enjoy seeing you in the news)

Allison

--

Allison M.W. Malloy, MD, MSc
Assistant Professor
Department of Pediatrics
Infectious Disease Faculty
F. Edward Hebert School of Medicine - "America's Medical School"
Uniformed Services University of the Health Sciences (USU)
4301 Jones Bridge Road
Rm A3028
Bethesda, Maryland 20814

(b) (6)

(b) (6)

From: Graham, Barney (NIH/VRC) [E]
Sent: Sat, 1 Feb 2020 12:18:59 +0000
To: Ofer Levy
Subject: Re: Seeking collaboration re development of an adjuvanted coronavirus vaccine
Attachments: Screen Shot 2016-02-03 at 1.39.14 PM[3][194].png

Hi Ofer,

Sorry for delay. I have not been able to keep up. Our primary agenda is to get the (b) (4)
(b) (4)

Barney

Sent from my iPhone

On Jan 29, 2020, at 11:20 PM, Levy, Ofer <(b) (6)> wrote:

Hi Barney,

Hope all is well.

Given our *Program*'s strength in (b) (4)
(b) (4)

In this context, do you have any suggestions?

Thanks for all and hope to speak soon,

Ofer

--

Ofer Levy MD, PhD

Staff Physician & Principal Investigator

Director, *Precision Vaccines Program*

Division of Infectious Diseases

Boston Children's Hospital

Professor, Harvard Medical School

Associate Member, Broad Institute

Office: (b) (6)

Cell: (b) (6)

E-mail: (b) (6)

Twitter: @PrecVaccines, @EPICVaccines
facebook.com/PrecisionVaccines
linkedin.com/company/PrecisionVaccines
<Screen Shot 2016-02-03 at 1.39.14 PM[3][194].png>



From: Graham, Barney (NIH/VRC) [E]
Sent: Sat, 14 Mar 2020 11:05:45 +0000
To: (b) (6)
Subject: RE: Recent meeting

Hi Jerry,

Thanks for your note. (b) (6)

I suppose you know we are in the midst of this coronavirus vaccine development effort. Thanks for your encouragement.

Best wishes,

Barney

From: (b) (6)
Sent: Friday, March 13, 2020 11:59 PM
To: Graham, Barney (NIH/VRC) [E] (b) (6)>
Subject: Recent meeting

Dear Barney,

Last month I attended a dinner at Lipscomb University in honor of Atty. Fred Gray, for whom the Lipscomb Fred D. Gray Institute of Law, Justice and Society was named. (b) (6)
(b) (6)

Mrs. Edwards has helped to develop a gender structure in which six women, including a majority of current delegates, have served on the TN Supreme Court. I look forward to learning more about this remarkable family.

I continue to be grateful to have known you, and to have followed your career, at least to some extent, in virology. I learned much about HIV history from your work in Nashville, and my work with the Tuskegee History Center has enhanced my knowledge and emotional involvement.

I know your profession, and you, are working at the heart of the current COV-19 crisis. Our prayers are with you in that work.

Jerry

Jerry C. Collins, Ph.D.
Fellow, BMES; Diversity Committee
Fellow, AIMBE; CURM Committee; STEM Award, 2017
Member, Living History of Physiology Project, APS

Board of Directors, Alpha Eta Mu Beta
Secretary, Board of Directors, Tuskegee History Center
Board of Directors, Ukrainian Education Center
Adjunct Faculty, Alabama A & M University
Principal, Protean Venture, LLC

(b) (6)



From: Graham, Barney (NIH/VRC) [E]
Sent: Thu, 2 Apr 2020 17:19:25 +0000
To: Tesfaya, Selamawit (OS/ASPR/BARDA) (CTR)
Subject: Accepted: COVID-19 Advanced Development Planning Meeting

From: Graham, Barney (NIH/VRC) [E]
Sent: Thu, 16 Apr 2020 19:46:31 +0000
To: Joel Blankson;science_editor@the-jci.org;'staff@the-jci.org'
Cc: Corbett, Kizzmekia (NIH/VRC) [E]
Subject: RE: invited JCI viewpoint

Thanks Joel.

BG

From: Joel Blankson (b) (6)
Sent: Thursday, April 16, 2020 3:45 PM
To: Graham, Barney (NIH/VRC) [E] (b) (6); science_editor@the-jci.org; 'staff@the-jci.org' <staff@the-jci.org>
Cc: Corbett, Kizzmekia (NIH/VRC) [E] (b) (6)
Subject: RE: invited JCI viewpoint

Thanks barney!

Lisa is on leave, but I will make sure the appropriate editor gets this.

Best,

Joel

From: Graham, Barney (NIH/VRC) [E] (b) (6)
Sent: Thursday, April 16, 2020 3:41 PM
To: science_editor@the-jci.org
Cc: Joel Blankson (b) (6)>; Corbett, Kizzmekia (NIH/VRC) [E] (b) (6)>
Subject: invited JCI viewpoint

Dear Lisa,

Please find a brief commentary attached reviewing some of our thoughts on COVID-19 and pandemic preparedness.

Thank you for the opportunity to publish in the Journal of Clinical Investigation. Please let me know if you need any additional information. If there are going to be any publication charges I would need to know prior to acceptance.

Best wishes and take care,

Barney

Barney S. Graham, MD, PhD
Senior Investigator
Deputy Director, Vaccine Research Center
Chief, Viral Pathogenesis Laboratory
National Institute of Allergy and Infectious Diseases, NIH
40 Convent Drive, MSC 3017
Bldg 40, Room 2502
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Phone: (b) (6)
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From: Graham, Barney (NIH/VRC) [E]
Sent: Wed, 11 Mar 2020 22:41:21 +0000
To: Neil King; Corbett, Kizzmekia (NIH/VRC) [E]; Hutchinson, Geoffrey (NIH/VRC) [F]
Subject: RE: share data with BMGF?

Hi Neil,

Do you have time to talk?

BG

From: Neil King <(b) (6)>
Sent: Wednesday, March 11, 2020 2:46 PM
To: Corbett, Kizzmekia (NIH/VRC) [E] (b) (6)>; Graham, Barney (NIH/VRC) [E] (b) (6); Hutchinson, Geoffrey (NIH/VRC) [F] (b) (6)>
Subject: share data with BMGF?

Hi Barney, Kizzmekia, and Geoff,

Thanks Kizzy and Geoff for getting on the phone this morning; it was very helpful to get an update and get your thoughts on sharing data on the (b) (4). If it is still alright with you, it would be great if you could send a slide deck summarizing the data on the "historical" (b) (4). Ideally, it would be a fairly comprehensive review of available data and include information on (b) (4).

Thanks so much,
and please let me know if you have any questions,
Neil

From: Graham, Barney (NIH/VRC) [E]
Sent: Wed, 12 Feb 2020 08:01:39 +0000
To: Stein, Judy (NIH/VRC) [C]; (b) (4)
Cc: Mascola, John (NIH/VRC) [E]; Gall, Jason (NIH/VRC) [(b) (4)]
Subject: RE: Wuhan coronavirus vaccine

Thanks Judy. I am in Geneva and won't be back in the office until Friday. If acknowledging is enough, please proceed with shipment.

Barney

From: Stein, Judy (NIH/VRC) [C] (b) (6)
Sent: Tuesday, February 11, 2020 3:03 PM
To: (b) (4), (b) (6)
(b) (4), (b) (6) Graham, Barney (NIH/VRC) [E] (b) (6);
(b) (4), (b) (6)
Cc: Mascola, John (NIH/VRC) [E] (b) (6); Gall, Jason (NIH/VRC) [C]
(b) (6); (b) (4), (b) (6)
Subject: RE: Wuhan coronavirus vaccine

Hi everyone,
The CDA is legally signed and is pending Dr. Graham's acknowledgement signature.
Thanks,
Judy

From: (b) (4), (b) (6) >
Sent: Tuesday, February 11, 2020 2:26 PM
To: (b) (4), (b) (6) Graham, Barney (NIH/VRC) [E]
<(b) (6)>; (b) (4), (b) (6) Stein, Judy (NIH/VRC) [C]
(b) (6)
Cc: Mascola, John (NIH/VRC) [E] (b) (6)>; Gall, Jason (NIH/VRC) [C]
(b) (6); (b) (4), (b) (6)
Subject: RE: Wuhan coronavirus vaccine
Importance: High

Dear all,

We await your feedback on the CDA signed by us and the technical information required to elaborate a project proposal.

Best wishes,

(b) (4)

(b) (4)

(b) (4)

Dear Barney,

Thank you very much for the insight on Wuhan coronavirus vaccine.

Dear (b) (4)

Thanks for extending your support.

Dear Both,

I would like to

(b) (4)

(b) (4)

Dear (b) (4)

Kindly evaluate the same and submit us a proposal for development of the same, including cost & timelines.

Regards,

(b) (4), (b) (6)

From: Graham, Barney (NIH/VRC) [E]
Sent: Tue, 7 Apr 2020 13:56:17 +0000
To: Corbett, Kizzmekia (NIH/VRC) [E]
Subject: RE: VRC- (b) Discussion on CoV-2 and Universal CoV Vaccine Candidates -
CONFIRMATION

They want to talk about using their (b) (4).

BG

From: Corbett, Kizzmekia (NIH/VRC) [E] (b) (6)
Sent: Tuesday, April 7, 2020 9:37 AM
To: Graham, Barney (NIH/VRC) [E] (b) (6)
Subject: FW: VRC (b) (4) Discussion on CoV-2 and Universal CoV Vaccine Candidates -
CONFIRMATION

Can you tell me what you want from me for this, if anything?

--

Kizzmekia S. Corbett, PhD
Senior Research Fellow | Scientific Lead
Coronavirus Vaccines & Immunopathogenesis (coVip) Team
Viral Pathogenesis Laboratory | Vaccine Research Center
National Institutes of Allergy and Infectious Diseases
National Institutes of Health

Building 40 Room 2608
40 Convent Drive
Bethesda MD 20892
Laboratory: (b) (6)
Personal: (b) (6)
Fax: (301) 480-2771

From: Monique Young (b) (6)>
Date: Tuesday, April 7, 2020 at 9:17 AM
To: "Koup, Richard (NIH/VRC) [E]" (b) (6)>, "Ledgerwood, Julie (NIH/NIAID) [E]" (b) (6)>, "Gall, Jason (NIH/VRC) [C]" (b) (6)>, Kevin Carlton (b) (6)>, Kaitlyn Morabito (b) (6)>, Kizzmekia Corbett (b) (6)>, "Ruckwardt, Tracy (NIH/VRC) [E]" (b) (6)>, "Alvarado, Gabriela (NIH/VRC) [C]" (b) (6)>, "Bok, Karin (NIH/VRC) [E]" (b) (6)>, (b) (4), (b) (6)

(b) (6), (b) (4)

Cc: "Thompson, Danielle (NIH/NIAID) [E]" <(b) (6)>, "Taylor, Stephanie (NIH/NIAID) [E]" <(b) (6)>, "Grier, Shardae (NIH/VRC) [E]" <(b) (6)>, "Chapman, Latanya (NIH/VRC) [C]" <(b) (6)>, "(b) (6), (b) (4) "Suhana, Tina (NIH/VRC) [E]" <(b) (6)>, "Austin, Sarah (NIH/NIAID) [E]" <(b) (6)>

Subject: RE: VRC (b) (4) Discussion on CoV-2 and Universal CoV Vaccine Candidates - **CONFIRMATION**

Good Morning –

The VRC (b) (4) Discussion on CoV-2 and Universal CoV Vaccine Candidates is **confirmed** Fri Apr 10th at 3:30 pm. A calendar placeholder with the updated participants list to follow shortly.

Thanks...Monique

From: Young, Monique (NIH/VRC) [E]

Sent: Friday, April 3, 2020 1:01 PM

To: Koup, Richard (NIH/VRC) [E] <(b) (6)>; Ledgerwood, Julie (NIH/NIAID) [E] <(b) (6)>; Gall, Jason (NIH/VRC) [C] <(b) (6)>; Carlton, Kevin (NIH/VRC) [E] <(b) (6)>; Morabito, Kaitlyn (NIH/VRC) [E] <(b) (6)>; Corbett, Kizzmekia (NIH/VRC) [E] <(b) (6)>; Ruckwardt, Tracy (NIH/VRC) [E] <(b) (6)>; Alvarado, Gabriela (NIH/VRC) [C] <(b) (6)>; Bok, Karin (NIH/VRC) [E] <(b) (6)>; (b) (6), (b) (4)

Cc: Thompson, Danielle (NIH/NIAID) [E] <(b) (6)>; Taylor, Stephanie (NIH/NIAID) [E] <(b) (6)>; Grier, Shardae (NIH/VRC) [E] <(b) (6)>; Chapman, Latanya (NIH/VRC) [C] <(b) (6), (b) (4) Suhana, Tina (NIH/VRC) [E] <(b) (6)>; <esuhana@mail.nih.gov>; Austin, Sarah (NIH/NIAID) [E] <(b) (6)>

Subject: VRC (b) (4) Discussion on CoV-2 and Universal CoV Vaccine Candidates - **POLL FOR AVAILABILITY**

Good Afternoon -

Please use the link below to provide your availability to attend the VRC (b) (4) Discussion on CoV-2 and Universal CoV Vaccine Candidates. Final confirmation to follow.

(b) (6)

Title of Meeting: VRC (b) (4) Discussion on CoV-2 and Universal CoV Vaccine Candidates

Principal Meeting Organizer: Barney Graham

Goal of Meeting: To share respective Coronavirus portfolio and find common areas of interest for future collaboration on universal vaccine candidates.

Date: TBD

Time: TBD

Allotted Time: 1 Hour

Location: Virtual (Zoom Meeting)

VRC Participants: John Mascola, Barney Graham, Rick Koup, Julie Ledgerwood, Jason Gall, Kevin Carlton, Kaitlyn Morabito, Kizzmekia Corbett, Tracy Ruckwardt, Gabriela Alvarado, and Karin Bok

(b) (4)

Agenda: Forthcoming

Thanks...Monique

(b) (6)

Topic: Zoom Meeting (M)

Join Zoom Meeting

(b) (6)

Meeting ID: (b) (6)

One tap mobile

(b) (6) US (New York)

US (Chicago)

Dial by your location

(b) (6) US (New York)

US (Chicago)

US (San Jose)

US

US

US (Houston)

Meeting ID: (b) (6)

Find your local number: <https://zoom.us/j/aleA6QSPN>

Join by SIP

(b) (6)

Join by H.323

(b) (6) JS West)

JS East)

(China)

ndia Mumbai)

ndia Hyderabad)

(EMEA)

(Australia)

(b) (6)
ong Kong)
Brazil)
anada)
(Japan)

Meeting ID: (b) (6)

From: Graham, Barney (NIH/VRC) [E]
Sent: Wed, 4 Mar 2020 22:59:03 +0000
To: Imanol Urcola Lecuona
Subject: Accepted: *SAVE THE DATE* CEPI-BC meeting on preventing disease enhancement with COVID-19 vaccines

From: Graham, Barney (NIH/VRC) [E]
Sent: Sat, 28 Mar 2020 21:25:02 +0000
To: Boritz, Eli (NIH/NIAID) [E]; Douek, Daniel (NIH/VRC) [E]
Cc: Mascola, John (NIH/VRC) [E]; Koup, Richard (NIH/VRC) [E]
Subject: RE: Immune Cell Profiling of COVID-19 Patients in the Recovery Stage by Single-Cell Sequencing | medRxiv

That would be helpful. (b) (5)
(b) (5)

Barney

From: Boritz, Eli (NIH/NIAID) [E] (b) (6) >
Sent: Saturday, March 28, 2020 5:15 PM
To: Douek, Daniel (NIH/VRC) [E] <(b) (6)>; Graham, Barney (NIH/VRC) [E]
(b) (6) >
Cc: Mascola, John (NIH/VRC) [E] (b) (6) >; Koup, Richard (NIH/VRC) [E]
(b) (6) >
Subject: Re: Immune Cell Profiling of COVID-19 Patients in the Recovery Stage by Single-Cell Sequencing | medRxiv

Very exciting to consider this issue. (b) (5)

Eli

On 3/28/20, 5:05 PM, "Douek, Daniel (NIH/VRC) [E]" (b) (6) > wrote:

Ah, I see.
Well, we could certainly sort (b) (5)
Whaddya think, Eli?

d

On 3/29/20, 12:02 AM, "Graham, Barney (NIH/VRC) [E]" (b) (6) wrote:

(b) (5)

Barney

Sent from my iPhone

> On Mar 28, 2020, at 4:46 PM, Douek, Daniel (NIH/VRC) [E] < (b) (6) > wrote:

>

(b) (5)

>

> d

>

> On 3/28/20, 10:36 PM, "Graham, Barney (NIH/VRC) [E]" (b) (6) wrote:

>

> I think about

(b) (5)

(b) (5)

>

> BG

>

>

>

> -----Original Message-----

> From: Boritz, Eli (NIH/NIAID) [E] (b) (6)
> Sent: Saturday, March 28, 2020 1:02 PM
> To: Douek, Daniel (NIH/VRC) [E] (b) (6); Mascola, John (NIH/VRC) [E] (b) (6)>
> Cc: Koup, Richard (NIH/VRC) [E] <(b) (6)>; Graham, Barney (NIH/VRC) [E] <(b) (6)>
> Subject: Re: Immune Cell Profiling of COVID-19 Patients in the Recovery Stage by Single-Cell Sequencing | medRxiv
>
> Thank you, John - seems like one from VRC may be enough, but I'd gladly join too if there is room for a second.
> Eli
>
> On 3/28/20, 12:52 PM, "Douek, Daniel (NIH/VRC) [E]" <(b) (6)> wrote:
>
> I can certainly be part of it. It might be useful. Either way, we should press on with our plans irrespective. (b) (5)
(b) (5)
> d
>
> On 3/28/20, 7:48 PM, "Mascola, John (NIH/VRC) [E]" (b) (6) wrote:
>
> Danny, Eli,
>
> Not sure what this interest group will do, but if you are interested to be part of it - let me know.
>
> -----Original Message-----
> From: Streicher, Howard (NIH/NCI) [E] (b) (6)>
> Sent: Saturday, March 28, 2020 12:12 PM
> To: Mascola, John (NIH/VRC) [E] <(b) (6)>
> Cc: Berkower, Ira (FDA/CBER) (b) (6)>
> Subject: FW: Immune Cell Profiling of COVID-19 Patients in the Recovery Stage by Single-Cell Sequencing | medRxiv
>
> Michael Gottesman is setting up an interest group -- you might consider a representative from VRC to be part of the leadership Attaching a recent pub on single cell profiling (b) (5), (b) (4)
(b) (5), (b) (4)

Thanks Howard
>
> -----Original Message-----
> From: Sharon, Elad (NIH/NCI) [E] (b) (6)
> Sent: Friday, March 27, 2020 11:21 PM
> To: Ethan Bier (b) (6); Smelkinson, Margery (NIH/NIAID) [E] (b) (6); Streicher, Howard (NIH/NCI) [E] (b) (6); Chen,

Helen (NIH/NCI) [E] <(b) (6)>; Chen, Alice (NIH/NCI) [E] (b) (6); Takebe, Naoko (NIH/NCI) [E] <(b) (6)>; Moscow, Jeffrey (NIH/NCI) [E] (b) (6)>

> Subject: Immune Cell Profiling of COVID-19 Patients in the Recovery Stage by Single-Cell Sequencing | medRxiv

>

>

> <https://www.medrxiv.org/content/10.1101/2020.03.23.20039362v1>

>

>

> Sent from my iPhone

>

>

>

>

>

>

From: Graham, Barney (NIH/VRC) [E]
Sent: Thu, 23 Apr 2020 22:17:56 +0000
To: Ruckwardt, Tracy (NIH/VRC) [E]; Corbett, Kizzmekia (NIH/VRC) [E]
Cc: Morabito, Kaitlyn (NIH/VRC) [E]
Subject: RE: (b) mabs

The only problem with the (b) (5), (b) (4)
(b) (5), (b) (4)

BG

From: Ruckwardt, Tracy (NIH/VRC) [E] (b) (6) >
Sent: Thursday, April 23, 2020 9:43 AM
To: Corbett, Kizzmekia (NIH/VRC) [E] (b) (6) >; Graham, Barney (NIH/VRC) [E]
(b) (6) >
Cc: Morabito, Kaitlyn (NIH/VRC) [E] (b) (6) >
Subject: Re: (b) (4) mabs

Hi Barney and Kizzy,

(b) (5), (b) (4) overview right now is the same as before because we hadn't received any new (b) (5), (b) (4)
work with. Today we should be getting a (b) (5), (b) (4)
(b) (5), (b) (4), so we'll have a better update then.

In the meantime, I've attached some slides that TZ sent me (b) (5), (b) (4)
(b) (5), (b) (4)
(b) (5), (b) (4) I'm not exactly sure which ones we will get today and
which we won't.

Note slide 5 is the (b) (5), (b) (4)
(b) (5), (b) (4)

Tracy

From: "Corbett, Kizzmekia (NIH/VRC) [E]" (b) (6) >
Date: Thursday, April 23, 2020 at 4:33 AM
To: "Graham, Barney (NIH/VRC) [E]" (b) (6) >, "Ruckwardt, Tracy (NIH/VRC)

[E]" <[REDACTED] (b) (6)>

Subject: Re: NTD mabs

It is my understanding that we do not have a viable (b) (5), (b) (4) as yet, but Tracy can give a better view of this. Tracy, maybe Olu and or Lauren can give a (b) (5) overview in the CoV lab meeting on Friday? Thoughts?

--

Kizzmekia S. Corbett, PhD

Senior Research Fellow | Scientific Lead

Coronavirus Vaccines & Immunopathogenesis (coVip) Team

Viral Pathogenesis Laboratory | Vaccine Research Center

National Institutes of Allergy and Infectious Diseases

National Institutes of Health

Building 40 Room 2608

40 Convent Drive

Bethesda MD 20892

Laboratory: [REDACTED] (b) (6)

Personal: [REDACTED] (b) (6)

Fax: (301) 480-2771

From: Barney Graham [REDACTED] (b) (6)

Date: Wednesday, April 22, 2020 at 8:56 PM

To: Kizzmekia Corbett [REDACTED] (b) (6), "Ruckwardt, Tracy (NIH/VRC) [E]"

[REDACTED] (b) (6)

Subject: Fwd: (b) (4) mabs

We have (b) (5), (b) (4), right?

BG

Sent from my iPhone

Begin forwarded message:

From: "Barton Haynes, M.D." [REDACTED] (b) (6) >

Date: April 22, 2020 at 7:31:02 PM EDT

To: "Graham, Barney (NIH/VRC) [E]" <[REDACTED] (b) (6)>, "Kwong, Peter (NIH/VRC) [E]"

[REDACTED] (b) (6) >, "Mascola, John (NIH/VRC) [E]" [REDACTED] (b) (6) >

Cc: Gregory Sempowski <[REDACTED] (b) (6)>, "Stein, Judy (NIH/VRC) [C]"

[REDACTED] (b) (6) >, "David Kordys, Ph.D." <[REDACTED] (b) (6)>

Subject: RE: (b) (4) mabs

All: So sorry forgot to add.

We have [REDACTED] (b) (4)
[REDACTED] (b) (4) thanks so much and best Bart

From: Barton Haynes, M.D.

Sent: Wednesday, April 22, 2020 7:29 PM

To: Graham, Barney (NIH/VRC) [E] [REDACTED] (b) (6)>; 'peter kwong' [REDACTED] (b) (6)>;

Mascola, John (NIH/VRC) [E] [REDACTED] (b) (6)

Cc: Gregory Sempowski [REDACTED] (b) (6)>; Judith Stein <[REDACTED] (b) (6)>; David Kordys, Ph.D. [REDACTED] (b) (6)

Subject: [REDACTED] (b) (6) mabs

Hi Barney and peter and john;

We are [REDACTED] (b) (4)
[REDACTED] (b) (4)

Many thanks and best regards.

bart

From: Graham, Barney (NIH/VRC) [E]
Sent: Mon, 9 Mar 2020 15:12:17 +0000
To: Kathleen Neuzil
Subject: FW: 20-0003 thoughts on evolving Seattle situation

FYI.

BG

From: Erbelding, Emily (NIH/NIAID) [E] (b) (6)
Sent: Sunday, March 8, 2020 8:41 PM
To: Lisa A. Jackson (b) (6)>; Roberts, Chris (NIH/NIAID) [E] (b) (6)
Beigel, John (NIH) [E] (b) (6)>; Nayak, Seema (NIH/NIAID) [E] (b) (6)
Graham, Barney (NIH/VRC) [E] (b) (6)
Cc: Buchanan, Wendy (NIH/NIAID) [E] (b) (6)>; Makhene, Mamodikoe (NIH/NIAID)
[E] (b) (6)>
Subject: RE: 20-0003 thoughts on evolving Seattle situation

Lisa,

Upon review of the (b) (4)
(b) (4)



I am happy to hear alternative opinions on this.

Thanks.
Emily

From: Lisa A. Jackson (b) (6)>
Sent: Sunday, March 8, 2020 5:17 PM
To: Erbelding, Emily (NIH/NIAID) [E] (b) (6)>; Roberts, Chris (NIH/NIAID) [E] (b) (6)>; Beigel, John (NIH) [E] (b) (6)>; Nayak, Seema (NIH/NIAID) [E] (b) (6)>; Graham, Barney (NIH/VRC) [E] (b) (6)>
Cc: Buchanan, Wendy (NIH/NIAID) [E] (b) (6)>; Makhene, Mamodikoe (NIH/NIAID) [E] (b) (6)
Subject: RE: 20-0003 thoughts on evolving Seattle situation

Emily, I think we need to determine whether there is going to be an (b) (4)
(b) (4)

Lisa

From: Erbelding, Emily (NIH/NIAID) [E] (b) (6)
Sent: Sunday, March 8, 2020 2:02 PM
To: Roberts, Chris (NIH/NIAID) [E] (b) (6)>; Beigel, John (NIH) [E] (b) (6)>; Nayak, Seema (NIH/NIAID) [E] (b) (6)>; Lisa A. Jackson (b) (6)>; Graham, Barney (NIH/VRC) [E] (b) (6)>; Lisa A. Jackson (b) (6)
Cc: Buchanan, Wendy (NIH/NIAID) [E] <(b) (6)>; Makhene, Mamodikoe (NIH/NIAID) [E] (b) (6)
Subject: RE: 20-0003 thoughts on evolving Seattle situation

Caution: This email came from outside Kaiser Permanente. Do not open attachments or click on links if you do not recognize the sender.

Lisa,
You may already be planning to do this— (b) (4)
(b) (4)

Thanks
Emily

From: Roberts, Chris (NIH/NIAID) [E] (b) (6)>
Sent: Friday, March 6, 2020 9:52 PM
To: Beigel, John (NIH) [E] (b) (6)>; Nayak, Seema (NIH/NIAID) [E] (b) (6)>; Lisa A. Jackson <(b) (6)>; Graham, Barney (NIH/VRC) [E] (b) (6)>; Erbelding, Emily (NIH/NIAID) [E] (b) (6)>; Lisa A. Jackson (b) (6)>
Cc: Buchanan, Wendy (NIH/NIAID) [E] (b) (6)>; Makhene, Mamodikoe (NIH/NIAID)

[E] (b) (6)>

Subject: Re: 20-0003 thoughts on evolving Seattle situation

See attached as a first attempt at an informational messaging document. Wordy and too much information, brain no longer functioning, but discusses some talking points that can be tweaked. I've included Barney and Emily, as she is likely to be asked questions by reporters tomorrow. Please edit/delete/add accordingly.

Chris

From: "Beigel, John (NIH) [E]" (b) (6)

Date: Friday, March 6, 2020 at 5:14 PM

To: "Roberts, Chris (NIH/NIAID) [E]" (b) (6)>, "Nayak, Seema (NIH/NIAID) [E]" <(b) (6)>, "Lisa A. Jackson" <(b) (6)>

Cc: "Buchanan, Wendy (NIH/NIAID) [E]" (b) (6)>, "Makhene, Mamodikoe (NIH/NIAID) [E]" <(b) (6)>

Subject: Re: 20-0003 thoughts on evolving Seattle situation

Chris, we have reporters now asking why we are doing the study in Seattle and what we think of (b) (4)
(b) (4)

(b) (4) We can vet that with VRC and others to make sure all agree (as there will be more enquiries on this)

--

John Beigel, M.D.

Associate Director for Clinical Research

Division of Microbiology and Infectious Diseases

National Institute of Allergy and Infectious Diseases (NIAID)

Phone: (b) (6)

email: (b) (6)

From: Chris Roberts (b) (6)>

Date: Sunday, March 1, 2020 at 3:21 PM

To: John Beigel (b) (6)>, Seema Nayak (b) (6)>, "Lisa A. Jackson" <(b) (6)>

Cc: "Buchanan, Wendy (NIH/NIAID) [E]" (b) (6)>, "Makhene, Mamodikoe (NIH/NIAID) [E]" (b) (6)>

Subject: Re: 20-0003 thoughts on evolving Seattle situation

John,

I fully agree that the (b) (4)
(b) (4)
(b) (4)
(b) (4)

Chris

From: "Beigel, John (NIH) [E]" (b) (6)
Date: Sunday, March 1, 2020 at 2:37 PM
To: "Roberts, Chris (NIH/NIAID) [E]" (b) (6)>, "Nayak, Seema (NIH/NIAID) [E]" (b) (6)>, "Lisa A. Jackson" (b) (6)
Cc: "Buchanan, Wendy (NIH/NIAID) [E]" (b) (6)>, "Makhene, Mamodikoe (NIH/NIAID) [E]" (b) (6)
Subject: Re: 20-0003 thoughts on evolving Seattle situation

I would view it slightly differently. (b) (4)

(b) (4)

John

--
John Beigel, M.D.
Associate Director for Clinical Research
Division of Microbiology and Infectious Diseases
National Institute of Allergy and Infectious Diseases (NIAID)
Phone: (b) (6)
email: (b) (6)

From: Chris Roberts <(b) (6)>
Date: Sunday, March 1, 2020 at 1:49 PM
To: John Beigel (b) (6) Seema Nayak <(b) (6)>, "Lisa A. Jackson" (b) (6)>
Cc: "Buchanan, Wendy (NIH/NIAID) [E]" (b) (6)>, "Makhene, Mamodikoe

(NIH/NIAID) [E]" (b) (6)

Subject: Re: 20-0003 thoughts on evolving Seattle situation

I agree and am also (b) (4)

(b) (4)

Chris

From: "Lisa A. Jackson" (b) (6) >

Date: Sunday, March 1, 2020 at 11:15 AM

To: "Beigel, John (NIH) [E]" (b) (6), "Roberts, Chris (NIH/NIAID) [E]" (b) (6) >, "Nayak, Seema (NIH/NIAID) [E]" (b) (6) >, "Buchanan, Wendy (NIH/NIAID) [E]" (b) (6) >

Subject: 20-0003

Just raising an issue I'm sure we all are thinking of, (b) (4)

(b) (4)

Lisa

NOTICE TO RECIPIENT: If you are not the intended recipient of this e-mail, you are prohibited from sharing, copying, or otherwise using or disclosing its contents. If you have received this e-mail in error, please notify the sender immediately by reply e-mail and permanently delete this e-mail and any attachments without reading, forwarding or saving them. Thank you.

NOTICE TO RECIPIENT: If you are not the intended recipient of this e-mail, you are prohibited from sharing, copying, or otherwise using or disclosing its contents. If you have received this e-mail in error, please notify the sender immediately by reply e-mail and permanently delete this e-mail and any attachments without reading, forwarding or saving them. Thank you.

From: Graham, Barney (NIH/VRC) [E]
Sent: Fri, 1 May 2020 13:42:02 +0000
To: Corbett, Kizzmekia (NIH/VRC) [E]; Seder, Robert (NIH/VRC) [E]
Subject: RE: statistics

I emailed her. Will try calling today.

BG

From: Corbett, Kizzmekia (NIH/VRC) [E] (b) (6)
Sent: Friday, May 1, 2020 9:25 AM
To: Seder, Robert (NIH/VRC) [E] (b) (6); Graham, Barney (NIH/VRC) [E]
(b) (6)>
Subject: Re: statistics

Dr. Graham, Did you speak with Martha Nason?

--

Kizzmekia S. Corbett, PhD
Senior Research Fellow | Scientific Lead
Coronavirus Vaccines & Immunopathogenesis (coVip) Team
Viral Pathogenesis Laboratory | Vaccine Research Center
National Institutes of Allergy and Infectious Diseases
National Institutes of Health

Building 40 Room 2608
40 Convent Drive
Bethesda MD 20892
Laboratory: (b) (6)
Personal: (b) (6)
Fax: (301) 480-2771

From: "Seder, Robert (NIH/VRC) [E]" (b) (6)>
Date: Friday, May 1, 2020 at 7:46 AM
To: Kizzmekia Corbett (b) (6)>
Subject: Re: statistics

Should have Gaby arrange a meeting next week with Martha Nason for stats.

Robert A. Seder, M.D.
Chief, Cellular Immunology Section

Vaccine Research Center, NIAID, NIH
40 Convent Drive
Bethesda, Maryland 20892
Office phone: (b) (6)

From: "Corbett, Kizzmekia (NIH/VRC) [E]" (b) (6)
Date: Friday, May 1, 2020 at 7:17 AM
To: "Seder, Robert (NIH/VRC) [E]" (b) (6), "Bao, Hana (NIH/VRC) [E]" (b) (6), John-Paul Todd (b) (6)
Subject: Re: Inactivated SARS- Changes to protocol

My updates are below.

--

Kizzmekia S. Corbett, PhD
Senior Research Fellow | Scientific Lead
Coronavirus Vaccines & Immunopathogenesis (coVip) Team
Viral Pathogenesis Laboratory | Vaccine Research Center
National Institutes of Allergy and Infectious Diseases
National Institutes of Health

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Bethesda MD 20892
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Personal: (b) (6)
Fax: (301) 480-2771

From: "Seder, Robert (NIH/VRC) [E]" (b) (6)
Date: Thursday, April 30, 2020 at 5:02 PM
To: "Bao, Hana (NIH/VRC) [E]" <(b) (6)>, John-Paul Todd (b) (6), Kizzmekia Corbett <(b) (6)>
Subject: FW: Inactivated SARS- Changes to protocol

Hi Hana,

We have a number of changes to the current protocols.

(b) (5), (b) (4)

Approved Study-

(b) (5), (b) (4)

(b) (5), (b) (4)

I think this covers it. Let Kizzemekia and I know if you need more input.

Bob

Robert A. Seder, M.D.
Chief, Cellular Immunology Section
Vaccine Research Center, NIAID, NIH
40 Convent Drive
Bethesda, Maryland 20892
Office phone: (b) (6)

From: "Seder, Robert (NIH/VRC) [E]" (b) (6) >
Date: Wednesday, April 29, 2020 at 3:15 PM
To: "Corbett, Kizzmekia (NIH/VRC) [E]" (b) (6) >
Subject: Re: Inactivated SARS

Kizze

Lets talk this week about all this. Let me know when you can talk tonight, tomorrow or Friday.

(b) (5), (b) (4)

Bob

Robert A. Seder, M.D.
Chief, Cellular Immunology Section
Vaccine Research Center, NIAID, NIH
40 Convent Drive
Bethesda, Maryland 20892
Office phone: (b) (6)

From: "Corbett, Kizzmekia (NIH/VRC) [E]" (b) (6)
Date: Wednesday, April 29, 2020 at 2:49 PM
To: "Seder, Robert (NIH/VRC) [E]" (b) (6) >
Subject: Re: Inactivated SARS

Do you have a statistician in mind for this? (b) (5), (b) (4)
(b) (5), (b) (4)



Am I missing anything?

--

Kizzmekia S. Corbett, PhD
Senior Research Fellow | Scientific Lead
Coronavirus Vaccines & Immunopathogenesis (coVip) Team
Viral Pathogenesis Laboratory | Vaccine Research Center
National Institutes of Allergy and Infectious Diseases
National Institutes of Health

Building 40 Room 2608
40 Convent Drive
Bethesda MD 20892
Laboratory: (b) (6)
Personal: (b) (6)
Fax: (301) 480-2771

From: "Seder, Robert (NIH/VRC) [E]" (b) (6) >

Date: Wednesday, April 29, 2020 at 12:41 PM

To: Kizzmekia Corbett (b) (6) >

Subject: Re: Inactivated SARS

Fine. I can understand this.

(b) (5), (b) (4)

(b) (5), (b) (4)

Bob

Robert A. Seder, M.D.

Chief, Cellular Immunology Section

Vaccine Research Center, NIAID, NIH

40 Convent Drive

Bethesda, Maryland 20892

Office phone: (b) (6)

From: "Corbett, Kizzmekia (NIH/VRC) [E]" (b) (6)

Date: Wednesday, April 29, 2020 at 12:35 PM

To: "Seder, Robert (NIH/VRC) [E]" (b) (6) >, "Ruckwardt, Tracy (NIH/VRC) [E]" (b) (6), "Morabito, Kaitlyn (NIH/VRC) [E]" (b) (6), "Alvarado, Gabriela (NIH/VRC) [C]" (b) (6) >, Barney Graham (b) (6) >

Subject: Re: Inactivated SARS

Just FYI, (b) (5), (b) (4). Thus....

--

Kizzmekia S. Corbett, PhD

Senior Research Fellow | Scientific Lead

Coronavirus Vaccines & Immunopathogenesis (coVip) Team

Viral Pathogenesis Laboratory | Vaccine Research Center
National Institutes of Allergy and Infectious Diseases
National Institutes of Health

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40 Convent Drive

Bethesda MD 20892

Laboratory: (b) (6)

Personal: (b) (6)

Fax: (301) 480-2771

From: "Seder, Robert (NIH/VRC) [E]" (b) (6)

Date: Friday, April 24, 2020 at 12:33 PM

To: "Ruckwardt, Tracy (NIH/VRC) [E]" <(b) (6)>, Kizzmekia Corbett
(b) (6)>, Kaitlyn Morabito (b) (6) "Alvarado,
Gabriela (NIH/VRC) [C]" <(b) (6)>, Barney Graham
(b) (6)

Subject: Inactivated SARS

Dear All,

We need to get in the

(b) (5), (b) (4)

(b) (5), (b) (4)

Should we have a call on Monday with Barney to finalize.

Bob

Robert A. Seder, M.D.
Chief, Cellular Immunology Section
Vaccine Research Center, NIAID, NIH
40 Convent Drive
Bethesda, Maryland 20892
Office phone: (b) (6)

From: Graham, Barney (NIH/VRC) [E]
Sent: Sun, 22 Mar 2020 01:16:51 +0000
To: Mascola, John (NIH/VRC) [E]; Koup, Richard (NIH/VRC) [E]; Daucher, Marybeth (NIH/NIAID) [E]; Sullivan, Nancy (NIH/VRC) [E]; Ledgerwood, Julie (NIH/NIAID) [E]; Harris, Christina (NIH/NIAID) [E]
Subject: RE: DRAFT: Confirmed COVID-19 Case (b) (6)
Categories

Emails from my phone were apparently not going through and lost.

(b) (6)

Barney

From: Mascola, John (NIH/VRC) [E] (b) (6)
Sent: Saturday, March 21, 2020 9:13 PM
To: Koup, Richard (NIH/VRC) [E] (b) (6); Daucher, Marybeth (NIH/NIAID) [E] (b) (6); Sullivan, Nancy (NIH/VRC) [E] (b) (6); Ledgerwood, Julie (NIH/NIAID) [E] (b) (6); Harris, Christina (NIH/NIAID) [E] (b) (6)
Graham, Barney (NIH/VRC) [E] (b) (6)>
Subject: RE: DRAFT: Confirmed COVID-19 Case (b) (6)

Agree on these points. Please make these edits and send around clean copy.

Thanks,
John

From: Koup, Richard (NIH/VRC) [E] (b) (6)>
Sent: Saturday, March 21, 2020 9:07 PM
To: Daucher, Marybeth (NIH/NIAID) [E] (b) (6)>; Sullivan, Nancy (NIH/VRC) [E] (b) (6); Ledgerwood, Julie (NIH/NIAID) [E] (b) (6)>; Mascola, John (NIH/VRC) [E] (b) (6)>; Harris, Christina (NIH/NIAID) [E] (b) (6)>; Graham, Barney (NIH/VRC) [E] (b) (6)
Subject: RE: DRAFT: Confirmed COVID-19 Case (b) (6)

Was it really (b) (6)

Rick

From: Daucher, Marybeth (NIH/NIAID) [E] <[REDACTED] (b) (6)>

Sent: Saturday, March 21, 2020 9:01 PM

To: Sullivan, Nancy (NIH/VRC) [E] [REDACTED] (b) (6)>; Ledgerwood, Julie (NIH/NIAID) [E]
[REDACTED] (b) (6)>; Mascola, John (NIH/VRC) [E] [REDACTED] (b) (6); Koup, Richard
(NIH/VRC) [E] [REDACTED] (b) (6); Harris, Christina (NIH/NIAID) [E] [REDACTED] (b) (6)>;
Graham, Barney (NIH/VRC) [E] <[REDACTED] (b) (6)>

Subject: RE: DRAFT: Confirmed COVID-19 Case [REDACTED] (b) (6)

Dear All,

Please edit the text below:

[REDACTED] (b) (5), (b) (6)

(b) (5)

From: Sullivan, Nancy (NIH/VRC) [E] (b) (6)>

Sent: Saturday, March 21, 2020 8:58 PM

To: Ledgerwood, Julie (NIH/NIAID) [E] (b) (6)>; Mascola, John (NIH/VRC) [E] (b) (6)>; Daucher, Marybeth (NIH/NIAID) [E] (b) (6); Koup, Richard (NIH/VRC) [E] (b) (6)>; Harris, Christina (NIH/NIAID) [E] (b) (6)>; Graham, Barney (NIH/VRC) [E] (b) (6)>

Subject: RE: DRAFT: Confirmed COVID-19 Case (b) (6)

(b) (5), (b) (6)

From: Ledgerwood, Julie (NIH/NIAID) [E] (b) (6)>

Sent: Saturday, March 21, 2020 8:47 PM

To: Mascola, John (NIH/VRC) [E] (b) (6)>; Daucher, Marybeth (NIH/NIAID) [E] (b) (6); Koup, Richard (NIH/VRC) [E] (b) (6)>; Harris, Christina (NIH/NIAID) [E] (b) (6)>; Graham, Barney (NIH/VRC) [E] (b) (6)>; Sullivan, Nancy (NIH/VRC) [E] (b) (6)>

Subject: RE: DRAFT: Confirmed COVID-19 Case (b) (6)

(b) (5)

From: Mascola, John (NIH/VRC) [E] (b) (6)
Sent: Saturday, March 21, 2020 8:38 PM
To: Daucher, Marybeth (NIH/NIAID) [E] (b) (6)>; Koup, Richard (NIH/VRC) [E] (b) (6)>; Harris, Christina (NIH/NIAID) [E] (b) (6)>; Graham, Barney (NIH/VRC) [E] (b) (6); Ledgerwood, Julie (NIH/NIAID) [E] (b) (6)>; Sullivan, Nancy (NIH/VRC) [E] (b) (6)>
Subject: RE: DRAFT: Confirmed COVID-19 Case (b) (6)

Right – send in parallel, but wording is same as prior approved with minor mods. (b) (5)

From: Daucher, Marybeth (NIH/NIAID) [E] (b) (6)
Sent: Saturday, March 21, 2020 8:31 PM
To: Mascola, John (NIH/VRC) [E] (b) (6)>; Koup, Richard (NIH/VRC) [E] (b) (6)>; Harris, Christina (NIH/NIAID) [E] (b) (6)>; Graham, Barney (NIH/VRC) [E] (b) (6)>; Ledgerwood, Julie (NIH/NIAID) [E] (b) (6)>; Sullivan, Nancy (NIH/VRC) [E] (b) (6)>
Subject: RE: DRAFT: Confirmed COVID-19 Case (b) (6)

Will do – (b) (5)
(b) (5)

MB

From: Mascola, John (NIH/VRC) [E] (b) (6)
Sent: Saturday, March 21, 2020 8:29 PM
To: Koup, Richard (NIH/VRC) [E] (b) (6); Daucher, Marybeth (NIH/NIAID) [E] (b) (6)>; Harris, Christina (NIH/NIAID) [E] (b) (6)>; Graham, Barney (NIH/VRC) [E] (b) (6)>; Ledgerwood, Julie (NIH/NIAID) [E] (b) (6)>; Sullivan, Nancy (NIH/VRC) [E] (b) (6)
Subject: RE: DRAFT: Confirmed COVID-19 Case (b) (6)

And in thinking about it. (b) (5)
(b) (5) So Marybeth - would you take a shot at this, and modify for VRC specifics.

Thank you!

From: Koup, Richard (NIH/VRC) [E] (b) (6)>
Sent: Saturday, March 21, 2020 8:25 PM
To: Daucher, Marybeth (NIH/NIAID) [E] (b) (6)>; Harris, Christina (NIH/NIAID) [E] (b) (6)>; Mascola, John (NIH/VRC) [E] (b) (6); Graham, Barney (NIH/VRC) [E] (b) (6); Ledgerwood, Julie (NIH/NIAID) [E] (b) (6);

Sullivan, Nancy (NIH/VRC) [E] (b) (6)>

Subject: RE: DRAFT: Confirmed COVID-19 Case (b) (6)

I like this one better. It gives better information and is more reassuring. I would adapt this to our situation.

Rick

From: Daucher, Marybeth (NIH/NIAID) [E] <(b) (6)>

Sent: Saturday, March 21, 2020 8:20 PM

To: Harris, Christina (NIH/NIAID) [E] (b) (6)>; Mascola, John (NIH/VRC) [E] (b) (6)>; Koup, Richard (NIH/VRC) [E] <(b) (6)>; Graham, Barney (NIH/VRC) [E] (b) (6)>; Ledgerwood, Julie (NIH/NIAID) [E] (b) (6); Sullivan, Nancy (NIH/VRC) [E] (b) (6)>

Subject: RE: DRAFT: Confirmed COVID-19 Case (b) (6)

Also – Jill sent us this email (see attached) regarding (b) (5)

Let us know what you think and (b) (5)

MB

From: Harris, Christina (NIH/NIAID) [E] (b) (6)>

Sent: Saturday, March 21, 2020 8:06 PM

To: Mascola, John (NIH/VRC) [E] (b) (6)>; Koup, Richard (NIH/VRC) [E] (b) (6)>; Graham, Barney (NIH/VRC) [E] (b) (6); Ledgerwood, Julie (NIH/NIAID) [E] (b) (6)>; Daucher, Marybeth (NIH/NIAID) [E] (b) (6)>; Sullivan, Nancy (NIH/VRC) [E] (b) (6)>

Subject: DRAFT: Confirmed COVID-19 Case (b) (6)

Importance: High

Please review. Goal is to send by 9PM tonight.

(b) (5), (b) (6)

We will continue to keep you informed as this develops.

Regards,
Marybeth on behalf of VRC Leadership

From: Graham, Barney (NIH/VRC) [E]
Sent: Fri, 20 Mar 2020 12:16:12 +0000
To: Hiatt, Nissa (NIH/VRC) [C]
Cc: Corbett, Kizzmekia (NIH/VRC) [E]; Prince, Tasheema (NIH/VRC) [C]; Young, Monique (NIH/VRC) [E]
Subject: Re: 2/19 Interview Request: WSJ

Thanks Nissa.

BG

Sent from my iPhone

On Mar 20, 2020, at 8:08 AM, Hiatt, Nissa (NIH/VRC) [C] (b) (6) wrote:

Good morning, I am having both your names added for clearance with a note that Monday is looking good for scheduling.

I'll be in touch once it is cleared. Contact information for Peter Loftus at WSJ is below.

Best,

Nissa

Reporter: Peter Loftus

Organization: WSJ

Phone #(s): (b) (6), peter.loftus@wsj.com

Subject: Moderna/NIAID vaccine candidate for COVID-19

Deadline: COB Monday

Nissa Hiatt

Communications

Vaccine Research Center, NIAID, NIH

40 Convent Drive, Bldg 40, Rm 1100

Bethesda, MD 20892

Office: (b) (6)

Mobile: (b) (6)

(b) (6)

On Mar 20, 2020, at 7:04 AM, Corbett, Kizzmekia (NIH/VRC) [E]

(b) (6) wrote:

We have EID meeting at 11am today.

How about Monday am. Cc'ing Ms. Young here to comment.

--

Kizzmekia S. Corbett, PhD

Senior Research Fellow | Scientific Lead

Coronavirus Vaccines & Immunopathogenesis (coVip) Team

Viral Pathogenesis Laboratory | Vaccine Research Center

National Institutes of Allergy and Infectious Diseases

National Institutes of Health

Building 40 Room 2608

40 Convent Drive

Bethesda MD 20892

Laboratory: (b) (6)

Personal: (b) (6)

Fax: (301) 480-2771

From: Barney Graham (b) (6)

Date: Friday, March 20, 2020 at 7:02 AM

To: Kizzmekia Corbett (b) (6)>, "Hiatt, Nissa (NIH/VRC) [C]" (b) (6)

Cc: "Prince, Tasheema (NIH/VRC) [C]" (b) (6)

Subject: RE: 2/19 Interview Request: WSJ

It looks like I have some time between 10:30 and noon today if it can be arranged we could do a 3-way.]

Barney

From: Corbett, Kizzmekia (NIH/VRC) [E] (b) (6)>

Sent: Friday, March 20, 2020 6:59 AM

To: Hiatt, Nissa (NIH/VRC) [C] (b) (6)>; Graham, Barney (NIH/VRC) [E] (b) (6)>

Cc: Prince, Tasheema (NIH/VRC) [C] (b) (6)

Subject: Re: 2/19 Interview Request: WSJ

Happy to do this and also we can always do things together.

--

Kizzmekia S. Corbett, PhD

Senior Research Fellow | Scientific Lead

Coronavirus Vaccines & Immunopathogenesis (coVip) Team

Viral Pathogenesis Laboratory | Vaccine Research Center

National Institutes of Allergy and Infectious Diseases

National Institutes of Health

Building 40 Room 2608

40 Convent Drive

Bethesda MD 20892

Laboratory: (b) (6)

Personal: (b) (6)

Fax: (301) 480-2771

From: "Hiatt, Nissa (NIH/VRC) [C]" <(b) (6)>

Date: Thursday, March 19, 2020 at 2:54 PM

To: Barney Graham (b) (6) Kizzmekia Corbett <(b) (6)>

Cc: "Prince, Tasheema (NIH/VRC) [C]" (b) (6)>

Subject: RE: 2/19 Interview Request: WSJ

Hi Barney and Kizzmekia,

Peter Loftus from the WSJ spoke to Dr. Fauci last month oncampus and was not able to connect with the two of you because you were both offsite that day. He has circled back around and would like to speak to one of you for a print story and cover the following:
how mRNA-1273 works and how it was designed

Would one of you be able to help? Peter would like to interview on the phone before COB Monday and he is available over the weekend. It was offered to Dr. Fauci and he deferred to VRC. Three related WSJ stories are attached as background.

Best,
Nissa

Nissa Hiatt

Communications

Vaccine Research Center, NIAID, NIH

40 Convent Drive, Bldg 40, Room 1100

Bethesda, MD 20892

Cell: (b) (6)

Office: (b) (6)

(b) (6)

<image001.png>

From: Hiatt, Nissa (NIH/VRC) [C]

Sent: Tuesday, February 18, 2020 12:27 PM

To: Graham, Barney (NIH/VRC) [E] <(b) (6)>

Cc: VRC_CoV <(b) (6)>; Young, Monique (NIH/VRC) [E] (b) (6)

Prince, Tasheema (NIH/VRC) [C] (b) (6); Harris, Christina (NIH/NIAID) [E]

(b) (6)

Subject: Re: 2/19 Interview Request: WSJ

Hi Barney,

Closing the loop on this podcast request. Dr. Fauci will do the Wednesday interview and the podcaster will not visit building 40. Thanks for sharing your availability. Should he have follow up questions I'll let this group know.

Hope you have a good conference at Fisher's Lane.

Best,
Nissa

On Feb 15, 2020, at 4:17 PM, Graham, Barney (NIH/VRC) [E] (b) (6) wrote:

I'll be at Fishers Lane on Wednesday for the EV-D68 workshop that we set up. It is a two day meeting. There might be time at the lunch break, but I'm not sure I would have time to drive back and forth.

Barney

Sent from my iPhone

On Feb 14, 2020, at 7:19 PM, Hiatt, Nissa (NIH/VRC) [C] (b) (6) wrote:

Hi Barney,

Peter Loftus with the Wall Street Journal will interview Dr. Fauci on Wednesday, Feb. 19 at NIH. He'd also like to speak to you about coronavirus vaccine research while he's oncampus.

If you are interested in this request, do you have time on Wednesday either before or after Dr. Fauci's 1:30-2 PM interview? Peter would walk over to Building 40 from 31 or vice versa depending on timing so he should probably wrap up at Building 40 by 1 or arrive at Building 40 at 230 on the earliest side of that window.

Thank you and hope you are doing well!

Best,
Nissa

Nissa Hiatt
Communications

Vaccine Research Center, NIAID, NIH
40 Convent Drive, Bldg 40, Room 1100
Bethesda, MD 20892

(b) (6)

(b) (6)

<image001.png>

From: Graham, Barney (NIH/VRC) [E]
Sent: Mon, 30 Mar 2020 18:07:29 +0000
To: Lavina Talukdar;Stephane Bancel
Cc: Chasen Richter;Allison August;Nancy McAdams
Subject: RE: April 14, MERS and CoV-2

Hi Stephane,

I've been advised by the Ethics office not to participate in this. I think before January 10th it was not so complicated, but with the active licensing and other activities it is viewed as unadvisable.

Sorry about that. Probably best if I focus on the task at hand anyway.

Take care,

Barney

From: Lavina Talukdar (b) (6) >
Sent: Wednesday, March 25, 2020 1:50 PM
To: Stephane Bancel (b) (6) >; Graham, Barney (NIH/VRC) [E]
(b) (6) >
Cc: Chasen Richter (b) (6) Allison August
(b) (6); Nancy McAdams (b) (6) >
Subject: Re: April 14, MERS and CoV-2

Hi Barney,

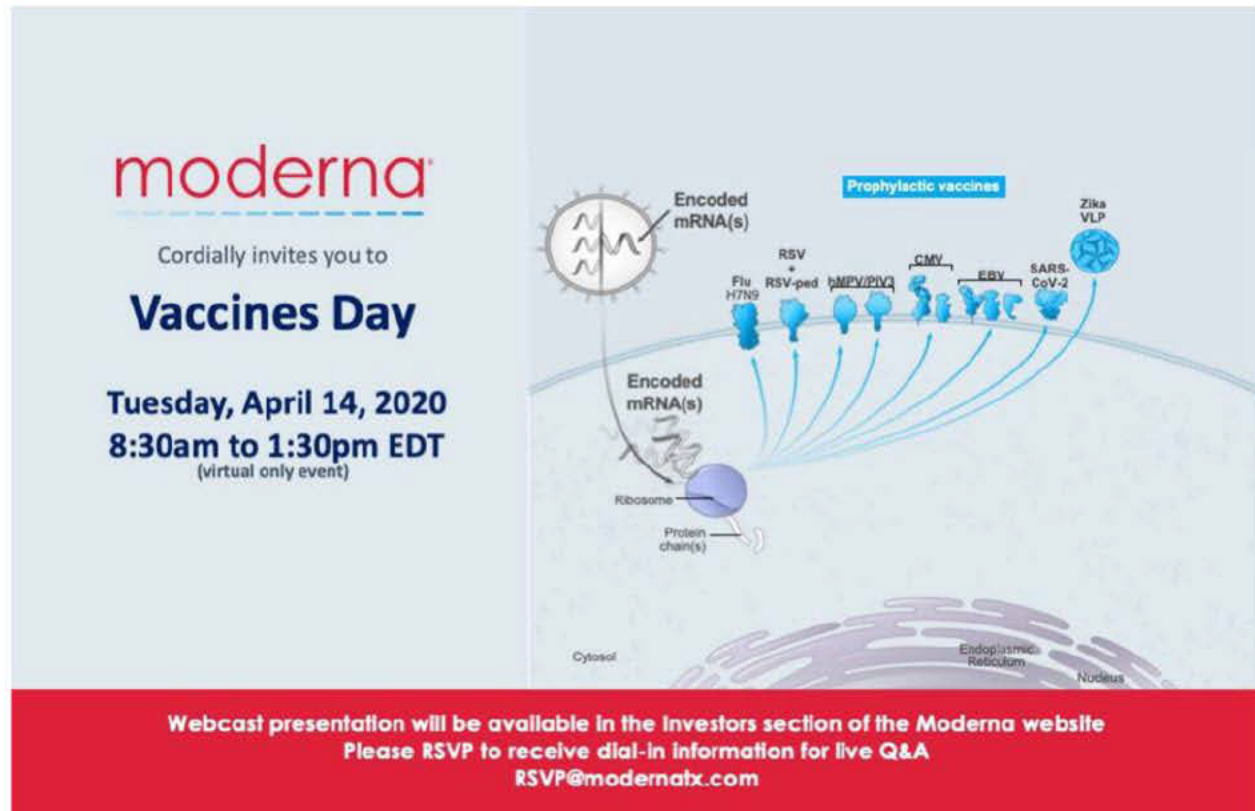
Great to e-meet you. Thank you so much for your participation. Below is the invite with details for the event.

An outline of the topics to cover on MERS preclinical and SARS-CoV-2 is below. If you can share slides for your part of presentation by April 1st that would be great. Also just in case, you end up having other commitments on April 14th, the day of our Vaccines Day event, can I suggest that we do record you beforehand? We would only need your voice-over to your slides and we can play it during your segment with the slides (there won't be video). If you are okay with that, I can work with you on setting up a day for a recording the week of April 6th. How does that sound?

Topic:

(b) (4)

Here is the invite with details as well.



The graphic is an invitation for Moderna's Vaccines Day. On the left, the Moderna logo is at the top, followed by the text "Cordially invites you to" and "Vaccines Day" in large blue letters. Below this, the date and time are listed: "Tuesday, April 14, 2020" and "8:30am to 1:30pm EDT (virtual only event)". On the right, a diagram illustrates the mRNA vaccine process. It shows "Encoded mRNA(s)" being introduced into a cell. A "Ribosome" is shown translating the mRNA into "Protein chain(s)". A "Prophylactic vaccines" box lists several vaccine candidates: "Flu H7N9", "RSV", "RSV-ped", "hMPV/PIV3", "CMV", "EBV", "SARS-CoV-2", and "Zika VLP". The diagram also shows the "Cytosol", "Endoplasmic Reticulum", and "Nucleus". At the bottom, a red banner contains the text: "Webcast presentation will be available in the investors section of the Moderna website. Please RSVP to receive dial-in information for live Q&A. RSVP@modernatx.com".

Lavina Talukdar, CFA
Head of IR, Moderna

O: (b) (6)

M: (b) (6)

E: (b) (6)

From: Stephane Bancel <(b) (6)>

Date: Wednesday, March 25, 2020 at 12:32 PM

To: "Graham, Barney (NIH/VRC) [E]" <(b) (6)>

Cc: Lavina Talukdar <(b) (6)>

Subject: Re: April 14, MERS and CoV-2

Thanks a lot

I really appreciate it

If you could present your work on MERS and CoV to date, it would be great

Lavina copied here will help with slides, format, agenda,...

Cheers

Stephane

From: "Graham, Barney (NIH/VRC) [E]" (b) (6) >

Date: Wednesday, March 25, 2020 at 12:31 PM

To: Stephane Bancel (b) (6)

Cc: Lavina Talukdar (b) (6)

Subject: Re: April 14, MERS and CoV-2

I think I can still do this. If it looks like there will be a time conflict we can record, but I'm pretty sure I can work this out.

Barney

Sent from my iPhone

On Mar 25, 2020, at 12:04 PM, Stephane Bancel <(b) (6)> wrote:

Barney, are you still ok to present scientific data pre clinical?

It will be online: voice + slides

April 14, but we could pre record you

Thanks a lot

Stephane

 **Please consider the environment before printing this email**

Confidentiality notice and disclaimer: The information in this message and any attachments is intended for the exclusive use of the addressee(s), is confidential and may be privileged or otherwise protected from disclosure. Any review, retransmission, dissemination or other use of, or taking of any action in reliance upon, of any such information by persons or entities other than the intended addressee(s) is prohibited. If you have received this message in error and are not the intended addressee, please notify the sender immediately and delete this message and any attachments from your system without reading or disclosing them. If you are not the intended addressee, be advised that any use of the information in this message and any attachment is prohibited and may be unlawful, and you must not copy this message or attachment or disclose the contents to any other person.

From: Graham, Barney (NIH/VRC) [E]
Sent: Thu, 26 Mar 2020 16:41:48 +0000
To: Corbett, Kizzmekia (NIH/VRC) [E]
Cc: Doria-Rose, Nicole (NIH/NIAID) [E];Carlton, Kevin (NIH/VRC) [E];Mascola, John (NIH/VRC) [E]
Subject: Re: SARS-Cov-2 Neutralizing Abs from Linqi lab

The other thing VIP needs to do is to develop the (b) (5)
(b) (5)

Barney

Sent from my iPhone

On Mar 26, 2020, at 12:35 PM, Corbett, Kizzmekia (NIH/VRC) [E]
<(b) (6)> wrote:

Thanks Dr. Graham,
I agree. Transfer it all with no further optimization inside building 40 would be my preference.

--

Kizzmekia S. Corbett, PhD
Senior Research Fellow | Scientific Lead
Coronavirus Vaccines & Immunopathogenesis (coVip) Team
Viral Pathogenesis Laboratory | Vaccine Research Center
National Institutes of Allergy and Infectious Diseases
National Institutes of Health

Building 40 Room 2608
40 Convent Drive
Bethesda MD 20892
Laboratory: (b) (6)
Personal: (b) (6)
Fax: (301) 480-2771

From: Barney Graham (b) (6)
Date: Thursday, March 26, 2020 at 12:34 PM

To: Kizzmekia Corbett (b) (6) >
Cc: "Doria-Rose, Nicole (NIH/NIAID) [E]" (b) (6) Kevin Carlton
(b) (6) >, "Mascola, John (NIH/VRC) [E]" (b) (6)
Subject: Re: SARS-Cov-2 Neutralizing Abs from Linqi lab

As I noted on an earlier email, (b) (5)
(b) (5)
(b) (5)
(b) (5)

Barney

Sent from my iPhone

On Mar 26, 2020, at 12:18 PM, Corbett, Kizzmekia (NIH/VRC) [E] (b) (6) >
wrote:

Thanks Nicole,
The assay has been moved to VIP and with that Kevin will advise us further. I am not sure if (b) (5)
(b) (5). Perhaps Kevin can advise.

--

Kizzmekia S. Corbett, PhD
Senior Research Fellow | Scientific Lead
Coronavirus Vaccines & Immunopathogenesis (coVip) Team
Viral Pathogenesis Laboratory | Vaccine Research Center
National Institutes of Allergy and Infectious Diseases
National Institutes of Health

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Bethesda MD 20892
Laboratory: (b) (6)
Personal: (b) (6)
Fax: (301) 480-2771

From: "Doria-Rose, Nicole (NIH/NIAID) [E]" (b) (6) >
Date: Thursday, March 26, 2020 at 10:26 AM

To: Kizzmekia Corbett (b) (6)>, Kevin Carlton (b) (6)
Cc: Barney Graham (b) (6)>, "Mascola, John (NIH/VRC) [E]" (b) (6)
Subject: Re: SARS-Cov-2 Neutralizing Abs from Linqi lab

Just tell me what I need to do!
Thanks
Nicole

From: "Corbett, Kizzmekia (NIH/VRC) [E]" (b) (6)>
Date: Thursday, March 26, 2020 at 9:02 AM
To: "Carlton, Kevin (NIH/VRC) [E]" (b) (6)>, "Doria-rose, Nicole (NIH/NIAID) [C]" (b) (6)
Cc: "Graham, Barney (NIH/VRC) [E]" <(b) (6)>, "Mascola, John (NIH/VRC) [E]" (b) (6)
Subject: Re: SARS-Cov-2 Neutralizing Abs from Linqi lab

Okay. Thanks.

Have a good day.

--

Kizzmekia S. Corbett, PhD
Senior Research Fellow | Scientific Lead
Coronavirus Vaccines & Immunopathogenesis (coVip) Team
Viral Pathogenesis Laboratory | Vaccine Research Center
National Institutes of Allergy and Infectious Diseases
National Institutes of Health

Building 40 Room 2608
40 Convent Drive
Bethesda MD 20892
Laboratory: (b) (6)
Personal: (b) (6)
Fax: (301) 480-2771

From: Kevin Carlton (b) (6)>
Date: Thursday, March 26, 2020 at 8:45 AM
To: Kizzmekia Corbett (b) (6)>, "Doria-Rose, Nicole (NIH/NIAID) [E]" (b) (6)
Cc: Barney Graham (b) (6)>, "Mascola, John (NIH/VRC) [E]"

(b) (6)

Subject: RE: SARS-Cov-2 Neutralizing Abs from Linqi lab

Hi Kizzi,

I have not reached out to Nicole yet, so thank you for the email to Nicole. I am happy if the two of you work together to discuss the best way to accomplish the data review prior to sending to Emmes. I haven't heard if there was a decision made on the (b) (4) and depending on that answer we should include Adrian/Bob in the discussion.

Kevin

From: Corbett, Kizzmekia (NIH/VRC) [E] (b) (6)
Sent: Wednesday, March 25, 2020 10:16 PM
To: Doria-Rose, Nicole (NIH/NIAID) [E] (b) (6)
Cc: Graham, Barney (NIH/VRC) [E] (b) (6); Mascola, John (NIH/VRC) [E] (b) (6);> Carlton, Kevin (NIH/VRC) [E] (b) (6)>
Subject: Re: SARS-Cov-2 Neutralizing Abs from Linqi lab

Thanks Nicole.

Also there has been (b) (5)
(b) (5)

Just wanted to make you aware that I suggested you and if Kevin contacts you we should go through the prism analysis template together.

Thanks for all of your help, and mostly just being kind. *I need that right now.*

--

Kizzmekia S. Corbett, PhD

Senior Research Fellow | Scientific Lead

Coronavirus Vaccines & Immunopathogenesis (coVip) Team

Viral Pathogenesis Laboratory | Vaccine Research Center

National Institutes of Allergy and Infectious Diseases

National Institutes of Health

Building 40 Room 2608

40 Convent Drive

Bethesda MD 20892

Laboratory: (b) (6)

Personal: (b) (6)

Fax: (301) 480-2771

From: "Doria-Rose, Nicole (NIH/NIAID) [E]" (b) (6) >
Date: Wednesday, March 25, 2020 at 9:23 PM
To: Kizzmekia Corbett (b) (6) "Driscoll, Jefferson (NIH/NIAID) [F]"
(b) (6) "Doria-Rose, Nicole (NIH/NIAID) [E]" (b) (6) >,
NIAID VRC HIMS Lab Meeting < (b) (6) v>
Cc: Kaitlyn Morabito < (b) (6) >, Barney Graham (b) (6) >,
"Zhou, Tongqing (NIH/VRC) [E]" (b) (6), "Holdsworth, Hongying (NIH/VRC) [C]"
(b) (6)
Subject: Re: SARS-Cov-2 Neutralizing Abs from Linqi lab

Sure

Tina would you please add Kizzmekia to the webex for lab mtg next week ?

Thanks

Nicole

From: "Corbett, Kizzmekia (NIH/VRC) [E]" (b) (6) >
Date: Wednesday, March 25, 2020 at 8:15:44 PM
To: "Driscoll, Jefferson (NIH/NIAID) [F]" (b) (6) >, "Doria-Rose, Nicole (NIH/NIAID) [E]" (b) (6) "NIAID VRC HIMS Lab Meeting"
(b) (6) >
Cc: "Morabito, Kaitlyn (NIH/VRC) [E]" (b) (6) >, "Graham, Barney (NIH/VRC) [E]"
(b) (6) >, "Zhou, Tongqing (NIH/VRC) [E]" (b) (6) >, "Holdsworth,
Hongying (NIH/VRC) [C]" (b) (6) >
Subject: Re: SARS-Cov-2 Neutralizing Abs from Linqi lab

I read the paper, but can I please be added to the lab meeting discussion?

Sent from the mobile device of:

Kizzmekia S. Corbett, PhD

Senior Research Fellow

coVip Scientific Lead

VRC | NIAID | NIH

(b) (6)

From: "Driscoll, Jefferson (NIH/NIAID) [F]" (b) (6) >
Date: Wednesday, March 25, 2020 at 4:46:18 PM
To: "Doria-Rose, Nicole (NIH/NIAID) [E]" < (b) (6) >, "NIAID VRC HIMS Lab Meeting"
< (b) (6) >

Cc: "Morabito, Kaitlyn (NIH/VRC) [E]" (b) (6)>, "Graham, Barney (NIH/VRC) [E]" (b) (6), "Corbett, Kizzmekia (NIH/VRC) [E]" (b) (6)>, "Zhou, Tongqing (NIH/VRC) [E]" (b) (6) "Holdsworth, Hongying (NIH/VRC) [C]" (b) (6)

Subject: Re: SARS-Cov-2 Neutralizing Abs from Linqi lab

Hi Nicole,

I would be happy to cover this paper next week.

Best,
Jefferson

From: "Doria-Rose, Nicole (NIH/NIAID) [E]" (b) (6)>
Date: Wednesday, March 25, 2020 at 4:24 PM
To: NIAID VRC HIMS Lab Meeting <(b) (6)>
Cc: "Morabito, Kaitlyn (NIH/VRC) [E]" (b) (6)>, "Graham, Barney (NIH/VRC) [E]" (b) (6)>, "Corbett, Kizzmekia (NIH/VRC) [E]" (b) (6)>, "Zhou, Tongqing (NIH/VRC) [E]" (b) (6), "Holdsworth, Hongying (NIH/VRC) [C]" (b) (6)>
Subject: FW: SARS-Cov-2 Neutralizing Abs from Linqi lab

Hi all

Check it out - Linqi Zhang's lab (where Hua got his PhD) isolated SARS-Cov-2 Neutralizing Abs from convalescent patients!

And our friend Qi is co-first author.

A few thoughts:

- I've never been so happy to be scooped
- but we aren't really scooped, because the more antibodies isolated by the field, the better
- this gives some confidence that we should be successful too.

Hi Mascola lab -

We will discuss this at lab meeting next week - Hua or Jefferson would you like to present it?

Thanks
Nicole

From: "Wang, Hua (NIH/NIAID) [F]" (b) (6)>
Date: Wednesday, March 25, 2020 at 3:05 PM
To: "Doria-rose, Nicole (NIH/NIAID) [C]" (b) (6), "Cale, Evan (NIH/NIAID) [E]" (b) (6)>
Cc: "Mascola, John (NIH/VRC) [E]" (b) (6)
Subject: SARS-Cov-2 Neutralizing Abs from Linqi lab

Hi Nicole,

I just know a new pre-print paper of isolating SARS-Cov-2 Neutralizing Abs from Linqi lab.
Hope this may help our team to work on the Neut assay of SARS-Cov-2 and related works.

<https://connect.biorxiv.org/relate/content/181>

Best,
Hua

From: Graham, Barney (NIH/VRC) [E]
Sent: Mon, 23 Mar 2020 17:44:14 +0000
To: Lowy, Douglas (NIH/NCI) [E]
Cc: Adrian McDermott; Corbett, Kizzmekia (NIH/VRC) [E]; Ledgerwood, Julie (NIH/NIAID) [E]; Johnson, Maureen (NIH/NCI) [E]
Subject: Re: Talking today about SARS-CoV-2 serology

Thanks. See you then.

Barney

Sent from my iPhone

On Mar 23, 2020, at 1:39 PM, Lowy, Douglas (NIH/NCI) [E] <(b) (6)> wrote:

Excellent, thanks, looking forward to it! 4:30.

Here's the call-in information:

(b) (6) If this entire string is on your cell phone, the commas provide enough time so you only need to "call" that long string. If you encounter problems, you can call the first number ((b) (6)), then enter the second number after the prompt ((b) (6)), and then the third number after the prompt (b) (6)

Doug

From: "Graham, Barney (NIH/VRC) [E]" (b) (6)>
Date: Monday, March 23, 2020 at 1:31 PM
To: "Lowy, Douglas (NIH/NCI) [E]" (b) (6)>
Cc: Adrian McDermott (b) (6)>, "Corbett, Kizzmekia (NIH/VRC) [E]" (b) (6)>, "Ledgerwood, Julie (NIH/NIAID) [E]" (b) (6)>
Subject: Re: Talking today about SARS-CoV-2 serology

Hi Doug,

If 4:30 is still available we will have as many people as possible on the line at time. The key people are copied here.

Barney

Sent from my iPhone

On Mar 23, 2020, at 7:20 AM, Lowy, Douglas (NIH/NCI) [E] <(b) (6)> wrote:

Hi Barney,

In the email below, Ned has sent a long list of possible (b) (5). If you're available, I'd like to talk sometime today about what we should do in sorting through evaluating a subset of this large number of assays. (b) (5), (b) (4)

I'm available 10-11 AM, 1-2:30 PM, or after 4:30 PM. Please ask Hilary and/or Cristina about participating, if you think it would be useful for one or both of them to participate. I can provide a conference line, if needed.

When we talk, I would like to briefly discuss your perspective on a (b) (5). NCI also has that capability at Leidos.

Thanks,
Doug

From: "Sharpless, Norman (NIH/NCI) [E]" <(b) (6)>
Date: Sunday, March 22, 2020 at 8:32 PM
To: "Hook, Sara (NIH/NCI) [E]" <(b) (6)>, "Lowy, Douglas (NIH/NCI) [E]" <(b) (6)>
Cc: "Chanock, Stephen (NIH/NCI) [E]" <(b) (6)> "Doroshov, James (NIH/NCI) [E]" <(b) (6)>, "Lubenow, Anne (NIH/NCI) [E]" <(b) (6)>, Maureen Johnson <(b) (6)>
Subject: RE: A serological test for coronavirus-19?

(b) (5)

You might look at this article from Science for background:

<https://www.sciencemag.org/news/2020/03/new-blood-tests-antibodies-could-show-true-scale-coronavirus-pandemic>

Here are a couple of the reports / news items I have seen (some of these may be the same test when really investigated):

<https://techcrunch.com/2020/03/20/scanwell-aims-to-launch-at-home-15-minute-coronavirus-test-but-it-still-needs-fda-approval/>

(I think the guys who cold-called me from China)

<https://globalbiodefense.com/headlines/singapore-first-to-test-out-covid-19-serological-assay-in-outbreak-contact-tracing/>

(Duke Connection)

<https://www.medrxiv.org/content/10.1101/2020.03.17.20037713v1>

(Icahn Connection)

+ Barney's work at NIAID...

PLUS this long list from <https://www.finddx.org/covid-19/pipeline/>

IMMUNOASSAYS

Commercialized

Manual or automated immunoassays

[Beijing Abace Biology Co., Ltd.](#), [Contact](#)

COVID-19 Viral Antigen Test Kit (ELISA) (RUO)

COVID-19 IgG Antibody Test Kit (ELISA) (RUO)

COVID-19 IgM Antibody Test Kit (ELISA) (RUO)

[BluSense Diagnostics ApS](#), ViroTrack COVID IgA+IgM/IgG/Total Ig Ab (RUO) [Contact](#)

[Boditech Med, Inc.](#) [Contact](#)

AFIAS COVID-19, Viral Antigen (automated; RUO)

AFIAS COVID-19 Ab, IgM/IgG (automated; RUO)

Ichroma COVID-19, viral antigen (manual; RUO)

Ichromia COVID-19 Ab, IgM/IgG (manual; RUO)

[Creative Diagnostics](#), [Contact](#)

[SARS-CoV-2 IgG ELISA Kit](#) (RUO)

[SARS-CoV-2 IgM ELISA Kit](#) (RUO)

[SARS-CoV-2 Antigen ELISA Kit](#) (RUO)

Eagle Biosciences, Inc. [Contact](#)

[COVID-19 IgG ELISA Assay](#) (RUO)

[COVID-19 IgM ELISA Assay](#) (RUO)

[Epitope Diagnostics, Inc.](#) [Contact](#)

EDI™ Novel Coronavirus COVID-19 IgG ELISA Kit (CE-IVD)

EDI™ Novel Coronavirus COVID-19 IgM ELISA Kit (CE-IVD)

[EUROIMMUN AG](#) [Contact](#)

Anti-SARS-CoV-2 ELISA (IgA) (manual; automated; RUO)

Anti-SARS-CoV-2 ELISA (IgG) (manual; automated; RUO)

[GenBody, Inc.](#) GenBody FIA COVID-19 IgM/IgG (manual; RUO) [Contact](#)
[Guangzhou Darui Biotechnology Co., Ltd](#) [Contact](#)
 2019 Novel Coronavirus (2019-nCoV) IgM Antibody Detection Kit (ELISA Method) (RUO)
 2019 Novel Coronavirus (2019-nCoV) IgG Antibody Detection Kit (ELISA Method) (RUO)
 Novel Coronavirus 2019-nCoV IgM Antibody Detection Kit (Colloidal Gold Method) (RUO)
 Novel Coronavirus 2019-nCoV IgG Antibody Detection Kit (Colloidal Gold Method) (RUO)
[Guangzhou Wondfo Biotech Co., Ltd](#), Finecare SARS-CoV-2 Antibody Test (manual; RUO) [Contact](#)
[Liming Bio-Products Co., Ltd](#), COVID-19 Antigen Rapid Test Device (CE-IVD) [Contact](#)
 SD BIOSENSOR, Inc., [STANDARD F COVID-19 Ag FIA](#) (manual; CE-IVD) [Contact](#)
[Shenzhen Yhlo Biotech Co. Ltd](#) [Contact](#)
 iFlash-SARS-CoV-2 IgM (CE-IVD)
 iFlash-SARS-CoV-2 IgG (CE-IVD)
[Snibe Co., Ltd.](#) (Shenzhen New Industries Biomedical Engineering Co., Ltd) [Contact](#)
 MAGLUMI 2019-nCoV IgG (CLIA) (automated IA, CE-IVD)
 MAGLUMI 2019-nCoV IgM (CLIA) (automated IA, CE-IVD)
[Taizhou ZECEN Biotech Co., Ltd.](#), [Contact](#)
 SARS-CoV-2 IgM (CE-IVD)
 SARS-CoV-2 IgG (CE-IVD)
[Sugentech, Inc.](#) [Contact](#)
 SGTi-flex COVID-19 IgM/IgG (manual, CE-IVD)
 SGTi-flex COVID-19 IgM (manual, CE-IVD)
 SGTi-flex COVID-19 IgG (manual, CE-IVD)

Rapid diagnostic tests

[AmonMed Biotechnology Co., Ltd.](#) [Contact](#)
 COVID-19 IgM/IgG test kit (Rare Earth Nano Fluorescence Immunochromatography) (CE-IVD)
 COVID-19 IgM/IgG test kit (Colloidal Gold) (CE-IVD)
 COVID-19/Influenza A virus/Influenza B virus IgM combo test kit (Rare Earth Nano Fluorescence Immunochromatography) (CE-IVD)
 COVID-19/Influenza A virus/Influenza B virus test kit (Rare Earth Nano Fluorescence Immunochromatography) (CE-IVD)
 COVID-19 Antigen Test Kit (Rare Earth Nano Fluorescence Immunochromatography) (CE-IVD)
[Anhui Deep Blue Medical Technology Co., Ltd.](#), Colloidal gold strip for SARS-CoV-2 IgG & IgM (RUO) [Contact](#)
[Avioq Bio-Tech Co., Ltd.](#), Novel Coronavirus (2019-nCov) Antibody IgG/IgM Assay Kit (Colloidal Gold) (RUO) [Contact](#)
[Beijing Abace Biology Co., Ltd.](#), [Contact](#)
 COVID-19 Viral Antigen Test Kit (Colloidal Gold Immunochromatography) (RUO)
 COVID-19 Antibody (IgG/IgM) Test Kit (Colloidal Gold Immunochromatography) (CE-IVD)
[Beijing Diagreat Biotechnologies Co., Ltd.](#), [Contact](#)
 2019-nCoV IgG Antibody Determination Kit (CE-IVD)

2019-nCoV IgM Antibody Determination Kit (CE-IVD)
[Beijing Kewei Clinical Diagnostic Reagent Inc.](#) [Contact](#)
 Kewei COVID-19 IgM ELISA Test Kit (CE-IVD)
 Kewei COVID-19 IgG ELISA Test Kit (CE-IVD)
 Kewei COVID-19 IgG/IgM Fluorescence Rapid Test Kit (CE-IVD)
 Kewei COVID-19 Antigen ELISA Test Kit (Nasal/Throat Swab) (CE-IVD)
 Kewei COVID-19 Antigen Fluorescence Rapid Test Kit (Nasal/Throat Swab) (CE-IVD)
 BioMedomics, Inc. [COVID-19 IgM-IgG Dual Antibody Rapid Test](#) (CE-IVD) [Contact](#)
[Core Technology Co., Ltd.](#), COVID-19 IgM/IgG Ab Test (CE-IVD) [Contact-1](#) [Contact-2](#)
[Coris BioConcept](#), COVID-19 Respi-Strip (RUO) [Contact](#)
[CTK Biotech, Inc.](#), OnSite COVID-19 IgG/IgM Rapid Test (CE-IVD) [Contact](#)
[Dynamiker Biotechnology \(Tianjin\) Co., Ltd.](#), 2019 nCoV IgG/IgM Rapid Test (CE-IVD) [Contact](#)
[GenBody, Inc.](#), [Contact](#)
 GenBody COVID-19 IgM/IgG (CE-IVD)
 GenBody COVID-19 IgM/IgG DUO (RUO)
[Getein Biotech, Inc.](#), One Step Test for Novel Coronavirus (2019-nCoV) IgM/IgG antibody (Colloidal Gold) (CE-IVD) [Contact](#)
[Guangzhou Fenghua Bioengineering, Co. LTD](#), Combined Detection Kit for Novel Coronavirus (2019-nCoV) IgM/IgG Antibody (RUO) [Contact](#)
[Hangzhou AllTest Biotech Co., Ltd](#), 2019-nCoV Antigen Rapid Test Cassette (Swab/Sputum) (CE-IVD) [Contact](#)
[Hangzhou Biotest Biotech Co., Ltd.](#), COVID-19 IgG/IgM Rapid Test Cassette (Whole Blood/Serum/Plasma) (CE-IVD) [Contact](#)
 Humasis, Humasis COVID-19 IgG/IgM Test (RUO) [Contact](#)
[Innovita Biological Technology Co. Ltd](#), 2019-nCoV Ab Test (Colloidal Gold) (IgM/IgG Whole Blood/Serum/Plasma Combo) (CE-IVD) [Contact](#)
 InTec Products, Inc., [Contact-1](#); [Contact-2](#)
 Rapid SARS-CoV-2 Antibody (IgM/IgG) Test (CE-IVD)
 Rapid SARS-CoV-2 Antibody Test (CE-IVD)
 Jiangsu Biopertectus Technologies Co. Ltd, [Contact](#)
 PerfectPOC Novel Corona Virus (SARS-CoV-2) Ag Rapid Test Kit (RUO)
 PerfectPOC Novel Corona Virus (SARS-CoV-2) IgM/IgG Rapid Test Kit (RUO)
 Liming Bio-Products Co., Ltd, [COVID-19 IgG/IgM Combo Rapid Test Device](#) (CE-IVD) [Contact](#)
[MedicalSystem Biotechnology Co., Ltd.](#), COVID-19 IgM/IgG Rapid Test Cassette (CE-IVD) [Contact](#)
 Mei Ning Kang Cheng China Biotechnology R&D Center, Inc., Corona Virus Disease 2019 (COVID-19) IgM/IgG Detection Kit (RUO) [Contact](#)
[Nantong Egens Biotechnology Co., LTD](#), EGENS COVID-19 IgG/IgM Rapid Test Kit (CE-IVD; RUO) [Contact](#)
 SD BIOSENSOR, Inc., [Contact](#)
[STANDARD Q COVID-19 IgM/IgG Duo Test](#) (CE-IVD)
[STANDARD Q COVID-19 Ag Test](#) (CE-IVD)
[SensingSelf, Pte. Ltd, Singapore](#), EDR COVID 19 Rapid Test Kit (IgM/IgG) (CE-IVD) [Contact](#)

servoprax GmbH, *ClearTest Corona, Covid-19* (CE-IVD) [Contact-1](#); [Contact-2](#)
 Shenzhen Bioeasy Biotechnology Co., Ltd., [Contact](#)
[Novel Coronavirus \(2019-nCoV\) Fluorescence Antigen Rapid Test](#) (CE-IVD)
[Novel Coronavirus \(2019-nCoV\) Colloidal Gold Antigen Rapid Test](#) (CE-IVD)
[Novel Coronavirus \(2019-nCoV\) IgG/IgM detection kit \(colloidal gold immunochromatography\)](#) (CE-IVD)
 BIOEASY 2019-nCoV Ag Fluorescence Rapid Test Kit (Time-Resolved Fluorescence) (CE-IVD)
[Sugentech, Inc.](#), [Contact](#)
 SGTi-flex COVID-19 IgM/IgG (CE-IVD)
 SGTi-flex COVID-19 IgM (CE-IVD)
 SGTi-flex COVID-19 IgG (CE-IVD)
[Sure Bio-Tech \(USA\) Co., Ltd.](#) [Contact](#)
 SARS-CoV-2 IgM Ab Rapid Test (CE-IVD)
 SARS-CoV-2 IgG Ab Rapid Test (CE-IVD)
 SARS-CoV-2 IgM/IgG Ab Rapid Test (CE-IVD)
[Tianjin MNCHIP Technologies Co., Ltd.](#), *Anti-COVID-19 virus IgM/IgG rapid test kit (Colloidal gold assay)* (CE-IVD) [Contact](#)
 VivaChek Biotech (Hangzhou) Co., Ltd, [VivaDiag COVID-19 IgM/IgG Rapid Test](#) (CE-IVD) [Contact](#)
[Wuhan EasyDiagnosis Biomedicine Co.,Ltd](#) [Contact](#)
Novel Coronavirus IgM antibody test kit (colloidal gold method) (CE-IVD)
Novel Coronavirus IgG antibody test kit (colloidal gold method) (CE-IVD)
[Xiamen Biotime Biotechnology Co., Ltd.](#), *SARS-CoV-2 IgG/IgM Rapid Qualitative Test Kit* (CE-IVD) [Contact](#)

From: Hook, Sara (NIH/NCI) [E] (b) (6)>
Sent: Saturday, March 21, 2020 9:56 PM
To: Sharpless, Norman (NIH/NCI) [E] (b) (6)>; Lowy, Douglas (NIH/NCI) [E] (b) (6)>
Cc: Chanock, Stephen (NIH/NCI) [E] (b) (6); Doroshow, James (NIH/NCI) [E] (b) (6)>; Lubenow, Anne (NIH/NCI) [E] (b) (6)>; Johnson, Maureen (NIH/NCI) [E] (b) (6)
Subject: RE: A serological test for coronavirus-19?

The FDA announced emergency approval today for a POC diagnostic using nasal swabs or washes. The company is Cepheid. Not a serological assay but PCR-based the way it looks. 45 minute turnaround time.

Looks like from the literature, there is an initial POC serological lab assay using fingerstick samples:

<https://onlinelibrary.wiley.com/doi/pdf/10.1002/jmv.25727>

Sara

From: Sharpless, Norman (NIH/NCI) [E] (b) (6)
Sent: Saturday, March 21, 2020 1:52 PM
To: Lowy, Douglas (NIH/NCI) [E] (b) (6)>
Cc: Chanock, Stephen (NIH/NCI) [E] (b) (6); Doroshov, James (NIH/NCI) [E] (b) (6)>; Hook, Sara (NIH/NCI) [E] (b) (6)>; Lubenow, Anne (NIH/NCI) [E] (b) (6)>; Johnson, Maureen (NIH/NCI) [E] (b) (6)>
Subject: Re: A serological test for coronavirus-19?

One other thing, I was asked (b) (5)
(b) (6) Might be a reach but am passing the question along.

Norman E. Sharpless MD
Director, the National Cancer Institute

On Mar 21, 2020, at 6:36 AM, Lowy, Douglas (NIH/NCI) [E] <(b) (6)> wrote:

Below are most of the emails about coronavirus-19 serology that I exchanged earlier this week with Barney Graham and his colleagues at NIAID. Doug

From: "Cassetti, Cristina (NIH/NIAID) [E]" <(b) (6)>
Date: Wednesday, March 18, 2020 at 9:56 AM
To: "Graham, Barney (NIH/VRC) [E]" <(b) (6)>, "Lowy, Douglas (NIH/NCI) [E]" (b) (6)>
Cc: "Marston, Hilary (NIH/NIAID) [E]" (b) (6), "Holland, Steven (NIH/NIAID) [E]" (b) (6)
Subject: RE: A serological test for coronavirus-19?

Hi Doug,

As Barney mentioned below, our Division is in the process of scaling up production of the spike protein to distribute it for research through our BEI repository. If your investigators need the protein, our colleague JoJo Stemple, the Project Officer for our BEI contract, might be able to help (b) (6).

(b) (5)

(b) (5)

(b) (5) If you know him, feel free to reach out to him directly.

Cristina

From: Graham, Barney (NIH/VRC) [E] <(b) (6)>
Sent: Wednesday, March 18, 2020 9:42 AM
To: Lowy, Douglas (NIH/NCI) [E] <(b) (6)>
Cc: Marston, Hilary (NIH/NIAID) [E] (b) (6); Holland, Steven (NIH/NIAID) [E] (b) (6); Cassetti, Cristina (NIH/NIAID) [E] (b) (6)>
Subject: RE: A serological test for coronavirus-19?

With a little bit of data.

BG

<image001.png>

<image002.png>

From: Graham, Barney (NIH/VRC) [E]
Sent: Wednesday, March 18, 2020 7:52 AM
To: Lowy, Douglas (NIH/NCI) [E] (b) (6)
Cc: Marston, Hilary (NIH/NIAID) [E] (b) (6); Holland, Steven (NIH/NIAID) [E] (b) (6); Cassetti, Cristina (NIH/NIAID) [E] (b) (6)>
Subject: Re: A serological test for coronavirus-19?

Hi Doug,

We can make a high quality spike protein and have used it in serological assays. We have this and the plasmid used to make it to Natalie Thornburg at the CDC and she is using it as the basis for a kit development I think.

We have standardized the assay but have not tried to make a kit. We've screened a few dozen banked samples from healthy adults and they are all negative, meaning that it does not cross-react with the 4 endemic CoVs. It does cross-react with old SARS-1 sera. The few samples we have from nCoV infected people are strongly positive. Both DMID and Gates have plans to scale up production of that protein for research use. Considering its antigenicity it should not be hard to turn it into a commercial assay.

Barney

Sent from my iPhone

On Mar 18, 2020, at 7:42 AM, Lowy, Douglas (NIH/NCI) [E] (b) (6) wrote:

Hilary,

Many thanks, this is useful information! (b) (5)

Doug

From: "Marston, Hilary (NIH/NIAID) [E]" <(b) (6)>
Date: Wednesday, March 18, 2020 at 7:22 AM
To: "Holland, Steven (NIH/NIAID) [E]" (b) (6)
Cc: "Lowy, Douglas (NIH/NCI) [E]" (b) (6); "Graham, Barney (NIH/VRC) [E]" (b) (6); "Cassetti, Cristina (NIH/NIAID) [E]" (b) (5)
Subject: Re: A serological test for coronavirus-19?

Thanks Steve. There are a few groups working on serological assays and reagents for some have been sent to BEI. Barney can weigh in on the VRC assay.

(b) (5)

Adding Cristina Cassetti who has been leading this within our Division of Microbiology and Infectious Diseases.

On Mar 18, 2020, at 7:00 AM, Holland, Steven (NIH/NIAID) [E] (b) (6) wrote:

This is a very big issue. I am copying Barney graham in the VRC and Hilary Marston in Tony's office who know where this is

Steve

Steve Holland
DIR, NIAID

On Mar 18, 2020, at 6:56 AM, Lowy, Douglas (NIH/NCI) [E] (b) (6) wrote:

Hi Steve,

Do you know if investigators are developing a serologic test for coronavirus-19? Is there someone in NIAID who might know about such assay development?

I'm asking because (b) (5)

(b) (5)

(b) (5) Such information is likely to (b) (5)

(b) (5) could be useful (b) (5)

(b) (5)

Thanks,
Doug

From: Graham, Barney (NIH/VRC) [E]
Sent: Wed, 29 Apr 2020 15:18:45 +0000
To: Mascola, John (NIH/VRC) [E]
Cc: Corbett, Kizzmekia (NIH/VRC) [E]; Morabito, Kaitlyn (NIH/VRC) [E]; Alvarado, Gabriela (NIH/VRC) [C]; Wang, Lingshu (NIH/VRC) [E]; Carlton, Kevin (NIH/VRC) [E]; Louder, Mark (NIH/VRC) [C]; Doria-Rose, Nicole (NIH/NIAID) [E]
Subject: Re: VRC-Only Binding Data from [REDACTED] (b) (4), (b) (5)

I would say no from what I've seen so far. It doesn't seem to [REDACTED] (b) (5), (b) (4)

Barney

Sent from my iPhone

On Apr 29, 2020, at 11:13 AM, Mascola, John (NIH/VRC) [E] <[REDACTED] (b) (6)> wrote:

[REDACTED] (b) (5), (b) (4)

From: Corbett, Kizzmekia (NIH/VRC) [E] [REDACTED] (b) (6)
Sent: Wednesday, April 29, 2020 6:36 AM
To: Morabito, Kaitlyn (NIH/VRC) [E] [REDACTED] (b) (6)>; Alvarado, Gabriela (NIH/VRC) [C] [REDACTED] (b) (6); Wang, Lingshu (NIH/VRC) [E] [REDACTED] (b) (6)>; Graham, Barney (NIH/VRC) [E] [REDACTED] (b) (6)>; Carlton, Kevin (NIH/VRC) [E] [REDACTED] (b) (6)
Mascola, John (NIH/VRC) [E] [REDACTED] (b) (6); Louder, Mark (NIH/VRC) [C] [REDACTED] (b) (6)>; Doria-Rose, Nicole (NIH/NIAID) [E] [REDACTED] (b) (6)>
Subject: VRC-Only Binding Data from [REDACTED] (b) (5), (b) (4)

Good morning (VRC-only),
Here are the binding data from the [REDACTED]

(b) (5), (b) (4)

[REDACTED] (b) (5), (b) (4)

--
Kizzmekia S. Corbett, PhD

Senior Research Fellow | Scientific Lead

Coronavirus Vaccines & Immunopathogenesis (coVip) Team

Viral Pathogenesis Laboratory | Vaccine Research Center

National Institutes of Allergy and Infectious Diseases

National Institutes of Health

Building 40 Room 2608

40 Convent Drive

Bethesda MD 20892

Laboratory: (b) (6)

Personal: (b) (6)

Fax: (301) 480-2771

From: (b) (6)

When: 6:00 PM - 7:00 PM April 27, 2020

Subject: (b) (4), (b) (5)

Location: Teams

[Join Microsoft Teams Meeting](#)

(b) (6) United States, Indianapolis (Toll)

Conference ID: (b) (6)

[Local numbers](#) | [Reset PIN](#) | [Learn more about Teams](#) | [Meeting options](#)

From: (b) (6)
Sent: Wed, 18 Dec 2019 11:31:29 +0100
To: Besteman-3, S.B.
Cc: Phung, Emily (NIH/VRC) [F]; Morabito, Kaitlyn (NIH/VRC) [E]; Bont, L.J.; Ruckwardt, Tracy (NIH/VRC) [E]; Chang, Lauren (NIH/VRC) [F]
Subject: Re: collaboration (b) (4)

Just a thought to consider. (b) (4);

(b) (4)

(b) (4) This has not been proven, but is the theoretical way I am thinking about it.

Best wishes,

Barney

Sent from my iPhone

On Dec 18, 2019, at 10:37 AM, Besteman-3, S.B. (b) (6) > wrote:

Dear Emily,

Thanks for his summary. It is really great to see all the tests you and your team performed.
Thank you so much.

(b) (4)

I'll go over it with Louis and come back to you when we have additional questions.

I hope to be able to send the manuscript to you as soon as possible.

Best, Sjanna

Van: Phung, Emily (NIH/VRC) [F] [mailto: (b) (6)]

Verzonden: dinsdag 17 december 2019 22:45

Aan: Besteman-3, S.B.; Morabito, Kaitlyn (NIH/VRC) [E]; Bont, L.J.

CC: Ruckwardt, Tracy (NIH/VRC) [E]; Graham, Barney (NIH/VRC) [E]; Chang, Lauren (NIH/VRC) [F]

Onderwerp: Re: collaboration (b) (4)

Dear Dr. Bont and Sjanna,

Please find attached the summary powerpoint detailing the results and conclusions from the (b) (4) (b) (4). For your convenience, I also included an excel sheet that includes a summary table of the (b) (4) results.

Please let me know if you have any questions!

Best,
Emily Phung

From: "Besteman-3, S.B." (b) (6)

Date: Thursday, November 28, 2019 at 2:12 AM

To: "Morabito, Kaitlyn (NIH/VRC) [E]" (b) (6)>, "Bont, L.J."

(b) (6), "Phung, Emily (NIH/VRC) [F]" (b) (6)

Cc: "Ruckwardt, Tracy (NIH/VRC) [E]" (b) (6)>, "Graham, Barney (NIH/VRC) [E]" (b) (6), "Chang, Lauren (NIH/VRC) [F]" (b) (6)>

Subject: RE: collaboration (b) (4)

Dear Emily and Kaitlyn,

I agree with Louis that (b) (4) actually is a very nice finding. And I'm impressed that you already performed the assays. Thank you!

Considering the (b) (4)

(b) (4) Does this answer your question? (b) (4)

(b) (4)

(b) (4)

Yours, Sjanna

Van: Morabito, Kaitlyn (NIH/VRC) [E] [mailto: (b) (6)]

Verzonden: woensdag 27 november 2019 16:22

Aan: Bont, L.J.; Phung, Emily (NIH/VRC) [F]; Besteman-3, S.B.

CC: Ruckwardt, Tracy (NIH/VRC) [E]; Graham, Barney (NIH/VRC) [E]; Chang, Lauren (NIH/VRC) [F]

Onderwerp: Re: collaboration (b) (4)

Hi Louis and Sjanna,

For the (b) (4)

;
;

Thanks,
Kaitlyn

From: "Bont, L.J." (b) (6)

Date: Wednesday, November 27, 2019 at 2:26 AM

To: Emily Phung <(b) (6)>, "Besteman-3, S.B." (b) (6)

(b) (6)
Cc: "Morabito, Kaitlyn (NIH/VRC) [E]" (b) (6) Tracy Ruckwardt
(b) (6)>, Barney Graham (b) (6)>, "Chang, Lauren
(NIH/VRC) [F]" (b) (6)>
Subject: RE: collaboration (b) (4)

Super, Emily, also (b) (4)
We highly appreciate all you have been doing.
Yours, Louis

Van: Phung, Emily (NIH/VRC) [F] [mailto:(b) (6)]
Verzonden: dinsdag 26 november 2019 23:27
Aan: Bont, L.J.; Besteman-3, S.B.
CC: Morabito, Kaitlyn (NIH/VRC) [E]; Ruckwardt, Tracy (NIH/VRC) [E]; Graham, Barney (NIH/VRC) [E]; Chang, Lauren (NIH/VRC) [F]
Onderwerp: Re: collaboration (b) (4)

Dear Dr. Bont and Sjanna,

It was great meeting you both in Ghana, the meeting was very enjoyable and a wonderful learning experience.

We have ran the (b) (4)
(b) (4)

Please let me know if you have any questions!

Thank you,
Emily Phung

From: "Bont, L.J." (b) (6)
Date: Tuesday, November 26, 2019 at 5:47 AM
To: "Besteman-3, S.B." (b) (6)>, "Phung, Emily (NIH/VRC) [F]"
(b) (6)
Cc: "Morabito, Kaitlyn (NIH/VRC) [E]" (b) (6), "Ruckwardt, Tracy
(NIH/VRC) [E]" (b) (6)>, "Graham, Barney (NIH/VRC) [E]"
(b) (6)
Subject: RE: collaboration (b) (4)

Dear all,

I hope you all enjoyed the meeting. Thank you very much for you excellent contributions.
Barney, I hope (b) (6) is getting better. From our side, we really enjoyed these few days in

Accra, they were special to us. I hope you have time to do the (b) (4) as we hope to get to a first full draft manuscript in the coming weeks. Let us know when there is anything we can do.

Yours, Louis

Van: Besteman-3, S.B.

Verzonden: dinsdag 26 november 2019 9:40

Aan: 'Phung, Emily (NIH/VRC) [F]'

CC: Morabito, Kaitlyn (NIH/VRC) [E]; Ruckwardt, Tracy (NIH/VRC) [E]; Bont, L.J.; Graham, Barney (NIH/VRC) [E]

Onderwerp: RE: collaboration (b) (4)

Dear all,

How are you? It was really nice meeting you in Ghana, and I hope you enjoyed the meeting as much as I did.

We are aiming to finish the manuscript on the (b) (4) by the end of this year. Soon after we'll send you a copy for review.

Can you let me know the planning for the (b) (4)

Best, Sjanna

Van: Phung, Emily (NIH/VRC) [F] [mailto:(b) (6)]

Verzonden: zaterdag 9 november 2019 0:47

Aan: Besteman-3, S.B.

CC: Morabito, Kaitlyn (NIH/VRC) [E]; Ruckwardt, Tracy (NIH/VRC) [E]; Bont, L.J.; Graham, Barney (NIH/VRC) [E]

Onderwerp: Re: collaboration (b) (4)

Hi everyone,

Please find attached the (b) (6) summary data. Breakfast or lunch works for me as well. I look forward to meeting you all and discussing the results so far!

Best,
Emily Phung

From: "Besteman-3, S.B." (b) (6)>

Date: Friday, November 8, 2019 at 9:55 AM

To: "Phung, Emily (NIH/VRC) [F]" (b) (6)

Cc: "Morabito, Kaitlyn (NIH/VRC) [E]" (b) (6), "Ruckwardt, Tracy (NIH/VRC) [E]" (b) (6), "Bont, L.J." (b) (6), "Graham,

Barney (NIH/VRC) [E]" (b) (6)

Subject: Re: collaboration (b) (4)

Dear all,

That is great! indeed during breakfast or lunch is easiest I guess. Let me know what works for you.

Yours sincerely, Sjanna

Op 6 nov. 2019 21:20 schreef "Phung, Emily (NIH/VRC) [F]" (b) (6)

Hello all,

We were able to obtain (b) (4). We can bring the data with us to Ghana, is there a time that works for all of you to meet and discuss? Based on our different schedules, sometime during breakfast may seem like the best option.

Thank you,
Emily Phung

From: "Besteman-3, S.B." (b) (6) >

Date: Tuesday, October 15, 2019 at 7:43 AM

To: "Morabito, Kaitlyn (NIH/VRC) [E]" (b) (6) "Phung, Emily (NIH/VRC) [F]" (b) (6) >

Cc: "Ruckwardt, Tracy (NIH/VRC) [E]" (b) (6) "Bont, L.J." (b) (6) >

Subject: RE: collaboration (b) (4)

Hi Kaitlyn and others,

I've send the package today. A track and trace number should follow soon. I hope you will receive everything in good order.

I'm a bit lost on who is processing which material, but I added a pack list. I'll also attached the pack list to this email.

I have one remark about the (b) (4)

(b) (4)

Thank you so much for the collaboration. I'm looking forward meeting (some of) you in Ghana in a couple of weeks.

Please let me know if there you have any questions.

Yours sincerely,

Sjanna

Vriendelijke groet/ Kind regards,

Sjanna Besteman

<image001.png>

MD PhD student / resident in pediatrics | Monday - Thursday |
Divisie Laboratoria en Apotheek, Laboratory of Translational Immunology |
Universitair Medisch Centrum Utrecht | Kamernummer KC02.047.0 | Huispostnummer KC02.085.2 | Postbus 85090 |
3508 AB UTRECHT

Van: Morabito, Kaitlyn (NIH/VRC) [E] [mailto: (b) (6)]
Verzonden: donderdag 10 oktober 2019 15:28
Aan: Besteman-3, S.B.
Onderwerp: Re: collaboration (b) (4)

No, thanks. I just need to submit a form saying we can't identify the patient on the NIH side.

From: "Besteman-3, S.B." < (b) (6)>
Date: Thursday, October 10, 2019 at 9:27 AM
To: "Morabito, Kaitlyn (NIH/VRC) [E]" (b) (6) >
Subject: RE: collaboration (b) (4)

Hi Kaitlyn,

Thanks!

No, there won't be any personally identifiable information on it.
Do you need other information?

Best wishes, Sjanna

Van: Morabito, Kaitlyn (NIH/VRC) [E] [mailto: (b) (6)]

Verzonden: donderdag 10 oktober 2019 15:25

Aan: Besteman-3, S.B.; Graham, Barney (NIH/VRC) [E]; Bont, L.J.

CC: Ruckwardt, Tracy (NIH/VRC) [E]; Stein, Judy (NIH/VRC) [C]; Shastri, Mythreyi (NIH/NIDDK) [E]; Phung, Emily (NIH/VRC) [F]

Onderwerp: Re: collaboration (b) (4)

Hi Sjanna,

This is good news. I included a shipping address for Emily Phung below.

On our side, we will need to fill out some paperwork since these are human samples. Will the samples we receive have any personally identifiable information, such as name, DOB, etc?

Emily Phung
Bldg 40, Room 2610
40 Convent Drive
Bethesda, MD 20892
(b) (6)

Thanks,
Kaitlyn

From: "Besteman-3, S.B." (b) (6)

Date: Thursday, October 10, 2019 at 5:25 AM

To: "Morabito, Kaitlyn (NIH/VRC) [E]" (b) (6), Barney Graham
(b) (6), "Bont, L.J." (b) (6) >

Cc: Tracy Ruckwardt (b) (6), Judy Stein (b) (6) >, "Shastri, Mythreyi (NIH/NIDDK) [E]" (b) (6) >

Subject: RE: collaboration (b) (4):

Dear all,

I investigated the possible couriers and will use the service provided by our hospital, for the shipment of (b) (4). They assured me they we'll replace dry ice when things are held up in customs.

Can you provide me with the shipping address , contact person and telephone number?

Vriendelijke groet/ Kind regards,

Sjanna Besteman

<image002.png>

MD PhD student / resident in pediatrics | Monday - Thursday |
Divisie Laboratoria en Apotheek, Laboratory of Translational Immunology |
Universitair Medisch Centrum Utrecht | Kamernummer KC02.047.0 | Huispostnummer KC02.085.2 | Postbus 85090 |
3508 AB UTRECHT

Van: Morabito, Kaitlyn (NIH/VRC) [E] [mailto: (b) (6)]
Verzonden: donderdag 22 augustus 2019 16:46
Aan: Besteman-3, S.B.; Phung, Emily (NIH/VRC) [F]; Graham, Barney (NIH/VRC) [E]; Bont, L.J.
CC: Ruckwardt, Tracy (NIH/VRC) [E]; Lowensteyn, Y.N.; Stein, Judy (NIH/VRC) [C]; Shastri, Mythreyi (NIH/NIAID) [E]
Onderwerp: Re: collaboration (b) (4)

Hi Sjanna,

Judy and Mythreyi can help us with the MTA process. For Judy and Mythreyi, Utrecht will be sending us (b) (4).

Best,
Kaitlyn

From: "Besteman-3, S.B." (b) (6)
Date: Thursday, August 22, 2019 at 10:36 AM
To: "Morabito, Kaitlyn (NIH/VRC) [E]" (b) (6) Emily Phung
(b) (6)>, Barney Graham (b) (6)>, "Bont, L.J."
(b) (6)
Cc: Tracy Ruckwardt (b) (6), "Lowensteyn, Y.N."
(b) (6)>
Subject: RE: collaboration (b) (4)

Hi all,

Thank you for the fast reply. I'll get back to you on this on Monday.

Furthermore, whom can I contact to arrange the MTA, since this is probably going to take some effort?

Sincerely, Sjanna

Van: Morabito, Kaitlyn (NIH/VRC) [E] [mailto: (b) (6)]

Verzonden: donderdag 22 augustus 2019 16:01

Aan: Phung, Emily (NIH/VRC) [F]; Besteman-3, S.B.; Graham, Barney (NIH/VRC) [E]; Bont, L.J.

CC: Ruckwardt, Tracy (NIH/VRC) [E]; Lowensteyn, Y.N.

Onderwerp: Re: collaboration (b) (4)

Hi All,

Since we would be doing the (b) (4)
(b) (4) for that if available.

Thanks,
Kaitlyn

From: Emily Phung < (b) (6)>

Date: Thursday, August 22, 2019 at 9:59 AM

To: "Besteman-3, S.B." (b) (6) Barney Graham

(b) (6), "Bont, L.J." (b) (6)

Cc: Tracy Ruckwardt (b) (6)>, "Lowensteyn, Y.N."

< (b) (6)>, "Morabito, Kaitlyn (NIH/VRC) [E]"

< (b) (6)>

Subject: Re: collaboration (b) (4)

Good Morning,

In regards to the (b) (4)

(b) (4)

Best,
Emily Phung

From: "Besteman-3, S.B." (b) (6)

Date: Thursday, August 22, 2019 at 9:55 AM

To: "Graham, Barney (NIH/VRC) [E]" (b) (6), "Bont, L.J."

(b) (6)

Cc: "Phung, Emily (NIH/VRC) [F]" (b) (6) "Ruckwardt, Tracy (NIH/VRC) [E]"

(b) (6) "Lowensteyn, Y.N." (b) (6)>

Subject: RE: collaboration (b) (4)

Our (b) (4).

(b) (4)

How much (b) (4)?

Van: Graham, Barney (NIH/VRC) [E] [mailto:(b) (6)]

Verzonden: donderdag 22 augustus 2019 15:45

Aan: Bont, L.J.

CC: Phung, Emily (NIH/VRC) [F]; Ruckwardt, Tracy (NIH/VRC) [E]; Besteman-3, S.B.; Lowensteyn, Y.N.

Onderwerp: Re: collaboration (b) (4)

I'll let Tracy answer the question (b) (4)

(b) (4)

BG

Sent from my iPhone

On Aug 22, 2019, at 8:42 AM, Bont, L.J. (b) (6) wrote:

Dear Sjanna,

I had a TC with Barney, Tracey and Emily yesterday. We discussed the possibility of (b) (4)
(b) (4)

Would you be willing to prepare this? This would include

(b) (4)

- Preparation of shipment (MTA)

@Barney et al,

(b) (4)

(b) (4) No problem, of course, to keep
you all in CC.

Yours, Louis

De informatie opgenomen in dit bericht kan vertrouwelijk zijn en is uitsluitend bestemd voor de geadresseerde. Indien u dit bericht onterecht ontvangt, wordt u verzocht de inhoud niet te gebruiken en de afzender direct te informeren door het bericht te retourneren. Het Universitair Medisch Centrum Utrecht is een publiekrechtelijke rechtspersoon in de zin van de W.H.W. (Wet Hoger Onderwijs en Wetenschappelijk Onderzoek) en staat geregistreerd bij de Kamer van Koophandel voor Midden-Nederland onder nr. 30244197.

Denk s.v.p aan het milieu voor u deze e-mail afdrukt.

This message may contain confidential information and is intended exclusively for the addressee. If you receive this message unintentionally, please do not use the contents but notify the sender immediately by return e-mail. University Medical Center Utrecht is a legal person by public law and is registered at the Chamber of Commerce for Midden-Nederland under no. 30244197.

Please consider the environment before printing this e-mail.

From: Graham, Barney (NIH/VRC) [E]
Sent: Fri, 14 Feb 2020 20:07:21 +0000
To: Valda Vinson; Jason McLellan
Cc: Meagan Phelan
Subject: RE: Coronavirus research for Science

I can confirm that it has been received by the WHO team in charge of this outbreak.

Barney

From: Valda Vinson <vvinson@aaas.org>
Sent: Friday, February 14, 2020 2:51 PM
To: Jason McLellan (b) (6)
Cc: Graham, Barney (NIH/VRC) [E] (b) (6); Meagan Phelan <mphelan@aaas.org>
Subject: RE: Coronavirus research for Science

Dear Jason,

I just this minute sent you the revision package – I hadn't checked e-mail in a while because I was working on this. I also am surprised that it's not up at BioRxiv yet. I don't think any major revisions are called for – in my edits I was aiming at accessibility because I think this will be read by non-experts. If you could give me a sense of how much time you need to revise once you see the reviews and edited manuscript, that will be very helpful. On our end, after acceptance, the manuscript would be promoted to a network of global reporters. We are likely to do this without an embargo, but instead with immediate release. I am copying Meagan Phelan, our Science Press Package Director, who can give further guidance. In terms of preparing for publication, there is the complication of the Monday holiday, so I think it would be difficult for us to plan a roll out before Tuesday. I anticipate that once the paper goes live on bioRxiv you may start getting questions. Feel free to contact Meagan's team for help, basically it is your decision about when to speak to reporters, but we ask that you not mention that the manuscript is at Science before we release it and we'd be grateful if you remind reporters that the bioRxiv version is not peer reviewed.

For now though please let me know your time frame as soon as you can.

Best Regards
Valda

From: Jason McLellan (b) (6)>
Sent: Friday, February 14, 2020 2:16 PM
To: Valda Vinson <vvinson@aaas.org>
Cc: Graham, Barney (NIH/VRC) [E] (b) (6); Priscilla Kelly <pkelly@aaas.org>
Subject: RE: Coronavirus research for Science

Hi Valda,

I was wondering if you had an update on our manuscript. Any information you could provide is greatly appreciated.

I'm still waiting for BioRxiv to publish our manuscript online. I submitted it on Tuesday and it's still not available.

Best regards,
Jason

From: Graham, Barney (NIH/VRC) [E]
Sent: Fri, 6 Mar 2020 18:18:01 +0000
To: Corbett, Kizzmekia (NIH/VRC) [E]; Stein, Judy (NIH/VRC) [C]; Morabito, Kaitlyn (NIH/VRC) [E]
Cc: Young, Monique (NIH/VRC) [E]; Petrik, Amy (NIH/NIAID) [E]; Bok, Karin (NIH/VRC) [E]
Subject: RE: RCA w/MedImmune

Karin, do you remember? I could look it up in the old emails.

BG

From: Corbett, Kizzmekia (NIH/VRC) [E] (b) (6)
Sent: Friday, March 6, 2020 1:13 PM
To: Stein, Judy (NIH/VRC) [C] (b) (6); Morabito, Kaitlyn (NIH/VRC) [E] (b) (6); Graham, Barney (NIH/VRC) [E] (b) (6)
Cc: Young, Monique (NIH/VRC) [E] (b) (6); Petrik, Amy (NIH/NIAID) [E] (b) (6); Bok, Karin (NIH/VRC) [E] (b) (6)>
Subject: Re: RCA w/MedImmune

Dr. Graham, who is the Medimmune contact?

--

Kizzmekia S. Corbett, PhD
Senior Research Fellow | Scientific Lead
Coronavirus Vaccines & Immunopathogenesis (coVip) Team
Viral Pathogenesis Laboratory | Vaccine Research Center
National Institutes of Allergy and Infectious Diseases
National Institutes of Health

Building 40 Room 2608
40 Convent Drive
Bethesda MD 20892
Laboratory: (b) (6)
Personal: (b) (6)
Fax: (301) 480-2771

From: "Stein, Judy (NIH/VRC) [C]" <(b) (6)>
Date: Friday, March 6, 2020 at 9:36 AM
To: Kaitlyn Morabito (b) (6), Barney Graham (b) (6)>
Cc: Monique Young (b) (6) Kizzmekia Corbett

(b) (6), "Petrik, Amy (NIH/NIAID) [E]" (b) (6) "Bok, Karin (NIH/VRC) [E]" (b) (6)

Subject: RE: RCA w/MedImmune

Yes – (b) (4), (b) (5) it can be sent with a transfer letter.

Thanks

Judy

From: Morabito, Kaitlyn (NIH/VRC) [E] (b) (6)

Sent: Friday, March 6, 2020 9:32 AM

To: Graham, Barney (NIH/VRC) [E] (b) (6)>

Cc: Stein, Judy (NIH/VRC) [C] (b) (6); Young, Monique (NIH/VRC) [E]

(b) (6); Corbett, Kizzmekia (NIH/VRC) [E] (b) (6); Petrik, Amy (NIH/NIAID) [E] (b) (6)>; Bok, Karin (NIH/VRC) [E] (b) (6)

Subject: Re: RCA w/MedImmune

Hi Barney,

I wasn't at the meeting, so if it was discussed in person it was not communicated to me, but it was not in any of the follow up email traffic. It does cover (b) (4), (b) (5)

Thanks,

Kaitlyn

From: Barney Graham (b) (6)>

Date: Friday, March 6, 2020 at 9:15 AM

To: "Morabito, Kaitlyn (NIH/VRC) [E]" (b) (6)>

Cc: Judy Stein (b) (6), Monique Young (b) (6), Kizzmekia Corbett <(b) (6)>, "Petrik, Amy (NIH/NIAID) [E]" (b) (6)>, Karin Bok (b) (6)>

Subject: Re: RCA w/MedImmune

That seems like an oversight. What about sharing (b) (4), (b) (5)

Barney

Sent from my iPhone

On Mar 6, 2020, at 8:54 AM, Morabito, Kaitlyn (NIH/VRC) [E] (b) (6)> wrote:

Hi Barney,

The RCA does not cover

(b) (4), (b) (5)
(b) (4), (b) (5)

Kaitlyn

From: Barney Graham (b) (6) >

Date: Friday, March 6, 2020 at 8:49 AM

To: Judy Stein (b) (6) >

Cc: Monique Young <(b) (6)>, Kizzmekia Corbett

(b) (6), "Morabito, Kaitlyn (NIH/VRC) [E]" (b) (6),

"Petrik, Amy (NIH/NIAID) [E]" (b) (6) >

Subject: Re: RCA w/MedImmune

Ok. Thanks. Let's try to get the (b) (4), (b) (6) over there ASAP.

BG

Sent from my iPhone

On Mar 6, 2020, at 7:44 AM, Stein, Judy (NIH/VRC) [C] (b) (6) > wrote:

Hi everyone,

This RCA with Medimmune is now legally signed.

Monique and Barney,

This needs an acknowledgement signature to be complete.

I will be out next week but if you send it to Amy and Nicole (see email below), and copy me, then this will be distributed to everybody who needs it.

Thanks

Judy

From: Kallewaard-LeLay, Nicole (b) (6) >

Sent: Thursday, March 5, 2020 5:54 PM

To: Stein, Judy (NIH/VRC) [C] (b) (6)

Cc: Price, Jessica (b) (6) >

Subject: RE: RCA w/MedImmune

Hi Judy- Here is the signed contract on our end. Can you route this to the appropriate people?

Thanks

Nicole

From: Stein, Judy (NIH/VRC) [C] (b) (6) >
Sent: Thursday, March 5, 2020 4:17 PM
To: Kallewaard-LeLay, Nicole (b) (6) >
Subject: FW: RCA w/MedImmune

CAUTION: This email originated outside AstraZeneca. Do not open the attachment(s) unless you recognize the sender and know the content is safe.

Hi Nicole,
I see that Jessica is out until Monday so I am sending this to you too.
Thanks,
Judy

From: Stein, Judy (NIH/VRC) [C]
Sent: Thursday, March 5, 2020 4:15 PM
To: Price, Jessica (b) (6) >
Cc: Petrik, Amy (NIH/NIAID) [E] (b) (6)
Subject: FW: RCA w/MedImmune

Hi Jessica,
How are you doing?
I have attached the PE RCA for coronavirus for your signatures. Once you sign, we will ask Barney to acknowledge.

Thanks very much and please let us know if you have questions.
Best wishes.
Judy

(b) (6)
<20200228 Collaboration Agreement RCA Coronavirus Abs.pdf>

From: Graham, Barney (NIH/VRC) [E]
Sent: Tue, 21 Apr 2020 17:29:20 +0000
To: Mascola, John (NIH/VRC) [E]
Subject: Re: (ASAP media request) Anything to add from NIAID? FW: Q on performance evaluations of COVID-19 antibody tests
Attachments: image001.png

FYI. The only way it involves us is that we provided the spike protein to NCI and they started with our protein purification and ELISA protocols.

However, would be good if DMID could handle.

BG

Sent from my iPhone

On Apr 21, 2020, at 1:24 PM, Mascola, John (NIH/VRC) [E] (b) (6) wrote:

This does not involve VRC, but would overlap with DMID- so this should go do DMID.

From: Hiatt, Nissa (NIH/VRC) [C] (b) (6)
Sent: Tuesday, April 21, 2020 1:18 PM
To: Mascola, John (NIH/VRC) [E] (b) (6); Koup, Richard (NIH/VRC) [E] (b) (6); Graham, Barney (NIH/VRC) [E] (b) (6); Caviston, Julianne (NIH/NIAID) [E] (b) (6)
Cc: Prince, Tasheema (NIH/VRC) [C] (b) (6); Harris, Christina (NIH/NIAID) [E] (b) (6); Daucher, Marybeth (NIH/NIAID) [E] (b) (6)
Subject: FW: (ASAP media request) Anything to add from NIAID? FW: Q on performance evaluations of COVID-19 antibody tests

Hi John, Rick, Barney, and Julie,

Could you help review the NCI's draft reply to this reporter's question about validating antibody tests? They have asked for input today and I can share any edits or comments with the OCGR NSWB team.

Question:

The FDA recently noted that the NIH is developing a capacity to do performance evaluations of antibody tests being developed to look for signs of past SARS-CoV-2 infection.

Can you confirm that news and provide any details, like when the results of such evaluations might be available publicly, and whether the evaluations will include head-to-head comparisons of the tests to test their relative accuracy?

NCI draft reply:

NCI's Frederick National Laboratory for Cancer Research is validating antibody tests in cooperation with the FDA. To clarify, antibody tests—also called serology tests—are tests that are designed to detect antibodies in a person's blood to determine if that person's immune system has responded to the virus. These tests don't detect the virus itself (i.e. they are not diagnostic tests). Validating antibody tests is a crucial task in ensuring that they are effective and standardized. NCI is working in cooperation with the FDA to fulfill this task.

Thank you!

Nissa

Nissa Hiatt

Communications

Vaccine Research Center, NIAID, NIH

40 Convent Drive, Bldg 40, Room 1100

Bethesda, MD 20892

Cell: (b) (6)

Office (b) (6)

(b) (6)

<image001.png>

From: Lavelle, Judith (NIH/NIAID) [E] (b) (6)>

Sent: Tuesday, April 21, 2020 1:05 PM

To: NIAID BUGS <BUGS@niaid.nih.gov>; Daucher, Marybeth (NIH/NIAID) [E] (b) (6); Harris, Christina (NIH/NIAID) [E] (b) (6); Prince, Tasheema (NIH/VRC) [C] (b) (6); Hiatt, Nissa (NIH/VRC) [C] (b) (6)>

Cc: NIAID OCGR NSWB <NIAIDOCGRNSWB@mail.nih.gov>

Subject: (ASAP media request) Anything to add from NIAID? FW: Q on performance evaluations of COVID-19 antibody tests

Joe Carlson

Star Tribune

(b) (6) Joe.Carlson@startribune.com

Subject: Ab assay verification

Deadline: ASAP today

Hi all,

Anything from NIAID to add to Shannon's response from NCI?

Thanks!

Judy

This reporter wrote:

The FDA recently noted that the NIH is developing a capacity to do performance evaluations of antibody tests being developed to look for signs of past SARS-CoV-2 infection.

Can you confirm that news and provide any details, like when the results of such evaluations might be available publicly, and whether the evaluations will include head-to-head comparisons of the tests to test their relative accuracy?

My deadline is today, later this morning.

NCI responded:

NCI's Frederick National Laboratory for Cancer Research is validating antibody tests in cooperation with the FDA. To clarify, antibody tests—also called serology tests—are tests that are designed to detect antibodies in a person's blood to determine if that person's immune system has responded to the virus. These tests don't detect the virus itself (i.e. they are not diagnostic tests). Validating antibody tests is a crucial task in ensuring that they are effective and standardized. NCI is working in cooperation with the FDA to fulfill this task.

From: Hatch, Shannon (NIH/NCI) [E] (b) (6)
Sent: Tuesday, April 21, 2020 1:00 PM
To: Wojtowicz, Emma (NIH/OD) [E] (b) (6); NIAID OCGR NSWB
<NIAIDOCGRNSWB@mail.nih.gov>; NCI Press Officers <ncipressofficers@mail.nih.gov>
Cc: Myles, Renate (NIH/OD) [E] (b) (6); Fine, Amanda (NIH/OD) [E] (b) (6)
Subject: RE: Q on performance evaluations of COVID-19 antibody tests

Hi Emma,

We had requested that phrase be removed from FDA's statement on Friday (see attached), but that edit didn't get incorporated. The Frederick National Laboratory for Cancer Research (FNLCR) already had the capability to do serological testing for HPV antibodies. We're using that same capability to validate antibody tests for Coronavirus. The reporter is correct – the effort at FNLCR is to validate the antibody tests on the market; it's not a study to determine how many people in the US have tested positive for SARS COV2 antibodies.

There are several serology efforts going on, so it's possible reporters may be conflating them. I'm most familiar with the FNLCR effort to validate the antibody tests. If that's what the reporter is asking about, then I recommend this response (already cleared):

NCI's Frederick National Laboratory for Cancer Research is validating antibody tests in cooperation with the FDA. To clarify, antibody tests—also called serology tests—are tests that are designed to detect antibodies in a person's blood to determine if that person's immune system has responded to the virus. These tests don't detect the virus itself (i.e. they are not diagnostic tests). Validating antibody tests is a crucial task in ensuring that they are effective and standardized. NCI is working in cooperation with the FDA to fulfill this task.

Thanks,
Shannon

Shannon P. Hatch

Branch Chief, Media Relations
Office of Communications and Public Liaison

National Cancer Institute

Direct: (b) (6) | Mobile: (b) (6) | (b) (6)

www.cancer.gov

From: Wojtowicz, Emma (NIH/OD) [E] (b) (6)
Sent: Tuesday, April 21, 2020 12:38 PM
To: NIAID OCGR NSWB <NIAIDOCGRNSWB@mail.nih.gov>; Hatch, Shannon (NIH/NCI) [E] (b) (6); NCI Press Officers <ncipressofficers@mail.nih.gov>
Cc: Myles, Renate (NIH/OD) [E] (b) (6); Fine, Amanda (NIH/OD) [E] (b) (6)>
Subject: FW: Q on performance evaluations of COVID-19 antibody tests

Hello-

Please see the inquiry below. Is this something NIAID or NCI can handle?

Thanks-
Emma

From: Carlson, Joe <Joe.Carlson@startribune.com>
Sent: Tuesday, April 21, 2020 9:11 AM
To: Wojtowicz, Emma (NIH/OD) [E] (b) (6)
Cc: Myles, Renate (NIH/OD) [E] (b) (6); Fine, Amanda (NIH/OD) [E] (b) (6)
Subject: RE: Q on performance evaluations of COVID-19 antibody tests

Thanks Emma. Are you sure this is the right study?

The FDA said, "we are collaborating with the National Institutes of Health's National Cancer Institute (NCI) and National Institute of Allergy and Infectious Diseases (NIAID) and the Centers for Disease Control and Prevention (CDC) to establish a capability at NIH to evaluate serological tests for developers. This effort includes tests already available for use, as well as tests not yet on the market where additional validation data is needed to support an EUA. Performance assessments for serological tests will begin soon, and we expect to start seeing results shortly thereafter. We will review NIH's results

expeditiously, and performance results from NIH's assessment may complement and inform the determination of whether FDA issues an EUA for a particular test."

-- It seems like the FDA is talking about a system to do performance evaluations of the tests' accuracy, not a study to determine how many people in the US have antibodies to SARS-CoV-2.

Thanks,
-Joe

From: Wojtowicz, Emma (NIH/OD) [E] (b) (6)>
Sent: Tuesday, April 21, 2020 8:06 AM
To: Carlson, Joe <Joe.Carlson@startribune.com>
Cc: Myles, Renate (NIH/OD) [E] (b) (6)>; Fine, Amanda (NIH/OD) [E] (b) (6)
Subject: RE: Q on performance evaluations of COVID-19 antibody tests

Hi Joe-

Here is the link to our press release: <https://www.nih.gov/news-events/news-releases/nih-begins-study-quantify-undetected-cases-coronavirus-infection>. If you have follow up questions, please reach out to the contact listed on the release.

Thank you-
Emma

Emma Wojtowicz
Public Affairs Specialist
National Institutes of Health
Tel: (b) (6)
Email: (b) (6)
Web: <http://www.nih.gov>

NIH . . . Turning Discovery Into Health

From: Carlson, Joe <Joe.Carlson@startribune.com>
Sent: Tuesday, April 21, 2020 8:22 AM
To: NIH NMB (NIH/OD) <nmb@OD.NIH.GOV>
Subject: Q on performance evaluations of COVID-19 antibody tests

Hello – The FDA recently noted that the NIH is developing a capacity to do performance evaluations of antibody tests being developed to look for signs of past SARS-CoV-2 infection.

Can you confirm that news and provide any details, like when the results of such evaluations might be available publicly, and whether the evaluations will include head-to-head comparisons of the tests to test their relative accuracy?

My deadline is today, later this morning.

Thanks,
-Joe

Joe Carlson
Staff Reporter
Star Tribune
w612-673-4779
m (b) (6)



From: Graham, Barney (NIH/VRC) [E]
Sent: Fri, 7 Feb 2020 23:36:59 +0000
To: Gall, Jason (NIH/VRC) [C]; Stein, Judy (NIH/VRC) [C]
Subject: Fwd: Wuhan coronavirus vaccine

Hi Jason. I think you've been talking to this group?

BG

Sent from my iPhone

Begin forwarded message:

From: (b) (4), (b) (6)
Date: February 7, 2020 at 6:14:05 PM EST
To: "Graham, Barney (NIH/VRC) [E]" (b) (6) >
Cc: (b) (4), (b) (6) >
Subject: FW: Wuhan coronavirus vaccine

Hi Barney:

Per the call just completed, (b) (4)
(b) (4)

It seems they have a standing contract with them to do a certain number of them at an agreed rate. I hate to burden you with these administrative steps but is this CDA process moving? I do think we need (b) (4)

Safe travels to Atlanta/Geneva.

Best, Peter

(b) (4), (b) (6)

(b) (4), (b) (6)

From: (b) (4), (b) (6) >
Sent: Tuesday, February 4, 2020 3:37 AM
To: (b) (4), (b) (6) 'Graham, Barney (NIH/VRC) [E]'
(b) (6)>; (b) (4), (b) (6)
Cc: 'Mascola, John (NIH/VRC) [E]' (b) (6)>; 'Gall, Jason (NIH/VRC) [C]'
(b) (6)>; (b) (4), (b) (6)
(b) (4), (b) (6)
Subject: AW: Wuhan coronavirus vaccine

Dear Barney, dear Graham,

it will be my pleasure exchanging with you on this topic. Please feel free to share a draft CDA with me for our review. I trust we will be able to execute the same on short term. Upon receipt of the necessary technical information, we may then directly proceed with drafting a project proposal. We are of course also available to schedule a conference call to discuss details.

Dear (b) (4)

thanks for establishing the contact! We will get back to you once we have been in exchange with Barney and Graham.

Best wishes,

(b) (4)

We will attend:



(b) (4)

(b) (4), (b) (6)

(b) (4)

Von: (b) (4), (b) (6)

Gesendet: Dienstag, 4. Februar 2020 12:23

An: 'Graham, Barney (NIH/VRC) [E]'; (b) (4)

Cc: 'Mascola, John (NIH/VRC) [E]'; 'Gall, Jason (NIH/VRC) [C]'; (b) (4)

Betreff: Wuhan coronavirus vaccine

Dear Barney,

Thank you very much for the insight on Wuhan coronavirus vaccine.

Dear (b) (4)

Thanks for extending your support.

Dear Both,

I would like to connect both of you to (b) (4) through this email. You can have appropriate CDA in place.

(b) (4) can evaluate (b) (4)

Dear (b) (4)

Kindly evaluate the same and submit us a proposal for development of the same, including cost & timelines.

Regards,

(b) (4), (b) (6)

Page appears blank in original

From: Graham, Barney (NIH/VRC) [E]
Sent: Mon, 16 Mar 2020 22:50:09 +0000
To: Corbett, Kizzmekia (NIH/VRC) [E]
Subject: Fwd: CoV spike phylogenetic tree figures
Attachments: CoV_spike_trees3.pptx, ATT00001.htm

FYL

BG

Sent from my iPhone

Begin forwarded message:

From: "Boyington, Jeffrey (NIH/VRC) [E]" <(b) (6)>
Date: March 16, 2020 at 5:59:23 PM EDT
To: "Wang, Lingshu (NIH/VRC) [E]" <(b) (6)>
Cc: "Mascola, John (NIH/VRC) [E]" <(b) (6)>, "Graham, Barney (NIH/VRC) [E]" <(b) (6)>
Subject: CoV spike phylogenetic tree figures

Hi Lingshu,

Attached are 3 versions of phylogenetic trees for coronavirus spike protein sequences for your figures. The first two slides are from 55 representative strains and the last is for 1672 full length spike sequences from NCBI. Note that for spike protein, alpha divides into 2 different clades.

Best, Jeffrey

From: Graham, Barney (NIH/VRC) [E]
Sent: Tue, 31 Mar 2020 17:06:36 +0000
To: Loomis, Rebecca (NIH/VRC) [E]
Subject: RE: Meeting today at 1pm
Attachments: (b) (6) Quad review 2018.docx

Here is a quad review letter I wrote for (b) (6) a couple of years ago.

Barney

From: Loomis, Rebecca (NIH/VRC) [E] (b) (6) >
Sent: Tuesday, March 31, 2020 12:26 PM
To: Graham, Barney (NIH/VRC) [E] (b) (6) >
Subject: Meeting today at 1pm
Importance: High

Hi Barney,

I am scheduled to have a meeting with you today at 1pm – which I am happy to keep if you have the time.

If not, would you be willing to send me a reference letter or two to use as templates? (b) (6) asked me to write a letter of reference for (b) (6) P&T committee review coming up. It is due (b) (6) I don't have a lot of experience writing letters and want to use the right language, format, etc.

Other items;

1. (b) (5)
- 2.
- 3.
- 4.
- 5.
- 6.
- 7.
- 8.
9. Lastly, organizing my data files, general upkeep and reading literature.

Thank you and I hope you and family are staying safe,
Rebecca

From: Graham, Barney (NIH/VRC) [E]
Sent: Tue, 25 Feb 2020 17:37:30 +0000
To: Beigel, John (NIH) [E]
Cc: Cassetti, Cristina (NIH/NIAID) [E]; Marston, Hilary (NIH/NIAID) [E]; Ledgerwood, Julie (NIH/NIAID) [E]
Subject: FW: Coronavirus vaccine

Hi John,

Passing this to you in case you need more clinical sites.

Barney

From: Fauci, Anthony (NIH/NIAID) [E] (b) (6)
Sent: Tuesday, February 25, 2020 12:26 PM
To: Gary Simor (b) (6)
Cc: Graham, Barney (NIH/VRC) [E] (b) (6); Ledgerwood, Julie (NIH/NIAID) [E] (b) (6); Chen, Grace (NIH/NIAID) [E] (b) (6); Conrad, Patricia (NIH/NIAID) [E] (b) (6); Mascola, John (NIH/VRC) [E] (b) (6)
Subject: RE: Coronavirus vaccine

Thanks, Garry. I will pass your note on to the people who will be conducting the phase 1 vaccine trial here at NIH.

Best regards,

Tony

Anthony S. Fauci, MD
Director
National Institute of Allergy and Infectious Diseases
Building 31, Room 7A-03
31 Center Drive, MSC 2520
National Institutes of Health
Bethesda, MD 20892-2520
Phone: (b) (6)
FAX: (301) 496-4409
E-mail: (b) (6)

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From: Gary Simon <(b) (6)>

Sent: Tuesday, February 25, 2020 10:42 AM

To: Fauci, Anthony (NIH/NIAID) [E] <(b) (6)>; Fauci, Anthony (NIH/NIAID) [E]
(b) (6)

Subject: Coronavirus vaccine

Dear Tony,

I'm not sure which email you use. Anyway, we have done and are doing phase vaccine trials. Currently HIV with IAVI. Anyhow if you can use a site for a coronavirus vaccine trial, we are available and would like to participate if possible. I'm pretty sure we have a large population of medical students and housestaff who would volunteer (especially for some funding). It would certainly expedite getting samples to NIH for immune assays.

gary

Gary L. Simon, MD, PhD, MACP
Walter G. Ross Professor of Medicine
Director, Division of Infectious Diseases
Vice-Chairman, Department of Medicine
T (b) (6)
F 202 741-2241

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From: Graham, Barney (NIH/VRC) [E]
Sent: Fri, 24 Jan 2020 14:20:25 +0000
To: B.L. Haagmans
Subject: XVth International Nidovirus Symposium

Hi Bart,

I'm sure you are as busy as anyone in response to the Wuhan outbreak. It will make the upcoming Nidovirus meeting very timely. Likely to have more attendance than usual. I will be able to describe what we've done here in my talk.

As we've been working on the Wuhan response the last few weeks, it has been very helpful to have accumulated so much information on beta-CoV in general because we know how to stabilize proteins, etc. However, it has made me wonder what we would do if this was an arterivirus instead of a coronavirus. Will there be much at the conference on other nidoviruses with potential for crossing into humans. I know David O'Connor has worked on simian hemorrhagic fever virus and I'm sure there are others, but it would be informative for me to hear more about all the other potential zoonotic nidoviruses.

Best wishes,

Barney

From: Graham, Barney (NIH/VRC) [E]
Sent: Mon, 20 Apr 2020 16:52:51 +0000
To: Banerjee, Anirban (NIH/NICHD) [E]
Subject: RE: Query from PI in NICHD IRP - about testing SARS-COV-2 infectivity with virus bearing mutants of Spike protein

He would possibly know of groups with BL3 facilities. Connie Smalljohn now head the IRF (Intramural Research Facility) which is a NIAID program and has high level containment capacity. This is in the NIAID Division of Clinical Research headed by Cliff Lane.

Barney

From: Banerjee, Anirban (NIH/NICHD) [E] (b) (6)
Sent: Monday, April 20, 2020 12:49 PM
To: Graham, Barney (NIH/VRC) [E] (b) (6)>
Subject: Re: Query from PI in NICHD IRP - about testing SARS-COV-2 infectivity with virus bearing mutants of Spike protein

Dear Barney,

Thanks very much for your response. No, I haven't yet solved this. Ideally, I would like to collaborate with someone in the intramural program. Would Eric Freed be a good first point of contact at Frederick ?

Warm regards,

Anirban

From: "Graham, Barney (NIH/VRC) [E]" (b) (6)>
Date: Monday, April 20, 2020 at 12:43 PM
To: "Banerjee, Anirban (NIH/NICHD) [E]" (b) (6)>
Subject: RE: Query from PI in NICHD IRP - about testing SARS-COV-2 infectivity with virus bearing mutants of Spike protein

Sorry, but it looks like I missed this email earlier. You may have already solved your problem. At the VRC we are not working directly with the live virus. Most of our work is synthetic and focused on immune response measurements. I would ask investigators at IRF in Frederick or extramural investigators like Matt Frieman at Univ MD or Mark Denison at Vanderbilt.

Best wishes,

Barney

From: Banerjee, Anirban (NIH/NICHD) [E] (b) (6)
Sent: Wednesday, April 1, 2020 1:14 PM
To: Graham, Barney (NIH/VRC) [E] (b) (6)
Subject: Query from PI in NICHD IRP - about testing SARS-COV-2 infectivity with virus bearing mutants of Spike protein

Dear Dr. Graham,

I am a PI in NICHD intramural program. We are looking into the (b) (5)
(b) (5) We are following up on (b) (5)
(b) (5) was shown to (b) (5)
(b) (5) one of our main focuses.

Is there any way you may be able to help out assaying the effect of (b) (5)
(b) (5) This is a shot in the blue . I am guessing that you must be very very busy right now. Even if you cannot and point me towards someone who can, that would be of great help.

I apologize for the bother.

Warm regards,

Anirban

Anirban Banerjee
Head, Unit on Structural and Chemical Biology of Membrane Proteins
Neurosciences and Cellular and Structural Biology Division
Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHD)
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<https://science.nichd.nih.gov/confluence/display/banerjee/Home>