



DEPARTMENT OF HEALTH & HUMAN SERVICES

Public Health Service

National Institutes of Health
Freedom of Information Office
Building 31, Room 5B-35
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Bethesda, Maryland 20892-2107
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via Email: foia@sirillp.com

August 15, 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 300 pages responsive to your request 54107. Attached to this letter are 278 pages; NIH has sent the remaining 22 pages to the National Institute of Standards and Technology, the White House 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. Also attached are 35 pages of returned consults from the April 2022 production.

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: Mon, 27 Apr 2020 12:29:55 +0000
To: Corbett, Kizzmekia (NIH/VRC) [E]
Subject: RE: Figure 1.pptx

Thanks. I haven't submitted yet. There is actually a lot of rewriting and explaining to do and they gave me more words to use. (b) (5)

(b) (5) That results in (b) (5)

(b) (5).

BG

From: Corbett, Kizzmekia (NIH/VRC) [E] <(b) (6)>
Sent: Monday, April 27, 2020 8:20 AM
To: Graham, Barney (NIH/VRC) [E] <(b) (6)>
Subject: FW: Figure 1.pptx

Masaru's suggestions look very good to me. As always, I am a fan of color. I'm sure you have submitted this so maybe the following suggestions are null, however:

- I would (b) (5)
- Similarly for (b) (5) I would (b) (5)
- (b) (5)
correct? I'm not sure that is apparent here.

I don't know how much you (b) (5)
and I'm not sure if (b) (5) As well, (b) (5)
(b) (5)

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: "Kanekiyo, Masaru (NIH/VRC) [E]" (b) (6)
Date: Friday, April 24, 2020 at 4:10 PM
To: Barney Graham (b) (6), "Mascola, John (NIH/VRC) [E]" (b) (6), "Gall, Jason (NIH/VRC) [C]" (b) (6), "Ledgerwood, Julie (NIH/NIAID) [E]" (b) (6)>
Cc: "Bok, Karin (NIH/VRC) [E]" (b) (6)>, Kizzmekia Corbett (b) (6)>, Kaitlyn Morabito <(b) (6)>, "Ruckwardt, Tracy (NIH/VRC) [E]" (b) (6)>
Subject: Re: Figure 1.pptx

It doesn't look too dense or too busy to me. It might be (b) (5)
(b) (5)
One small comment about (b) (5) It should be (b) (5) not (b) (5)
in my opinion. It can probably be (b) (5)

Masaru

From: Barney Graham (b) (6)>
Date: Friday, April 24, 2020 at 3:42 PM
To: "Mascola, John (NIH/VRC) [E]" (b) (6), "Gall, Jason (NIH/VRC) [C]" (b) (6)>, "Ledgerwood, Julie (NIH/NIAID) [E]" (b) (6)>
Cc: "Bok, Karin (NIH/VRC) [E]" (b) (6)>, Kizzmekia Corbett (b) (6)>, "Morabito, Kaitlyn (NIH/VRC) [E]" (b) (6)>, "Ruckwardt, Tracy (NIH/VRC) [E]" (b) (6)>
Subject: Figure 1.pptx

I've been asked to add a figure to my brief perspective on the benefits and risks of going fast with vaccine development. Is this too dense with too much jargon to be helpful or do you think people can decipher what I mean?

Thanks,

Barney

From: Graham, Barney (NIH/VRC) [E]
Sent: Mon, 6 Apr 2020 13:00:39 +0000
To: Corbett, Kizzmekia (NIH/VRC) [E]
Subject: Fwd: Proposed (b) (4) challenge model

FYI.

BG

Sent from my iPhone

Begin forwarded message:

From: "Roederer, Mario (NIH/VRC) [E]" (b) (6)
Date: April 5, 2020 at 6:35:19 PM EDT
To: "Lewis, Mark" (b) (6)>, "Scorpio, Diana (NIH/VRC) [E]" (b) (6)>, "Graham, Barney (NIH/VRC) [E]" (b) (6)>, "Corbett, Kizzmekia (NIH/VRC) [E]" (b) (6)>, "Sullivan, Nancy (NIH/VRC) [E]" (b) (6)>, "Seder, Robert (NIH/VRC) [E]" (b) (6)>, "Moore, Ian (NIH/NIAID) [E]" (b) (6)>, "Todd, John-Paul (NIH/VRC) [E]" (b) (6)>, "Taylor, Alida (NIH/VRC) [E]" (b) (6)>, "Andersen, Hanne" (b) (6)>
Subject: Re: Proposed (b) (4) challenge model

The call will begin at 9 am tomorrow (details below). Please turn your video on. The videocon can start whether or not I'm on.

Thanks,

mr

Mario Roederer is inviting you to a scheduled Zoom meeting.

Topic: (b) (4) SARS-CoV-2 Modeling

Time: Apr 6, 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)

Mario Roederer, Ph.D.

Senior Investigator, [ImmunoTechnology Section](#)

Vaccine Research Center, NIAID, NIH

40 Convent Dr., Room 5509

Bethesda, MD 20892-3015

Phone: (b) (6)

FAX: 301 480-2788

On Apr 5, 2020, at 3:16 PM, Dr. Mark Lewis (b) (6) wrote:

I have asked Hanne be on this call.

Mark

Mark Lewis

Bioqual

From: Scorpio, Diana (NIH/VRC) [E] (b) (6)

Sent: Sunday, April 5, 2020 3:13:45 PM

To: Roederer, Mario (NIH/VRC) [E] (b) (6); Dr. Mark Lewis (b) (6)

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

(b) (6); Sullivan, Nancy (NIH/VRC) [E] <(b) (6)>; Seder, Robert

(NIH/VRC) [E] (b) (6); Moore, Ian (NIH/NIAID) [E] (b) (6);

(b) (6); Taylor, Alida (NIH/VRC) [E] (b) (6)

Subject: Re: Proposed (b) (4) challenge model

[EXTERNAL EMAIL] DO NOT CLICK links or attachments unless you recognize the sender and know the content is safe.

9 for me

Get [Outlook for iOS](#)

From: Roederer, Mario (NIH/VRC) [E] (b) (6)

Sent: Sunday, April 5, 2020 2:59:38 PM

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

Corbett, Kizzmekia (NIH/VRC) [E] (b) (6); Sullivan, Nancy (NIH/VRC) [E]

(b) (6); Seder, Robert (NIH/VRC) [E] (b) (6); Moore, Ian (NIH/NIAID) [E]

(b) (6); Todd, John-Paul (NIH/VRC) [E] (b) (6); Taylor, Alida (NIH/VRC)

[E] (b) (6); Scorpio, Diana (NIH/VRC) [E] (b) (6)

Subject: Proposed (b) (4) challenge model

We'd like to have a call to firm up the proposed (b) (4) study that will (b) (4)

(b) (4) I'm hoping for tomorrow before noon (I'm not free all afternoon).

Is 10 am ok with everyone? Or 9 or 11? I'll send around call-in info, and agenda when I know we can hold the call.

mr

Mario Roederer, Ph.D.

Senior Investigator, [ImmunoTechnology Section](#)

Vaccine Research Center, NIAID, NIH

40 Convent Dr., Room 5509

Bethesda, MD 20892-3015

Phone: (b) (6)

FAX: 301 480-2788

From: Graham, Barney (NIH/VRC) [E]
Sent: Tue, 10 Mar 2020 17:18:39 +0000
To: Koup, Richard (NIH/VRC) [E]
Subject: Re: Starting now in room 1201: COVID-19 special session

Sorry to be missing this.

Barney

Sent from my iPhone

On Mar 10, 2020, at 12:38 PM, Koup, Richard (NIH/VRC) [E] (b) (6) wrote:

Really great data being presented!

From: Boritz, Eli (NIH/NIAID) [E] (b) (6) >
Sent: Tuesday, March 10, 2020 12:10 PM
To: VRC Bldg 40 VRC Users (b) (6) >
Subject: Starting now in room 1201: COVID-19 special session

This session is scheduled to run 12:10-1:20. Speakers are as follows.

Speakers:

Zunyou Wu, *Chinese Center for Disease Control and Prevention*
15-minute live video update from China

John T. Brooks, *US Centers for Disease Control and Prevention*
15-minute update

Ralph S. Baric, *University of North Carolina*
25-minute lecture

Anthony S. Fauci, *National Institute of Allergy and Infectious Diseases, National Institutes of Health*
15-minute recorded update for CROI attendees

From: "Boritz, Eli (NIH/NIAID) [E]" (b) (6) >
Date: Tuesday, March 10, 2020 at 10:13 AM
To: NIH (b) (6)
Subject: Happening now - CROI Virtual Sessions at VRC

Dear All,

The CROI virtual session on "Targeting the Persistent HIV Reservoir" is currently running in 1201, with Tim Henrich presenting on use of VRC01 to image HIV reservoirs *in vivo* using PET. Please join if interested. Just as much space between people here as in the lab areas.

Eli

From: "Boritz, Eli (NIH/NIAID) [E]" (b) (6) >
Date: Friday, March 6, 2020 at 6:10 PM
To: NIH (b) (6)
Subject: Re: CROI Virtual Sessions at VRC

Dear All,

Updated location details for virtual CROI viewing are below. We will begin with the plenaries at 8:30 on Monday morning.

Monday – Bldg. 40 – Conference room 1201
Tuesday – Bldg. 40 – Conference room 1201
Wednesday – Bldg. 35 – Conference room 640

Eli

From: "Boritz, Eli (NIH/NIAID) [E]" (b) (6) >
Date: Friday, March 6, 2020 at 4:46 PM
To: NIH (b) (6) >
Subject: CROI Virtual Sessions at VRC

Dear All,

Please join Monday-Wednesday next week for viewing of CROI live webcasts in real time. We have arranged viewing locations for these webcasts, as below.

Monday: Building 40 Conference Room 1201
Tuesday: TBD
Wednesday: Building 35 Conference Room TBD

We will kick things off with Sharon Lewin's plenary about "HIV Cure from Bench to Bedside" at 8:30AM on Monday. Hope to see you there.

Eli

Further details about Virtual CROI are here:
<http://www.croiconference.org/virtual-croi-faq>

Page appears blank in original

From: Graham, Barney (NIH/VRC) [E]
Sent: Sun, 12 Apr 2020 00:33:47 +0000
To: Bok, Karin (NIH/VRC) [E]
Subject: RE: Timelines for OD-ASF
Attachments: mRNA 1273 High Level Timeline_KMM_BG.pptx

Hi Karin,

I was thinking we would add these bullet points from the nonclinical document we sent to Moderna. That gives them 3 different ways to think about the same thing. Not sure which is easiest for Tony.

Hope you and your family have a good weekend.

Barney

From: Bok, Karin (NIH/VRC) [E] (b) (6) >
Sent: Friday, April 10, 2020 5:22 PM
To: Marston, Hilary (NIH/NIAID) [E] (b) (6) >
Cc: Morabito, Kaitlyn (NIH/VRC) [E] (b) (6); Corbett, Kizzmekia (NIH/VRC) [E] (b) (6); Alvarado, Gabriela (NIH/VRC) [C] (b) (6) Carlton, Kevin (NIH/VRC) [E] <(b) (6)>; Graham, Barney (NIH/VRC) [E] (b) (6) >
Subject: Timelines for OD-ASF

Hilary,

Here are some easy to read timelines that we prepared for you and Dr. Fauci. We will keep these slides updated as the estimations might change in the future.

Have a great weekend,

Karin.

Karin Bok, MS, PhD
Senior Advisor, Vaccine Development
Office of the Director, Vaccine Research Center
National Institute of Allergy and Infectious Diseases
National Institutes of Health
phone: (b) (6) | mobile: (b) (6) | email: (b) (6)
<https://www.niaid.nih.gov/about/vrc>

From: Graham, Barney (NIH/VRC) [E]
Sent: Wed, 5 Feb 2020 17:22:41 +0000
To: Maldonado, Bryant (NIH/OD) [C]
Cc: Corbett, Kizzmekia (NIH/VRC) [E]; Young, Monique (NIH/VRC) [E]
Subject: Re: NIH's new cluster hiring program aims to help schools attract diverse faculty

I will be in Geneva then but would like to learn more about the program at some point.

Barney

Sent from my iPhone

On Feb 5, 2020, at 12:06 PM, Maldonado, Bryant (NIH/OD) [C] (b) (6) >
wrote:

Hi Kizzmekia,

How does Tuesday, Feb 11 at 1pm – 1:30pm sounds to you?

Kindly,
Bryant

From: "Maldonado, Bryant (NIH/OD) [C]" (b) (6)
Date: Wednesday, February 5, 2020 at 12:00 PM
To: "Corbett, Kizzmekia (NIH/VRC) [E]" (b) (6), "Valantine, Hannah (NIH/OD) [E]" (b) (6) >
Cc: "Graham, Barney (NIH/VRC) [E]" (b) (6), "Young, Monique (NIH/VRC) [E]" (b) (6) >
Subject: Re: NIH's new cluster hiring program aims to help schools attract diverse faculty

Good afternoon,

Thank you for your patience with me. Please give me a moment to confirm this time, and I will get back to you soon.

Respectfully,
Bryant

Bryant Maldonado [C] (he, him, his)
Sr Administrative Assistant
Scientific Workforce Diversity
(b) (6)

From: "Corbett, Kizzmekia (NIH/VRC) [E]" (b) (6) >
Date: Wednesday, February 5, 2020 at 11:58 AM
To: "Valantine, Hannah (NIH/OD) [E]" (b) (6)
Cc: "Graham, Barney (NIH/VRC) [E]" (b) (6) >, "Maldonado, Bryant (NIH/OD) [C]" (b) (6), "Young, Monique (NIH/VRC) [E]" (b) (6) >
Subject: Re: NIH's new cluster hiring program aims to help schools attract diverse faculty

Hi All,
Did we solidify a time at 8:30 - 10 am tomorrow?

Sent from the mobile device of:
Kizzmekia S. Corbett, PhD
Senior Research Fellow
coVip Scientific Lead
NIH | NIAID | VRC
(b) (6)

From: "Corbett, Kizzmekia (NIH/VRC) [E]" (b) (6)
Date: Saturday, February 1, 2020 at 5:48:54 PM
To: "Valantine, Hannah (NIH/OD) [E]" (b) (6) >
Cc: "Graham, Barney (NIH/VRC) [E]" (b) (6) >, "Maldonado, Bryant (NIH/OD) [C]" (b) (6), "Young, Monique (NIH/VRC) [E]" (b) (6)
Subject: Re: NIH's new cluster hiring program aims to help schools attract diverse faculty

Thanks,
That time block is open for me. Dr. Graham's admin superwoman is cc'ed.

Monique, the aforementioned meeting is optional for Dr. Graham, just wanted him in the loop if he'd like to attend.

Sent from the mobile device of:
Kizzmekia S. Corbett, PhD
Senior Research Fellow
coVip Scientific Lead
NIH | NIAID | VRC
(b) (6)

From: "Valantine, Hannah (NIH/OD) [E]" (b) (6) >
Date: Saturday, February 1, 2020 at 4:22:39 PM
To: "Corbett, Kizzmekia (NIH/VRC) [E]" (b) (6)
Cc: "Graham, Barney (NIH/VRC) [E]" (b) (6) <(b) (6)>, "Maldonado, Bryant (NIH/OD) [C]" (b) (6)
Subject: Re: NIH's new cluster hiring program aims to help schools attract diverse faculty

Looks like next Thursday 8:30-10

Might work but I'm copying Bryant to confirm with you on Monday.

Best

Hannah

Hannah Valentine

Chief Officer Scientific Work Force Diversity

Office of NIH Director

Senior Investigator NHLBI

On Feb 1, 2020, at 16:09, Corbett, Kizzmekia (NIH/VRC) [E] (b) (6) > wrote:

Dr. Valentine, could you have your admin support team member(s) contact me to schedule a meeting. I would like Dr. Graham to come to if no more than to hear about strategy for tenure-track placement.

Sent from the mobile device of:

Kizzmekia S. Corbett, PhD

Senior Research Fellow

NIH | NIAID | VRC

(b) (6)

From: "Valentine, Hannah (NIH/OD) [E]" (b) (6) >

Date: Saturday, February 1, 2020 at 3:59:19 PM

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

Cc: "Owens, Roland (NIH/OD) [E]" (b) (6) >

Subject: Re: NIH's new cluster hiring program aims to help schools attract diverse faculty

Agree - we should talk soon

Hannah Valentine

Chief Officer Scientific Work Force Diversity

Office of NIH Director

Senior Investigator NHLBI

On Feb 1, 2020, at 15:52, Corbett, Kizzmekia (NIH/VRC) [E] < (b) (6) > wrote:

I did. LID said they were looking for someone "older"

Keep me posted with openings elsewhere.

Cheers, ☺❤

Sent from the mobile device of:

Kizzmekia S. Corbett, PhD

Senior Research Fellow

NIH | NIAID | VRC

(b) (6)

From: "Owens, Roland (NIH/OD) [E]" (b) (6) >

Date: Saturday, February 1, 2020 at 10:23:54 AM

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

Cc: "Valantine, Hannah (NIH/OD) [E]" (b) (6)

Subject: RE: NIH's new cluster hiring program aims to help schools attract diverse faculty

Hi Kizzie,

Just don't forget to include the NIH Intramural Research Program in your job search.

Roland

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

Sent: Friday, January 31, 2020 8:41 PM

To: Owens, Roland (NIH/OD) [E] <(b) (6)>

Cc: Valantine, Hannah (NIH/OD) [E] (b) (6) >

Subject: Re: NIH's new cluster hiring program aims to help schools attract diverse faculty

This is awesome. My university offers have come with "Is there anyone you want to bring with you who would contribute to your research agenda"

I always pick a structural biologist, haha.

Cheers,

--

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

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Bethesda MD 20892

Laboratory: (b) (6)

Personal: (b) (6)

Fax: (301) 480-2771

From: "Owens, Roland (NIH/OD) [E]" <(b) (6)>
Reply-To: "Owens, Roland (NIH/OD) [E]" <(b) (6)>
Date: Friday, January 31, 2020 at 2:20 PM
To: "BSCINET@LIST.NIH.GOV" <BSCINET@LIST.NIH.GOV>
Subject: NIH's new cluster hiring program aims to help schools attract diverse faculty

See modified e-mail below.
Roland

From: Olivero, Ofelia (NIH/NCI) [E] <(b) (6)>
Sent: Friday, January 31, 2020 10:31 AM
To: NCI Diversity <NCIDiversity@nih.gov>
Subject: NIH's new cluster hiring program aims to help schools attract diverse faculty

The Faculty Institutional Recruitment for Sustainable Transformation (FIRST) initiative that Dr. Valentine presented last Friday, January 24th at the NIH Council of Councils has been approved to move forward. This initiative is modeled on the NIH Intramural Research Program [Distinguished Scholars Program](#). An article featured in Science Magazine today is included below and additional information about the FIRST initiative can be found at the links included here:

Slides from Council: https://dpcpsi.nih.gov/sites/default/files/CoC_Jan_2020_1115_FacultyDiversity.pdf
Background info for
Council: https://dpcpsi.nih.gov/sites/default/files/CoC_Jan_2020_1115_FIRST_program_concept_clearance.pdf
Video cast link (starts at 2:37): <https://videocast.nih.gov/summary.asp?live=35382&bhcp=1>

Article:

<https://www.sciencemag.org/news/2020/01/nih-s-new-cluster-hiring-program-aims-help-schools-attract-diverse-faculty>

From: Graham, Barney (NIH/VRC) [E]
Sent: Thu, 19 Mar 2020 08:49:47 +0000
To: Corbett, Kizzmekia (NIH/VRC) [E]; Ester Falconer; Wang, Lingshu (NIH/VRC) [E]
Cc: Payal Sipahimalani; Zhang, Yi (NIH/NIAID) [C]; Morabito, Kaitlyn (NIH/VRC) [E]; Alvarado, Gabriela (NIH/VRC) [C]; Kathryn Westendorf
Subject: RE: Wanna Talk Now... Since we are up? Re: Data format for (b) (4) output

We are also a little concerned about maintaining the reagent supply chain for key assays. Many things are becoming backordered.

Barney

From: Corbett, Kizzmekia (NIH/VRC) [E] (b) (6) >
Sent: Thursday, March 19, 2020 4:27 AM
To: Ester Falconer (b) (6); Wang, Lingshu (NIH/VRC) [E] (b) (6) >; Graham, Barney (NIH/VRC) [E] (b) (6) >
Cc: Payal Sipahimalani (b) (6) >; Zhang, Yi (NIH/NIAID) [C] (b) (6) >; Morabito, Kaitlyn (NIH/VRC) [E] (b) (6) >; Alvarado, Gabriela (NIH/VRC) [C] (b) (6) >; Kathryn Westendorf (b) (6)
Subject: Wanna Talk Now... Since we are up? Re: Data format for (b) (4) output

Good morning Ester, et. al.,

Yes, (b) (4)
(b) (4) As Lingshu mentioned, we will (b) (4)
(b) (4) We discussed this in a previous call. We have the knowledge, (b) (4)
(b) (4)
(b) (4) I've actually (b) (4)
(b) (4) and there will need to be (b) (4)
(b) (4)
(b) (4) Lingshu and Yi can comment (b) (4) but it
is not (b) (4). I believe that (b) (4)
(b) (4).

Happy to hop on the phone and discuss with you and Dr. Graham now actually, since... we are all team no (darn) sleep.

--

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: Ester Falconer (b) (6) >
Date: Wednesday, March 18, 2020 at 11:40 PM
To: "Wang, Lingshu (NIH/VRC) [E]" (b) (6) >, Barney Graham
(b) (6) >
Cc: Payal Sipahimalani (b) (6) >, Kizzmekia Corbett
(b) (6) >, "Zhang, Yi (NIH/NIAID) [C]" (b) (6), Kaitlyn
Morabito (b) (6) >, "Alvarado, Gabriela (NIH/VRC) [C]"
(b) (6) >, Kathryn Westendorf (b) (6) >
Subject: Re: Data format for (b) (4) output

Hi Lingshu, Kizzmekia, Barney and Team,

From our most recent meetings and email communications about the assay, we were expecting (b) (4)
(b) (4)
(b) (4) I'm not sure I recall how (b) (4)

I'm hoping to (b) (4) and I'm not
sure (b) (4)
(b) (4) Please let me know if I'm not interpreting that correctly.

(b) (4)
(b) (4)
(b) (4) I'd love to (b) (4)
(b) (4)

The AbCellera team is happy to jump on a call to discuss.

Thank you kindly,

Ester

On Wed, Mar 18, 2020 at 7:21 PM Wang, Lingshu (NIH/VRC) [E] (b) (6) > wrote:
Hi Payal,
We only (b) (4) We only can (b) (4)
(b) (4) I believe that (b) (4) It
may be (b) (4)

We can make a spreadsheet with (b) (4)

(b) (4) If you have a spreadsheet with (b) (4) it would be very helpful.

Thanks,
lingshu

From: Payal Sipahimalani (b) (6) >

Date: Wednesday, March 18, 2020 at 6:24 PM

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

Cc: Ester Falconer (b) (6) >, "Morabito, Kaitlyn (NIH/VRC) [E]" (b) (6) >, "Alvarado, Gabriela (NIH/VRC) [C]" < (b) (6) >

Subject: Data format for (b) (4) output

Hi Lingshu and Yi,

We're trying to prepare for (b) (4) before (b) (4) (b) (4) and have a question about (b) (4). May we expect a spreadsheet (b) (4) Should we expect (b) (4) (b) (4)

Thank you,
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

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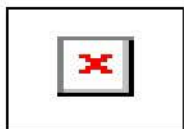
Ester Falconer, PhD
Head of Research & Development

AbCellera Biologics Inc,
2215 Yukon Street

Vancouver BC V5Y 0A1

T: (b) (6)

abcellera.com



From: Graham, Barney (NIH/VRC) [E]
Sent: Tue, 7 Apr 2020 21:07:15 +0000
To: Bok, Karin (NIH/VRC) [E]
Cc: Stein, Judy (NIH/VRC) [C]; Morabito, Kaitlyn (NIH/VRC) [E]; Alvarado, Gabriela (NIH/VRC) [C]; Petrik, Amy (NIH/NIAID) [E]
Subject: Re: Follow up (b) (4) covid-19

I guess I'm not entirely clear whether this is for (b) (4) or for a (b) (4) (b) (4)?

Either way the best place to start is a call to decide about whether it should be a CRADA or a licensing agreement.

Barney

Sent from my iPhone

On Apr 7, 2020, at 4:47 PM, Bok, Karin (NIH/VRC) [E] (b) (6) > wrote:

We have a call set up with (b) (4) Just FYI in case that is a good venue to discuss.
I can make sure everyone here is included.

From my recollection, (b) (4)
The conclusion of that call was that (b) (4)
(b) (4)
(b) (4)

Karin.

Karin Bok, MS, PhD
Senior Advisor, Vaccine Development
Office of the Director, Vaccine Research Center
National Institute of Allergy and Infectious Diseases
National Institutes of Health
phone: (b) (6) | mobile: (b) (6) | email: (b) (6)
<https://www.niaid.nih.gov/about/vrc>

From: "Stein, Judy (NIH/VRC) [C]" (b) (6)
Date: Tuesday, April 7, 2020 at 4:38 PM

To: "Graham, Barney (NIH/VRC) [E]" <(b) (6)>
Cc: Karin Bok (b) (6), "Morabito, Kaitlyn (NIH/VRC) [E]"
(b) (6), "Alvarado, Gabriela (NIH/VRC) [C]" (b) (6)>,
"Petrik, Amy (NIH/NIAID) [E]" (b) (6)>
Subject: FW: Follow up (b) (4) covid-19

Hi Barney,
I think there is some confusion about whether you would like a CRADA (b) (4) collaborate on (b) (4) (b) (4).
(b) (4)s pressing Amy and me for a call to discuss. From reading the emails below, you initially told (b) (4) that the VRC would discuss a CRADA but then in the more recent emails, you refer to sending materials under a CRADA.

If you confirm that you would like to go forward with a CRADA, we can set up a call.
Thanks,
Judy

From: (b) (4), (b) (6)
Sent: Tuesday, April 7, 2020 11:06 AM
To: Stein, Judy (NIH/VRC) [C] (b) (6); Gall, Jason (NIH/VRC) [C] (b) (6)>
Cc: (b) (4), (b) (6)
Subject: FW: Follow up (b) (4) covid-19

Hi Judy,

Thanks for your response a short while ago; please see the below email thread between Dr. Graham and (b) (4). Our understanding is that the VRC team is supportive and understands our desire to get started as soon as possible,

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

From: (b) (4), (b) (6)
Sent: Tuesday, April 07, 2020 11:04 AM
To: (b) (4), (b) (6)
(b) (4), (b) (6)
Cc: (b) (4), (b) (6)
Subject: RE: Follow up (b) (4) covid-19

Thanks (b) (4)

Maybe the below email can be forwarded to Judy to bring everybody on the same page. I believe the list with all what we need should be available shortly from the team.

I am copying (b) (4) to have everybody on the same page.

Kind regards

(b) (4)

From: (b) (4), (b) (6)
Sent: mardi 7 avril 2020 16:51
To: (b) (4), (b) (6)
Subject: FW: Follow up (b) (4) covid-19

Agreec (b) (4)

I believe the intent was clear for Barney Graham – see below

From: Graham, Barney (NIH/VRC) [E] (b) (6)>
Sent: Saturday, April 04, 2020 4:57 PM
To: (b) (4), (b) (6)
Cc: (b) (6)>; Gall, Jason (NIH/VRC) [C] (b) (6);
Mascola, John (NIH/VRC) [E] (b) (6)>; Carlton, Kevin (NIH/VRC) [E]
(b) (6)>; Koup, Richard (NIH/VRC) [E] <(b) (6)>; Ledgerwood, Julie
(NIH/NIAID) [E] (b) (6)>; Young, Monique (NIH/VRC) [E] (b) (6)>;
(b) (4), (b) (6)
Subject: RE: Follow up (b) (4) covid-19

EXTERNAL

Hi (b) (4)

We can help with (b) (4) under the CRADA depending on what you need. We have made some progress on (b) (4). We are learning about (b) (4) and can share what we know.

Take care,

Barney

From: (b) (4), (b) (6)
Sent: Friday, April 3, 2020 4:47 PM
To: Graham, Barney (NIH/VRC) [E] (b) (6)>
Cc: (b) (4), (b) (6) Gall, Jason (NIH/VRC) [C] (b) (6);
Mascola, John (NIH/VRC) [E] (b) (6)>; Carlton, Kevin (NIH/VRC) [E]
(b) (6)>; Koup, Richard (NIH/VRC) [E] (b) (6)>; Ledgerwood, Julie
(NIH/NIAID) [E] (b) (6)>; Young, Monique (NIH/VRC) [E] (b) (6)>;

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

Subject: RE: Follow up (b) (4) covid-19

Dear Barney,
I hope all is going well with the team and the Study.

Thanks to Monique for working on scheduling a team discussion.

In the meantime, based on your initial feedback we are planning to (b) (4)
Would VRC be willing to (b) (4)
Is this something we can already take up with Jason in parallel now?

Many thanks,
(b) (4)

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

Sent: Monday, March 30, 2020 5:49 PM

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

Cc: (b) (4), (b) (6)>; Gall, Jason (NIH/VRC) [C] (b) (6)>; Mascola, John (NIH/VRC) [E] (b) (6)>; Carlton, Kevin (NIH/VRC) [E] (b) (6)>; Koup, Richard (NIH/VRC) [E] (b) (6)>; Ledgerwood, Julie (NIH/NIAID) [E] (b) (6)>; Young, Monique (NIH/VRC) [E] (b) (6)>

Subject: RE: Follow up (b) (4) covid-19

EXTERNAL

We are getting very proficient with Zoom, but these next two weeks are critical to the phase 1 and I think it will take most of our time. Maybe the week of April 13 or after. Monique may be able to find a time and we will help with the attendee list.

Barney

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

Sent: Monday, March 30, 2020 5:36 PM

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

Cc: (b) (4), (b) (6) Gall, Jason (NIH/VRC) [C] (b) (6)>; Mascola, John (NIH/VRC) [E] <jmascola@mail.nih.gov>; Carlton, Kevin (NIH/VRC) [E] (b) (6)>; Koup, Richard (NIH/VRC) [E] <rkoup@mail.nih.gov>; Ledgerwood, Julie (NIH/NIAID) [E] (b) (6)>

Subject: RE: Follow up (b) (4) covid-19

Thanks for your quick response, Barney. I completely understand the challenges of course. We will await your feedback on the CRADA.

In the meantime, can we already try to schedule a scientific discussion on (b) (4) do you think you would have time to talk through that with a few scientists on our side?

(b) (4)

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

Sent: Monday, March 30, 2020 4:56 PM

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

Cc: (b) (4), (b) (6); Gall, Jason (NIH/VRC) [C] (b) (6)>; Mascola, John (NIH/VRC) [E] (b) (6)>; Carlton, Kevin (NIH/VRC) [E] (b) (6)>; Koup, Richard (NIH/VRC) [E] (b) (6)>; Ledgerwood, Julie (NIH/NIAID) [E] (b) (6)

Subject: Re: Follow up (b) (4) covid-19

EXTERNAL

Hi (b) (4)

I did talk to (b) (4) about this and I think it is a good idea to (b) (4)

We can discuss internally whether we can support a CRADA. At the moment we are working with a reduced work force and struggling to meet our prior obligations. Therefore, I'm not sure we have bandwidth to work with you collaboratively at this time. We will get back with you.

The longer term (b) (4) would definitely be of interest to me.

Barney

Sent from my iPhone

On Mar 30, 2020, at 3:53 PM, (b) (4), (b) (6) wrote:

Dear Barney,

I hope you are doing well, and I'm certain you are extremely busy during this challenging time.

As you may recall (b) (4) to discuss (b) (4)

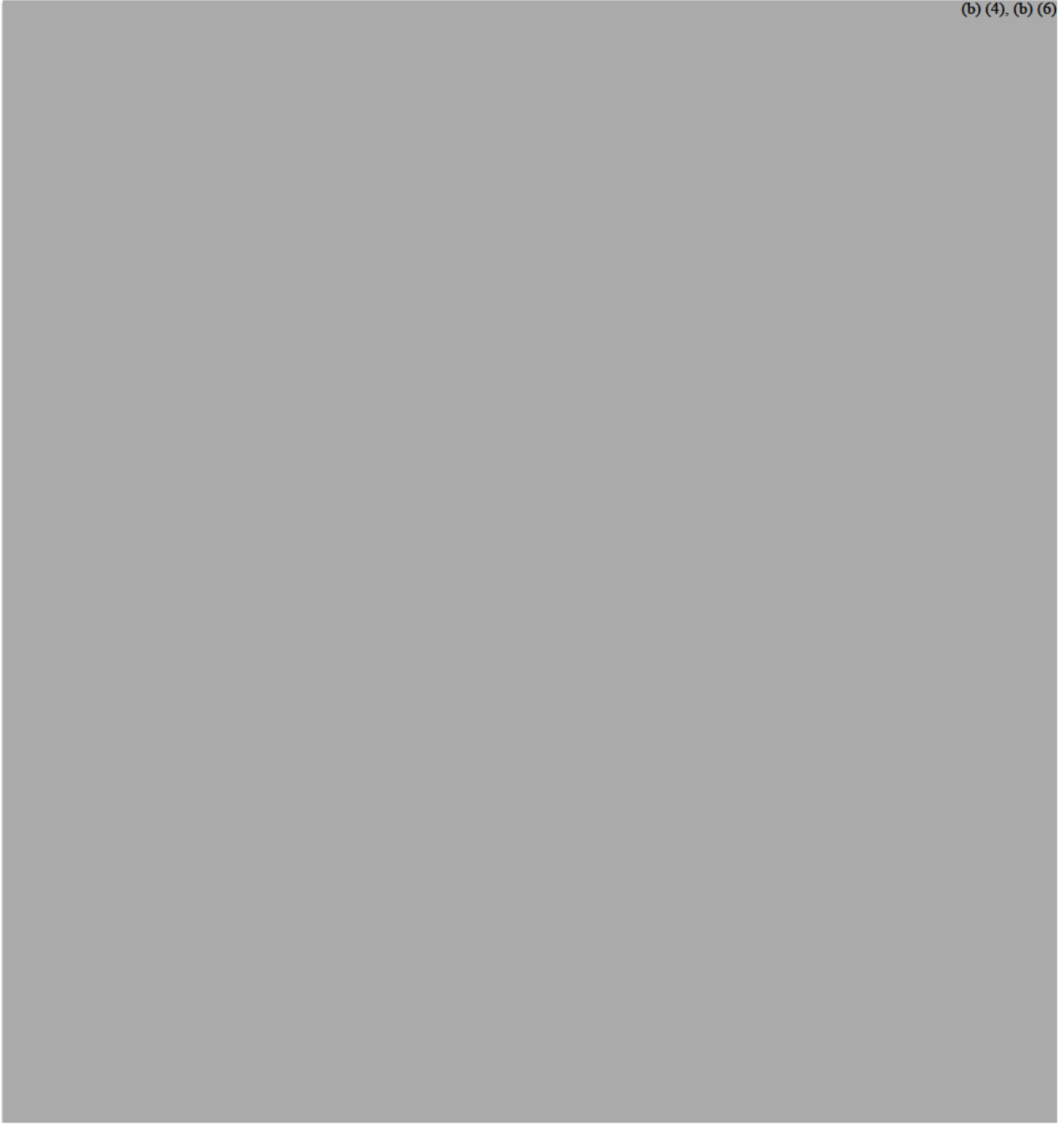
I am reaching out now to let you know that we would like to move further to establish a CRADA between (b) (4) (b) (4)

Could you confirm you are still interested to move forwards on this?

I look forward to hearing back from you. Ideally we would like to organize a call this week if feasible

Warm regards,

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



From: Graham, Barney (NIH/VRC) [E]
Sent: Thu, 2 Apr 2020 21:07:12 +0000
To: Erbelding, Emily (NIH/NIAID) [E]
Cc: Tesfaya, Selamawit (OS/ASPR/BARDA) (CTR)
Subject: BARDA DARPA NIAID meeting at 5pm
Attachments: Short course on vaccine enhanced disease.pptx

Ok Just seeing this.

BG

From: Erbelding, Emily (NIH/NIAID) [E] <[REDACTED]> (b) (6)
Sent: Thursday, April 2, 2020 4:59 PM
To: Graham, Barney (NIH/VRC) [E] [REDACTED] (b) (6)
Subject: FW: the BARDA DARPA NIAID meeting at 5pm

Barney—they said that webex might not project your screen so also good to send your slides to Selamawit.

From: Graham, Barney (NIH/VRC) [E]
Sent: Sun, 22 Mar 2020 14:32:21 +0000
To: Koup, Richard (NIH/VRC) [E]
Cc: Mascola, John (NIH/VRC) [E]; Corbett, Kizzmekia (NIH/VRC) [E]; Ledgerwood, Julie (NIH/NIAID) [E]
Subject: Re: collaboration with NCI

Yes. Adrian should be in loop. The (b) (5) is probably a more elaborate research tool, but he can say how cost effective it could be. For this I think people had in mind (b) (5) just to find the denominator.

BG

Sent from my iPhone

On Mar 21, 2020, at 4:32 PM, Koup, Richard (NIH/VRC) [E] (b) (6) > wrote:

Is this similar to the (b) (5) platform that Adrian is setting up? Should he be in the loop?

Rick

From: Mascola, John (NIH/VRC) [E] (b) (6) >
Sent: Saturday, March 21, 2020 3:46 PM
To: Graham, Barney (NIH/VRC) [E] (b) (6) >
Cc: Corbett, Kizzmekia (NIH/VRC) [E] (b) (6) >; Ledgerwood, Julie (NIH/NIAID) [E]
(b) (6) Koup, Richard (NIH/VRC) [E] (b) (6)
Subject: Re: collaboration with NCI

Sounds good!

Sent from my iPhone

On Mar 21, 2020, at 15:39, Graham, Barney (NIH/VRC) [E] <(b) (6)> wrote:

Or DCR. I think Cliff want to be involved. He's the one who referred Doug to me.

BG

Sent from my iPhone

On Mar 21, 2020, at 3:36 PM, Mascola, John (NIH/VRC) [E] (b) (6) wrote:

And DMID could take lead for NIAID

Sent from my iPhone

On Mar 21, 2020, at 14:29, Graham, Barney (NIH/VRC) [E] (b) (6) wrote:

Hi John,

I've gone back and forth a few times this week with Doug Lowy on how he might develop serology assays for his cancer centers and clinical programs. Today he called me because Alex Azar asked if the NCI resources in Frederick could be deployed to help with COVID-19. He is particularly interested in greater serosurveillance. Doug said most of the cancer research can be put on the back burner and he can assign significant resources to this through (b) (5) and intramural funds. They have a protein production group and a large serology group established originally for HPV screening. He thought that combining NCI and NIAID resources could be beneficial to everyone. I thought it was a great idea and once set up, they could do things relatively independently. I indicated that we would discuss and had in mind that Julie would be main contact for serosurveillance studies and that Kizzy would be main the contact for protein production and assay development. I wanted to discuss this internally before triggering anything because Tony would need to know and agree, and I think this should be done in some way with CDC since they have more professional epidemiologists. I could envision a relatively quick collection of samples from established NIAID and NCI clinical sites and generating a lot of anti-spike serology data. I was positive with him about our willingness to help set this up, but he is expecting an email from with a list of people to contact to start the process.

May be we could discuss later.

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: Mon, 9 Mar 2020 17:00:19 +0000
To: Young, Monique (NIH/VRC) [E]
Subject: FW: NIDO2020 meeting postponed

FYI.

BG

From: Astrid Smarius <a.smarius@congresscompany.com>
Sent: Monday, March 9, 2020 12:18 PM
Subject: NIDO2020 meeting postponed



Dear keynote speaker, invited speaker, and session chairs,

Much to our regret, after careful consultation with our advisory board, we see ourselves forced to postpone the NIDO2020 meeting, given the expanding global epidemic and escalating European situation of the coronavirus outbreak.

We are discussing possible dates with the venue and will inform you all as soon as possible about the new plan.

For now all abstracts will be withdrawn, and we ask session chairs to keep all information of these abstracts or related to them strictly confidential. If you have saved any text in your personal folders, please be so discrete as to delete this.

We will take effort to keep the program of invited and keynote speakers intact as much as possible, but we would like to ask your understanding for having to make changes here and there for the postponed version of the meeting.

Thank you so much for your understanding. Below you will find the general announcement that we will soon be sent to our entire mailing list and which will be put on the website.

All the best,
Berend-Jan Bosch, Bart Haagmans and Marjolein Kikkert

Dear All,

Due to the continuing global spread of SARS-CoV-2, we had to make the very difficult decision to postpone the NIDO2020 meeting - planned for May 10-14 2020 in Egmond aan Zee, NL – to next year.

This was a very hard decision to make, but because of the travel restrictions for participants, the escalating outbreak in Europe and increasing concerns for participating in group gatherings like NIDO2020 for personal and public health, we had to take the decision for postponement of the meeting.

All individuals that have registered for the meeting and/or have booked hotel rooms will be informed shortly about the possible cancellation scenario's.

All submitted abstracts will be withdrawn, and we would like to emphasize that all of the contents will remain strictly confidential and will not be shared in any way.

We hope to be able to announce the new date for NIDO2021 very soon, please keep an eye on your mailbox and the [website](#)

While we are disappointed that we cannot bring together the Nidovirus community this year, we are dedicated to organise this meeting for you next year with renewed enthusiasm.

Sincerely,

Berend Jan Bosch, Bart Haagmans and Marjolein Kikkert

Please await further instructions first. Any remaining questions can be addressed to Astrid Smarius: nido2020@congresscompany.com

From: Graham, Barney (NIH/VRC) [E]
Sent: Mon, 30 Mar 2020 19:52:48 +0000
To: McDermott, Adrian (NIH/VRC) [E]
Cc: Morabito, Kaitlyn (NIH/VRC) [E]; Stein, Judy (NIH/VRC) [C]; Corbett, Kizzmekia (NIH/VRC) [E]
Subject: Re: SARS-CoV-2 S-2P

You mean (b) (5) Oh well. I would just (b) (5)

BG

Sent from my iPhone

On Mar 30, 2020, at 3:50 PM, McDermott, Adrian (NIH/VRC) [E]

(b) (6) wrote:

(b) (4), (b) (5) – I realize it's (b) (5)

(b) (4)

A

From: Barney Graham (b) (6) >
Date: Monday, March 30, 2020 at 3:36 PM
To: "Morabito, Kaitlyn (NIH/VRC) [E]" (b) (6) >
Cc: "McDermott, Adrian (NIH/VRC) [E]" (b) (6) >, "Stein, Judy (NIH/VRC) [C]" (b) (6) >, "Corbett, Kizzmekia (NIH/VRC) [E]" (b) (6) >
Subject: Re: SARS-CoV-2 S-2P

(b) (5) It's not about IP. The S-2P expresses much better than WT so it's easier to make, and it maintains prefusion state better than WT so it's a better antigen for the assay. This is true for all the CoV spike proteins we've tested.

Barney

Sent from my iPhone

On Mar 30, 2020, at 3:27 PM, Morabito, Kaitlyn (NIH/VRC) [E] [REDACTED] (b) (6) wrote:

Adrian,

The VRC is pursuing a patent on the S-2P mutations on all beta-coronaviruses. Others have also applied the same mutation which was published for MERS-CoV, SARS, and HKU1 to the new coronavirus, as [REDACTED] (b) (5) since it's been published. I don't have a [REDACTED] (b) (5) but I think [REDACTED] (b) (5)

I personally think we should [REDACTED] (b) (5) [REDACTED] (b) (5) put Barney and Judy can comment.

Kaitlyn

From: Adrian McDermott [REDACTED] (b) (6)
Date: Monday, March 30, 2020 at 3:22 PM
To: "Morabito, Kaitlyn (NIH/VRC) [E]" [REDACTED] (b) (6)
Cc: Judy Stein [REDACTED] (b) (6) >
Subject: SARS-CoV-2 S-2P

Kaitlyn,

Presuming Dr. Graham and the VRC are protecting the protein with IP? [REDACTED] (b) (5) [REDACTED] (b) (5)

Just chatting with [REDACTED] (b) (4) and we were wondering about [REDACTED] (b) (4) [REDACTED] (b) (4)

Thanks

Adrian

*Adrian B McDermott. Ph.D.
Chief, Vaccine Immunology Program
Vaccine Research Center, NIAID, NIH
40 Convent Dr., Room 3508
Bethesda, MD 20892-3015
Phone (office): [REDACTED] (b) (6)
Phone (Cell): [REDACTED] (b) (6)*

From: Graham, Barney (NIH/VRC) [E]
Sent: Thu, 30 Jan 2020 18:03:00 +0000
To: Lerner, Andrea (NIH/NIAID) [E]
Cc: Morabito, Kaitlyn (NIH/VRC) [E]; Marston, Hilary (NIH/NIAID) [E]
Subject: Re: slides from ASFs talk yesterday

Ok. Thanks. I don't think we can distribute the mRNA data widely. The other slide should be oK.

BG

Sent from my iPhone

On Jan 30, 2020, at 6:52 PM, Lerner, Andrea (NIH/NIAID) [E] (b) (6) wrote:

Hi Barney,

Hilary told me that you might want a copy of ASFs slides from the ASM Biothreats coronavirus talk yesterday? Just let me know if that is the case and I can send over.

Also—others are asking about copies of the slides. The only one I wanted to run by you and make sure it is OK to distribute is attached—can you let me know if OK to send around to folks who ask?

Sincerely,

Andrea

Andrea Lerner, MD
Medical Officer
Office of the Director
NIAID/NIH
31 Center Drive, Room 7A10A
Bethesda, MD 20892

(b) (6)

<VRC moderna CoV.pptx>

From: Graham, Barney (NIH/VRC) [E]
Sent: Fri, 3 Jan 2020 17:17:08 +0000
To: Chen, Man (NIH/VRC) [E]
Subject: Re: WUHAN

Thanks Man,

I'm especially interested if it is a coronavirus or paramyxovirus, or perhaps a new pneumovirus.

BG

Sent from my iPhone

On Jan 3, 2020, at 11:03 AM, Chen, Man (NIH/VRC) [E] (b) (6) wrote:

Barney,

There are total 44 cases of pneumonia reported upto today, 1 severe case . The part of patients were from Huanan seafood market, where also sale meat of poultry, beef, pork.

1. I tried to talk to (b) (5) (b) (5) which may be still (b) (5) but some people (b) (5) (b) (5) One person mentioned (b) (5) (b) (5).
2. (b) (5) (b) (5).
3. (b) (5) (b) (5).

I will update to you when I get more news.

Man

Man Chen
Staff Scientist
Viral Pathogenesis Laboratory
Vaccine Research Center
National Institute of Allergy and Infectious Diseases, NIH
40 Convent Drive, MSC 3017
Bldg 40, Room 2612
Bethesda, MD 20892-3017
Phone: (b) (6)

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and Infectious Diseases shall not accept liability for any 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: Wed, 29 Apr 2020 16:06:12 +0000
To: Mascola, John (NIH/VRC) [E]; Calder, Thomas (NIH/NIAID) [E]; Bok, Karin (NIH/VRC) [E]
Cc: Ledgerwood, Julie (NIH/NIAID) [E]; Koup, Richard (NIH/VRC) [E]; Austin, Sarah (NIH/NIAID) [E]
Subject: RE: NIAID COVID-19 DivDir Sync meeting

Agree, except that the NCI work and extended testing CDC is using in NY is using our spike protein and at least started with our protocol.

Barney

From: Mascola, John (NIH/VRC) [E] (b) (6)
Sent: Wednesday, April 29, 2020 12:05 PM
To: Calder, Thomas (NIH/NIAID) [E] (b) (6); Bok, Karin (NIH/VRC) [E] (b) (6)
Cc: Ledgerwood, Julie (NIH/NIAID) [E] (b) (6); Graham, Barney (NIH/VRC) [E] (b) (6); Koup, Richard (NIH/VRC) [E] (b) (6); Austin, Sarah (NIH/NIAID) [E] (b) (6)
Subject: RE: NIAID COVID-19 DivDir Sync meeting

Karin,

Does VRC have any slides here. I think most of this falls within DMID.

John

From: Calder, Thomas (NIH/NIAID) [E] (b) (6)
Sent: Wednesday, April 29, 2020 11:23 AM
To: Dieffenbach, Carl (NIH/NIAID) [E] (b) (6); Cassetti, Cristina (NIH/NIAID) [E] (b) (6); Mascola, John (NIH/VRC) [E] (b) (6); Holland, Steven (NIH/NIAID) [E] (b) (6)
Subject: RE: NIAID COVID-19 DivDir Sync meeting

Dear All,

Just a friendly reminder – if you would like to use slides for the agenda item “**NIAID Investment Ideas for Diagnostic Funding,**” please send your slides to me prior to today’s meeting.

Thanks,
Thomas

Thomas Calder, PhD

Health Science Policy Analyst
Policy, Planning, and Evaluation (PP&E) Branch, NIAID
P: (b) (6) | A: Building 31, Room 7A46G

From: Calder, Thomas (NIH/NIAID) [E]
Sent: Monday, April 27, 2020 5:41 PM
To: Dieffenbach, Carl (NIH/NIAID) [E] <(b) (6)>; Cassetti, Cristina (NIH/NIAID) [E] <(b) (6)>; Mascola, John (NIH/VRC) [E] <(b) (6)>; Holland, Steven (NIH/NIAID) [E] <(b) (6)>
Cc: Marston, Hilary (NIH/NIAID) [E] <(b) (6)>; Schneider, Johanna (NIH/NIAID) [E] <(b) (6)>; Nicholas (NIH/NIAID) Bushar [C] <(b) (6)>
Subject: NIAID COVID-19 DivDir Sync meeting

Dear All,

For **Wednesday's NIAID COVID-19 DivDir Sync meeting**, could you please provide a short overview of your Division's diagnostic investment ideas that Hugh requested? We are dedicating 25 mins (~6 min per Division) to this agenda item.

If you would like to use slides, could you please send those to me prior to the meeting? I'm happy to share the slides on my screen during the meeting.

Thanks,
Thomas

Thomas Calder, PhD
Health Science Policy Analyst
Policy, Planning, and Evaluation (PP&E) Branch
National Institute of Allergy and Infectious Diseases
P: (b) (6) | A: Building 31, Room 7A46G

From: Graham, Barney (NIH/VRC) [E]
Sent: Mon, 24 Feb 2020 13:43:48 +0000
To: Stein, Judy (NIH/VRC) [C]
Subject: RE: Request for collaboration on (b) (4)

If we have the (b) (4) already made, we can send.

BG

From: Stein, Judy (NIH/VRC) [C] (b) (6)
Sent: Monday, February 24, 2020 8:42 AM
To: Graham, Barney (NIH/VRC) [E] <(b) (6)>
Subject: RE: Request for collaboration on (b) (4)

Hi Barney,
Do you want to give Rao (b) (4)?
If so, I will revise his SLA.
Thanks,
Judy

From: Graham, Barney (NIH/VRC) [E] (b) (6)
Sent: Monday, February 24, 2020 8:38 AM
To: Corbett, Kizzmekia (NIH/VRC) [E] (b) (6); Stein, Judy (NIH/VRC) [C]
(b) (6)
Cc: Morabito, Kaitlyn (NIH/VRC) [E] (b) (6)
Subject: RE: Request for collaboration on (b) (4)

Agree. We are only sharing (b) (4) at this point.

BG

From: Corbett, Kizzmekia (NIH/VRC) [E] (b) (6)
Sent: Monday, February 24, 2020 8:31 AM
To: Stein, Judy (NIH/VRC) [C] (b) (6)>; Graham, Barney (NIH/VRC) [E]
(b) (6)
Cc: Morabito, Kaitlyn (NIH/VRC) [E] (b) (6)>
Subject: Re: Request for collaboration on (b) (4)

We have about (b) (4)
(b) (4). As yet, Olu have been (b) (4)
(b) (4) I really need her to (b) (4). We
will be (b) (4)
(b) (4)

Unfortunately, we are now tapped out of (b) (4) Unless, Dr. Graham would like to enlist Azad, et al.

SOPs and (b) (4) is all we can offer. I'm sorry.

--

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: Monday, February 24, 2020 at 7:57 AM

To: Barney Graham (b) (6) >

Cc: Kizzmekia Corbett (b) (6) >, Kaitlyn Morabito

(b) (6)

Subject: RE: Request for collaboration on (b) (4)

Hi Barney,

I checked with Amy and we would need to provide at least a more specific description of the (b) (4) that we will send rather than the very general description that Rao requested.

Will you send more than the (b) (4) that we currently have?

What types of (b) (4) will you send – (b) (4)

Thanks,

Judy

From: Venigalla B Rao <(b) (6)>

Sent: Sunday, February 23, 2020 2:57 PM

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

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

(b) (6) >; Corbett, Kizzmekia (NIH/VRC) [E] (b) (6) >; Morabito,

Kaitlyn (NIH/VRC) [E] (b) (6) >; Bok, Karin (NIH/VRC) [E] (b) (6) >; Ralph

A. Albano (b) (6) >; Petrik, Amy (NIH/NIAID) [E] (b) (6) >

Subject: Re: Request for collaboration on (b) (4)

Dear Judy,

Many thanks for getting the SLA forward on a Sunday, greatly appreciate it. I have been in communication with Dr. Graham regarding (b) (4)

(b) (4)
Therefore, I have revised the list of materials such that the SLA will cover these materials that Dr. Graham is willing to provide for our research.

Please note that the materials will be used for research purpose only, not for commercialization. Therefore, these fall under the umbrella of sharing materials among researchers, as per the regular NIH policies. Therefore, research materials even if they are under patent consideration can be exchanged under this policy.

I am attaching the revised statement of materials in the SLA. Please let me know if this is ok. I plan to meet with Ralph tomorrow for another reason and will also be able to explain any questions he may have.

With best regards,

Rao

On Sun, Feb 23, 2020 at 12:58 PM Stein, Judy (NIH/VRC) [C] (b) (6) wrote:

Dear Ralph,

I have attached our standard patent pending SLA. Can you please complete the signature block, sign and email the pdf back to me.

Thanks very much.

Judy

Judy Stein, MBA, MSPH [C]

Strategic Planning and Development

Vaccine Research Center, NIAID, NIH

Tel: (b) (6)

From: Venigalla B Rao (b) (6)

Sent: Sunday, February 23, 2020 8:42 AM

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

Cc: Young, Monique (NIH/VRC) [E] <(b) (6)>; Corbett, Kizzmekia (NIH/VRC) [E]

(b) (6); Morabito, Kaitlyn (NIH/VRC) [E] <(b) (6)>; Bok, Karin (NIH/VRC) [E] (b) (6)>; Stein, Judy (NIH/VRC) [C] (b) (6)>; Ralph A. Albano

(b) (6)

Subject: Re: Request for collaboration on (b) (4)

Dear Judy,

Good morning!

I know you have helped us in the past to execute SLAs for transfer of materials from Dr. Peter Kwong's lab. Therefore, I am reaching out to you to let me know how to

proceed. If the SLA is sent to Mr. Ralph Albano, he will be able to turn it around in a short period of time.

Please let me know if you need anything from us.

Many thanks.

Rao

On Sat, Feb 22, 2020 at 2:21 PM Venigalla B Rao (b) (6) > wrote:

That would be fabulous! I assume that it is a (b) (4). I am including Mr. Ralph Albano from CUA in the CC. He will review the SLA and execute it from our end. With regard to the materials to be transferred, we can make it broader by stating,

(b) (4)

so that we don't have to keep repeating the SLA for each reagent. However, it is also ok to make it specific for the (b) (4).

Many thanks.

Rao

On Sat, Feb 22, 2020 at 2:10 PM Graham, Barney (NIH/VRC) [E] (b) (6) > wrote:

Dr. Rao,

We have a (b) (4) that we have shared with other academic investigators. We have not made (b) (4). We will arrange to send you the (b) (4) through an (b) (4)

Best wishes,

Barney

From: Venigalla B Rao (b) (6) >

Sent: Thursday, February 20, 2020 10:05 PM

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

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

Subject: Re: Request for collaboration on (b) (4)

Dear Barney,

I am following up my request on the possibility of receiving (b) (4)

We have in the past signed SLAs from VRC for receiving (b) (4) materials. Please let me know and who might be in charge of processing the SLAs. I will be happy to contact that person(s) and move it forward.

Many thanks.

Rao

On Tue, Feb 18, 2020 at 8:41 AM Venigalla B Rao (b) (6) > wrote:

Dear Barney,

Good morning!

Having submitted the flu grant proposal, we are seriously considering applying the (b) (4)
(b) (4). In fact, the (b) (4)
(b) (4)

I am hoping that you group can help us by providing either (b) (4)
(b) (4)

(b) (4). It would be useful to discuss this over the phone and clarify any questions you may have, which I would greatly appreciate.

With best regards,

Rao

On Sun, Feb 9, 2020 at 11:44 AM Venigalla B Rao (b) (6) > wrote:

Thanks for consideration, best of luck with your WHO meeting on Coronavirus.

Rao

On Sun, Feb 9, 2020 at 11:20 AM Graham, Barney (NIH/VRC) [E] (b) (6) > wrote:
Dr. Rao,

As noted in the last note, we won't have the bandwidth to collaborate, but can provide access to some reagents like the (b) (4).

The ability to collaborate is even more difficult now with the onset of the Wuhan CoV. I am out of town and headed to Geneva tomorrow for an emergency WHO meeting.

Barney

Sent from my iPhone

On Feb 9, 2020, at 11:09 AM, Venigalla B Rao (b) (6) > wrote:

Dear Barney,

I am wondering if you will be able to provide a letter of collaboration. As I mentioned, please feel free to make any changes to the letter I sent to you last week. I will need the grant finalized and sent to the University office by Tuesday of this week. Greatly appreciate your consideration and letting me know.

With best regards,

Rao

On Tue, Feb 4, 2020 at 12:15 PM Venigalla B Rao (b) (6) > wrote:

Dear Barney,

To make things easier, I have prepared a draft of collaboration letter for your perusal, which I hope that you will be able to provide. This is merely a draft, please make changes as you wish. I would appreciate it if you could add some specific information regarding the materials available at VRC that you could provide for our project. As written, it is quite general.

Please also note that challenges will be done at our university, you are not committing for that.

I know that your time is overstretched, therefore we do not need a conference call as long as you are basically ok with the letter. If you have any questions, please let me know.

With best regards,

Rao

On Sat, Jan 25, 2020 at 8:25 PM Venigalla B Rao (b) (6) > wrote:

Dear Barney,

I understand, the Wuhan virus situation seems rather scary. Thank you all for the work you are doing to develop a potential vaccine fast.

Thank you for consideration regarding the (b) (4). The grant is due in the university office by ~Feb 10th.

Monique, please free to send me potential days and times for a phone call.

With best regards,

Rao

On Sat, Jan 25, 2020 at 4:24 PM Graham, Barney (NIH/VRC) [E] (b) (6) > wrote:

Dear Rao,

We have been consumed by the response to the Wuhan outbreak, and I will be out of town next week. I'll ask Monique Young to find time for a brief call sometime in February. As noted, we are already working beyond our bandwidth and a more involved collaboration beyond reagent sharing is not going to be possible at this time.

Best wishes,

Barney

From: Venigalla B Rao <(b) (6)>

Sent: Tuesday, January 21, 2020 2:26 PM

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

Subject: Re: Request for collaboration on (b) (4)

Dear Barney,

Good afternoon!

I have a couple of questions that can be quickly clarified in a phone call. I would greatly appreciate it if you could give me a few minutes of your time as per your convenience. Please let me know.

Many thanks.

Rao

On Wed, Jan 8, 2020 at 9:29 AM Venigalla B Rao (b) (6) wrote:

Dear Barney,

(please call me "rao")

Thanks for your email. Greatly appreciate extending your help with reagents, mAbs, and assay protocols. These would be very helpful for us. Regarding the (b) (4)

(b) (4)

me know if in principle you can consider it, that is all that is needed at this point. DMID is a good source but they will not entertain any proposals for (b) (4)

(b) (4).

MTA is not necessary at this point we are not there yet with specifics. At minimum, we are talking about at least a year. All I need now is a letter of collaboration stating that you will provide such and such for the proposed studies. I can draft a preliminary letter and send to you for consideration and feel free to make any changes you wish to make.

Many thanks.

With best regards,

Rao

On Wed, Jan 8, 2020 at 8:53 AM Graham, Barney (NIH/VRC) [E] <(b) (6)> wrote:

Hi Dr. Rao,

Thank you for your note and sorry I couldn't be there for the lecture a few months ago.

Your (b) (4) idea sounds interesting. However, we have a pipeline here that is already more than we can manage. We would be able to provide (b) (4) but we would not be able to (b) (4) DMID (extramural NIAId) recently announced the CIVICs program that is a consortium of academic sites focused on (b) (4) development and they may be able to help with this, but you would need to check with DMID.

Let me know if the reagents would be helpful to you and we could initiate an MTA.

Best wishes,

Barney

Sent from my iPhone

On Jan 6, 2020, at 5:14 PM, Venigalla B Rao <(b) (6)> wrote:

Dear Barney,

We communicated briefly through email in Sept '19 (below). After that, I had a chance to meet with and discuss further about the (b) (4) with your then colleague Dr. Michelle Crank. I am getting back to you and see whether you can help us by collaborating on the (b) (4)

I am preparing an R21 grant proposal for submission to NIH for the Feb '20 deadline. I would very much appreciate it if you could provide a letter of collaboration that would involve (b) (4)

I will be happy to put together a draft letter for your consideration. I will also be happy to discuss more details with you over the phone, or meet in person.

With best regards,
Rao

Dr. Venigalla B. Rao
Professor
Department of Biology
The Catholic University of America
Washington, DC.

----- Forwarded message -----

From: **Venigalla B Rao** (b) (6)>

Date: Mon, Sep 30, 2019 at 12:36 PM

Subject: Rao HIV Fusion peptide paper

To: Crank, Michelle (NIH/NIAID) [E] (b) (6)>

Michelle,

I enjoyed your talk!!

Thank you very much for taking the time to meet with me today. As per our conversation, I am attaching the (b) (4)

(b) (4)

I will send the animation by a separate email to increase the chances of transmission. Please let me know if you received it ok.

Best,

Rao

On Mon, Sep 30, 2019 at 9:02 AM Crank, Michelle (NIH/NIAID) [E] <(b) (6)> wrote:
Perfect. Thanks so much, and see you soon.
Michelle

From: Venigalla B Rao (b) (6)

Date: Monday, September 30, 2019 at 8:46 AM

To: Michelle Crank <(b) (6)>

Cc: Lauren Bassaro (b) (6), Swati Jain (b) (6)>

Subject: Re: Meeting at Catholic

Good morning, Michelle!

After you come out of the Metro escalator, please walk a bit and cross the road. There is a security post at the corner. Walk straight up the hill (it is brand new paved, tiled, road). Biology is at the end of that block on left. There is a sign "McCort Ward Hall" at the end of that street (go past the Nursing-Biology sign). Enter the building near the McCort Ward sign, turn right and take two flights of stairs. Or, go through the double door after you turn right at the entrance and take the elevator on the left to 3rd floor. My office is in Rm 306.

I should be in office by ~9:40. Swati is my student. She will take you to the lecture room at ~10:50 or so.

My Cell# (b) (6) feel free to call me if there is a question.

Look forward to meeting you!

Rao

On Mon, Sep 30, 2019 at 6:32 AM Crank, Michelle (NIH/NIAID) [E] <(b) (6)> wrote:
Good morning, yes I should be able to meet you at 10.

I will be walking over from the metro and have not been to the biology building before, but on the map it seems to be immediately beside the metro exit.

Which section of the building is your office in?

Would you be able to direct me to the room for the seminar when we are finished, or I can let the student organizers know where I will be and maybe they can come meet me?

I believe they would like me to arrive half an hour before my talk to load my slides.

Many thanks.

Michelle

From: Venigalla B Rao (b) (6) >
Date: Friday, September 27, 2019 at 5:23 PM
To: Michelle Crank (b) (6) >
Subject: Re: Meeting at Catholic

Sure, I will be in my office (Rm 306) by 10am. I could also come earlier than 10am if you prefer to meet early.

Thanks.

Rao

On Fri, Sep 27, 2019 at 4:19 PM Crank, Michelle (NIH/NIAID) [E] (b) (6) > wrote:
Hi Rao,

I would like to meet with you, but would it be possible to talk before my presentation rather than afterward? I have an obligation back at NIH at 2pm, so I won't be able to stay after lunch.

Thanks so much for contacting us.

Michelle C. Crank, M. D.
Head, Translational Science Core
Viral Pathogenesis Laboratory
National Institutes of Health
National Institute of Allergy and Infectious Disease
Vaccine Research Center
40 Convent Drive
Building 40 / Room 2508 / MSC 3017
Bethesda, MD 20892-3017
Phone: (b) (6)
Cell: (b) (6)
Email: (b) (6)

> On Sep 27, 2019, at 4:01 PM, Venigalla B Rao (b) (6) > wrote:

>

> Dear Dr. Crank,

> I reached out to Dr. Barney Graham as he is scheduled to give a seminar at Catholic on Monday. But he informed me that you will be presenting the seminar instead (email below). My lab has some interest in developing a (b) (4) I would be very much interested to meet with you as well, if possible, after your lunch meeting with students. Probably ~1:30 to 2pm. Please let me know if this works for you. I am attaching a couple of our recent papers that relate to the (b) (4)

> Many thanks.

> Rao

> ----- Forwarded message -----

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

> Date: Tue, Sep 24, 2019 at 3:54 PM

> Subject: RE: Meeting at Catholic

> To: Venigalla B Rao (b) (6) <mailto:(b) (6)>

>

>
> Dr. Rao,
>
> Thank you for your email and for sharing your papers. I will look over them, and will enjoy learning more about (b) (4)
>
> Unfortunately, I had an obligation come up that I could not avoid, so my colleague who helps manage the influenza program will be giving the talk on Monday instead of me. Dr. Crank will show most of what I just showed 2 weeks ago at the international influenza meeting.
>
> Sorry I was unable to attend in person.
>
> Best wishes,
>
> Barney
>
>
>
> From: Venigalla B Rao (b) (6) <mailto:(b) (6)>>
> Sent: Tuesday, September 24, 2019 3:00 PM
> To: Graham, Barney (NIH/VRC) [E] <(b) (6) <mailto:(b) (6)>>
> Subject: Meeting at Catholic
>
> Dear Dr. Graham,
> I am happy to know that you will be giving a talk at the Catholic University on Monday. I know Peter Kwong and his work for many years and I am also little bit familiar with the HIV and Flu vaccine work at VRC including yours. Although my lab is focused on (b) (4)
>
> I am attaching a couple of our recent papers.
> I would be very much interested to meet with you, if time permits on Monday. Lunch with students will generally finish by ~1 to 1:30. If we can meet for about half an hour immediately after lunch, that would be great. You would still be able to leave CUA by ~2pm.
> Please let me know if this is possible.
> Looking forward to your talk on Monday.
> With best regards,
> Rao
>
> Dr. Venigalla B. Rao
> Professor
> Department of Biology
> The Catholic University of America
> Washington, DC, 20064.
>
> <Oct 2018 anthrax plague vaccine mBio.pdf>
> <Aug 2019 Science Advances T4-AAV hybrid vector.pdf>
> <2019 HIV structure Nature Communications.pdf>

From: Graham, Barney (NIH/VRC) [E]
Sent: Fri, 20 Mar 2020 14:10:53 +0000
To: Gall, Jason (NIH/VRC) [C]
Cc: Mascola, John (NIH/VRC) [E]; Seder, Robert (NIH/VRC) [E]
Subject: FW: Adjuvant supply for Covid-19

(b) (5)? I've never heard of microcrystalline tyrosine.

BG

From: Heath, Matthew (b) (6) >
Sent: Friday, March 20, 2020 8:47 AM
To: Graham, Barney (NIH/VRC) [E] (b) (6)
Subject: Adjuvant supply for Covid-19
Importance: High

Dear Dr Barney Graham,

We are reaching out to you in light of the global effort to develop a vaccine for the 2019-nCoV virus. Allergy Therapeutics (UK) Ltd develops innovative vaccines in the niche area of allergy immunotherapy. Within our portfolio, we have established and pioneered a biodegradable depot adjuvant called Microcrystalline Tyrosine (MCT), which features in a number of our registered vaccines and in our clinical development programme.

Building on the vast, already established, human dataset of safety, efficacy and tolerability of MCT, we realised that the mechanisms of action of MCT might lend themselves to uses outside of the field of allergy. Within the last few years, we have invested significant effort in exploring MCT mode-of-action applied across a broader vaccine scope, harnessing superior biological efficacy and physicochemical compatibility with a diverse array of antigens and vectors in a number of comparative adjuvant studies.

We have been engaged in collaborations with various organisations including (b) (4)

(b) (4)

(b) (4). We have selected a number of publications for your attention below.

In essence, we believe there are synergies worth exploring that harness the benefits MCT can offer in vaccine development. Of particular note, MCT's physicochemical properties and mechanistic profile lends itself compatible with virus-like particle scaffolds, recombinant subunit vaccines or other platforms not yet tested, for example, mRNA vaccines – which illustrate a rationale for formulating and testing with MCT to optimize the induction of a protective immunological responses for candidate 2019-nCoV vaccines.

As such, we would be delighted to discuss the development, use, and free access of MCT to leverage your rapid and growing response programmes for 2019-nCoV.

Kind regards,

Allergy Therapeutics

Dr Matthew Heath
Principal Scientist: Innovation & Product Development

Allergy Therapeutics (UK) Ltd, Dominion Way, Worthing,
West Sussex, BN14 8SA, United Kingdom

www.allergytherapeutics.com

Selected Publications

Microcrystalline Tyrosine and Aluminum as Adjuvants in Allergen-Specific Immunotherapy Protect from IgE-Mediated Reactivity in Mouse Models and Act Independently of Inflammasome and TLR Signaling, doi: 10.4049/jimmunol.1800035

Vaccination with nanoparticles combined with micro-adjuvants protects against cancer. doi: 10.1186/s40425-019-0587-z.

Microcrystalline Tyrosine (MCT®): A Depot Adjuvant in Licensed Allergy Immunotherapy Offers New Opportunities in Malaria, doi:10.3390/vaccines5040032

Virus-Like Particle (VLP) Plus Microcrystalline Tyrosine (MCT) Adjuvants Enhance Vaccine Efficacy Improving T and B Cell Immunogenicity and Protection against Plasmodium berghei/vivax, doi:10.3390/vaccines5020010

Comparison of a novel microcrystalline tyrosine adjuvant with aluminium hydroxide for enhancing vaccination against seasonal influenza. doi: 10.1186/s12879-017-2329-5.

The adsorption of allergoids and 3-O-desacyl-4-monophosphoryl lipid A (MPL®) to microcrystalline tyrosine (MCT) in formulations for use in allergy immunotherapy, doi.org/10.1016/j.jinorgbio.2015.08.007

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From: Graham, Barney (NIH/VRC) [E]
Sent: Sat, 15 Feb 2020 21:17:47 +0000
To: Hiatt, Nissa (NIH/VRC) [C]
Cc: VRC_CoV; Young, Monique (NIH/VRC) [E]; Prince, Tasheema (NIH/VRC) [C]; Harris, Christina (NIH/NIAID) [E]
Subject: Re: 2/19 Interview Request: WSJ
Attachments: image001.png

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: Sun, 1 Mar 2020 21:01:46 +0000
To: (b) (4)
Cc: Stemmy, Erik (NIH/NIAID) [E]
Subject: RE: Research proposal - (b) (4)

Thank you for your inquiry. Since our group does not work on (b) (4) (b) (4) I am referring you to Dr. Stemmy in the extramural NIAID Division DMID. He may be able to connect you to people who may be able to help you.

Barney

From: (b) (4), (b) (6)
Sent: Thursday, February 27, 2020 9:47 AM
To: Graham, Barney (NIH/VRC) [E] (b) (6) >
Subject: RE: Research proposal - (b) (4)

Hi, I would like to follow up on my previous email (see below).

regards

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

De : (b) (4)
Envoyé : 16 février 2020 21:56

À : [REDACTED] (b) (6) >

Objet : Research proposal - [REDACTED] (b) (4)

Dear Dr Barney S. Graham,

I have read with great interest your publication entitled "History of Passive Antibody Administration for Prevention and Treatment of Infectious Diseases" co-authored with Dr Ambrosino. Since you are specialized in the field of virology and you work at the National Institute of Allergy and Infectious Diseases from the NIH, I'm sure you can help me.

I'm running the preclinical laboratory of [REDACTED] (b) (4)
[REDACTED] (b) (4). We are specialized in the production and commercialization of [REDACTED] (b) (4)
[REDACTED] (b) (4). We have
demonstrated a [REDACTED] (b) (4) in preclinical and also
in clinical trials. We are approved by Health Canada for [REDACTED] (b) (4)
[REDACTED] (b) (4)

Unfortunately, we don't have the facility nor the expertise to [REDACTED] (b) (4)
[REDACTED] This is the reason why I'm contacting you: [REDACTED] (b) (4)
[REDACTED]
[REDACTED]

The project I have in mind could be [REDACTED] (b) (4)
[REDACTED] (b) (4)
[REDACTED] (b) (4) The objective would be to [REDACTED] (b) (4)
[REDACTED]

I understand that [REDACTED] (b) (4)
[REDACTED] (b) (4) but more and more high-quality research are conducted and demonstrated that some
[REDACTED] (b) (4)
[REDACTED] (b) (4)
[REDACTED] (b) (4)


Would you be interested in [REDACTED] (b) (4) Do you have any advice for me?

In the contrary, if you are not interested, or you don't have the time or for any other reason forcing you to decline, can you consider linking me with experts that would have the expertise to do this project?

Thank you very much for your consideration. Hope to hear from you in a near future.

Best regards

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



From: Graham, Barney (NIH/VRC) [E]
Sent: Fri, 1 May 2020 15:25:57 +0000
To: Lawrence Wright
Subject: Re: Llama antibodies

Hi Larry,

I'm a co-author on this study. We've been working with Univ of Ghent (and Jason McLellan at UT Austin) for several years. We also made some of the nanobodies for RSV. Llamas, camels, and sharks make a different type of single chain antibodies that can sometimes penetrate small cracks and crevices in the surface of virus proteins better than human dimeric antibodies.

How is the book doing?

Best wishes,

Barney

Sent from my iPhone

On May 1, 2020, at 11:17 AM, Lawrence Wright (b) (6) wrote:

Dear Barney,

Every day brings some new surprise, a new discovery, some false hope. But I'm particularly drawn to this story and wonder what you think. Maybe I've been drinking too much hydroxychloroquin.

<https://www.kut.org/post/texas-researchers-have-new-ally-fight-against-covid-19-belgian-llama-named-winter>

Larry

From: Graham, Barney (NIH/VRC) [E]
Sent: Thu, 26 Mar 2020 21:31:20 +0000
To: Reilly, Deborah (NIH/VRC) [E]
Subject: Accepted: COVID-19 Daily Check-in

From: Graham, Barney (NIH/VRC) [E]
Sent: Mon, 23 Mar 2020 21:15:48 +0000
To: Mascola, John (NIH/VRC) [E]; Hiatt, Nissa (NIH/VRC) [C]
Cc: Prince, Tasheema (NIH/VRC) [C]; Harris, Christina (NIH/NIAID) [E]; Daucher, Marybeth (NIH/NIAID) [E]
Subject: RE: NYT Magazine: EV-D68 Progress Update

Sounds ok for me.

BG

From: Mascola, John (NIH/VRC) [E] (b) (6)>
Sent: Monday, March 23, 2020 5:14 PM
To: Hiatt, Nissa (NIH/VRC) [C] (b) (6); Graham, Barney (NIH/VRC) [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: RE: NYT Magazine: EV-D68 Progress Update

Ok with me

From: Hiatt, Nissa (NIH/VRC) [C] (b) (6)>
Sent: Monday, March 23, 2020 4:23 PM
To: Graham, Barney (NIH/VRC) [E] <(b) (6)>; Mascola, John (NIH/VRC) [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: RE: NYT Magazine: EV-D68 Progress Update

Thanks, everyone. Confirming that the version below is final for OCGR to send to Dan Hurley at NY Times Mag. We will probably have a few more of these requests and can re-use this language. I suspect that it's also a nice excuse for reporters to get in touch with NIAID for other stories that they are pitching...

FOR REVIEW:

Due to the NIH policy to shift non-mission-critical laboratory operations to a maintenance phase, some Vaccine Research Center projects, including work on a vaccine against EV-D68, may not advance on originally scheduled timelines. We will frequently reevaluate and prioritize our mission critical work. Link to NIH policy: <https://www.nih.gov/news-events/news-releases/nih-shifts-non-mission-critical-laboratory-operations-minimal-maintenance-phase>

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)



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

Sent: Monday, March 23, 2020 2:31 PM

To: Hiatt, Nissa (NIH/VRC) [C] <(b) (6)>; Mascola, John (NIH/VRC) [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: RE: NYT Magazine: EV-D68 Progress Update

I would just tell him that because of reducing the density of researchers in the building and the critical nature of the COVID-19 outbreak the EV-D68 work will continue but at a much slower pace.

Barney

From: Hiatt, Nissa (NIH/VRC) [C] (b) (6)>

Sent: Monday, March 23, 2020 12:21 PM

To: Graham, Barney (NIH/VRC) [E] (b) (6); Mascola, John (NIH/VRC) [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: NYT Magazine: EV-D68 Progress Update

Hi John and Barney,

Dan Hurley with NY Times magazine would like an update on the development of a vaccine against EVD-68; will this work be moving forward in light of the COVID-19 pandemic? He previously spoke to Dr. Fauci and Barney (on Nov. 12) about the development of a vaccine against EVD-68. His deadline is ASAP.

I suspect we will have more questions along this line as the outbreak continues. Perhaps a short blanket response would be helpful here. I've asked OCGR what they are saying when contacted about progress on other projects since this is not the only work affected by COVID-19.

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)



From: Graham, Barney (NIH/VRC) [E]
Sent: Fri, 6 Mar 2020 18:37:45 +0000
To: Young, Monique (NIH/VRC) [E]
Subject: FW: Takeda Advisory Panel

FYI. This should be by Video.

BG

From: Onyebuchi, Chi (b) (6) >
Sent: Thursday, March 5, 2020 4:07 PM
To: Graham, Barney (NIH/VRC) [E] (b) (6)
Cc: Yel, Leman (b) (6) >
Subject: Takeda Advisory Panel

Dear Dr. Graham,

That's wonderful news that you'll be able to join us for the Advisory Panel Takeda is organizing on Mar 24th. I'm assisting the team with putting consultancy agreements in place with all panelists. To initiate your consultancy agreement, I'll need a copy of your most recent CV. Would you kindly forward to me? Many thanks in advance.

Kind regards,



Better Health, Brighter Future

Chi Onyebuchi, PhD, PMP

Sr. Director, Global Program Management
Plasma-Derived Therapies (PDT) R&D

Takeda Pharmaceutical Company Limited

650 East Kendall Street

Cambridge, MA 02142

Tel (b) (6)

(b) (6)

From: Yel, Leman (b) (6) >
Sent: Wednesday, March 4, 2020 6:57 PM
To: Robert Belshe (b) (6) >; Graham, Barney (NIH/VRC) [E] (b) (6) >
Cc: Haverfield, Sascha <(b) (6)>; Tsai, Theodore <(b) (6)>;
Onyebuchi, Chi <(b) (6)>; Hasan, Shabbir <(b) (6)>
Subject: RE: Teleconference on SARS-CoV2 therapeutic human polyclonal antibody

Dear Dr. Graham,

Many thanks for your willingness to help!

As Bob introduced nicely, Takeda has started an initiative to develop (b) (4).
(b) (4) We are organizing a 3-hour Expert Panel (6-7 experts) meeting on March 24th in person or via TC/TP to discuss the (b) (4).
(b) (4) We would appreciate if you could spare some time for this meeting as an expert to provide your invaluable insight. I'd be happy give further information on a brief call if you'd like.

I look forward to hearing from you.

Thanks and regards,

Leman



Better Health, Brighter Future

Leman Yel, M.D.

Head, Clinical Medicine

Plasma Derived Therapies Business Unit

Takeda Pharmaceutical Company Limited

650 East Kendall Street

Cambridge, MA 02142 USA

Office: (b) (6)

Mobile: (b) (6)

(b) (6)

From: Robert Belshe (b) (6) >

Sent: Wednesday, March 4, 2020 8:27 AM

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

Cc: Yel, Leman (b) (6)

Subject: Re: Teleconference on SARs-CoV2 therapeutic human polyclonal antibody

**** External Email **:** This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Great, thanks!

On Tue, Mar 3, 2020 at 7:13 PM Graham, Barney (NIH/VRC) [E] (b) (6) wrote:

Glad to help Bob. We are deep into it.

Barney

Sent from my iPhone

On Mar 3, 2020, at 7:27 PM, Robert Belshe (b) (6) wrote:

Hi Barney,

I have been asked by Takeda to chair a video-telecon to discuss the feasibility and timing of making a (b) (4)
Giving you a heads up that I suggested your name to the organizers, and you may hear from them.

I expect the event will be the week of Mar 23, exact day and time to be decided. No travel needed but the urgent nature of the work and the need for the product is becoming clear. (b) (6)

-and we have 7 SARS2 cases in our county now. Hope you are well, and hope you can join us for this interesting telecon.
Bob

Robert B Belshe, MD
mobile (b) (6)

--

Robert B Belshe, MD
mobile (b) (6)

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From: Graham, Barney (NIH/VRC) [E]
Sent: Fri, 28 Feb 2020 16:22:04 +0000
To: Corbett, Kizzmekia (NIH/VRC) [E]; Morabito, Kaitlyn (NIH/VRC) [E]; Bok, Karin (NIH/VRC) [E]
Subject: RE: NIAID Coronavirus SWAT Weekly Meeting

I had to go to the Urban dictionary.

From: Corbett, Kizzmekia (NIH/VRC) [E] (b) (6)>
Sent: Friday, February 28, 2020 11:19 AM
To: Morabito, Kaitlyn (NIH/VRC) [E] (b) (6)>; Bok, Karin (NIH/VRC) [E] (b) (6); Graham, Barney (NIH/VRC) [E] (b) (6)>
Subject: Re: NIAID Coronavirus SWAT Weekly Meeting

Woooooo sahhhhh. I'll step out of the meeting to take the call.

Sent from the mobile device of:
Kizzmekia S. Corbett, PhD
Senior Research Fellow
coVip Scientific Lead
VRC | NIAID | NIH
(b) (6)

From: "Morabito, Kaitlyn (NIH/VRC) [E]" (b) (6)
Date: Friday, February 28, 2020 at 11:14:30 AM
To: "Bok, Karin (NIH/VRC) [E]" (b) (6)>, "Corbett, Kizzmekia (NIH/VRC) [E]" (b) (6)>, "Morabito, Kaitlyn (NIH/VRC) [E]" (b) (6) "Graham, Barney (NIH/VRC) [E]" (b) (6)>
Subject: FW: NIAID Coronavirus SWAT Weekly Meeting

Do we want someone to take the NIAID SWAT call and step out from BMGF meeting? If so, who?

From: Hilary Marston (b) (6)>
Date: Friday, February 28, 2020 at 11:12 AM
To: "Morabito, Kaitlyn (NIH/VRC) [E]" (b) (6)
Cc: "Bushar, Nicholas (NIH/NIAID) [E]" (b) (6)>, Barney Graham (b) (6)>
Subject: Re: NIAID Coronavirus SWAT Weekly Meeting

You can't send anyone? I know what the other meeting is - you have to be able to send someone out for ten minutes

On Feb 28, 2020, at 11:11 AM, Morabito, Kaitlyn (NIH/VRC) [E] <(b) (6)> wrote:

Hi Nick and Hilary,

Just letting you know that the VRC has a conflicting meeting at this time, and will not be on the call.

Thanks,
Kaitlyn

From: "Bushar, Nicholas (NIH/NIAID) [E]" <(b) (6)>
Date: Friday, February 28, 2020 at 10:58 AM
To: "Morabito, Kaitlyn (NIH/VRC) [E]" <(b) (6)>, "Chapman, Latanya (NIH/VRC) [C]" <(b) (6)>
Subject: NIAID Coronavirus SWAT Weekly Meeting

Please find the agenda for today's meeting attached.

[Join Skype Meeting](#)

Trouble Joining? [Try Skype Web App](#)

Join by phone

(b) (6) (NIAID)	English (United States)
(b) (6) (NIAID)	English (United States)

[Find a local number](#)

Conference ID: (b) (6)

[Forgot your dial-in PIN?](#) | [Help](#)

From: Graham, Barney (NIH/VRC) [E]
Sent: Tue, 21 Apr 2020 19:38:15 +0000
To: William Dowling
Subject: Accepted: WHO Consultation on SARS-CoV -2 Viruses, Reagents and immune Assays - Wed 3:00 PM CET

From: Graham, Barney (NIH/VRC) [E]
Sent: Tue, 31 Mar 2020 22:44:49 +0000
To: Ahmed, Rafi
Cc: Corbett, Kizzmekia (NIH/VRC) [E]
Subject: RE: [External] RE: COVID -19 Advice

Thanks Rafi,

I will let her know and then wait to see what is still needed.

BG

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

From: Ahmed, Rafi (b) (6)>
Sent: Tuesday, March 31, 2020 6:09 PM
To: Graham, Barney (NIH/VRC) [E] (b) (6)
Cc: Corbett, Kizzmekia (NIH/VRC) [E] (b) (6)>
Subject: RE: [External] RE: COVID -19 Advice

Thanks, Barney. I will connect Mehul Suthar with Dr. Corbett.

Erin Scherer, was just hired by the Hope Clinic to run their immunology lab. I will talk to Erin and also to Nadine Rouphael (Acting Director of the Hope Clinic) to make sure that their efforts are coordinated and synergistic with what Mehul will be doing.

Best,

Rafi

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

From: Graham, Barney (NIH/VRC) [E] (b) (6)
Sent: Tuesday, March 31, 2020 5:38 PM
To: Ahmed, Rafi (b) (6)
Cc: Corbett, Kizzmekia (NIH/VRC) [E] (b) (6)>
Subject: [External] RE: COVID -19 Advice

Hi Rafi,

Good to catch up, even though the world seems to be turned upside down.

Dr. Corbett is copied here.

We are also getting requests from an Assistant Professor at Emory, Erin Scherer, who is asking for a lot of (b) (4) Do you work with her or know her? I don't want to set up competition between Emory labs with the same reagents.

Barney

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

From: Ahmed, Rafi (b) (6)
Sent: Tuesday, March 31, 2020 2:23 PM
To: Graham, Barney (NIH/VRC) [E] (b) (6)>
Subject: COVID -19 Advice

Dear Barney,

It was great talking to on Sunday. Also, many thanks for introducing me to Dr. Corbett. Can you please send me her e-mail address so I can connect her with Mehul. It will be great if she could help Mehul set up your (b) (4) (b) (4) at Emory. This will, of course, be a collaboration.

Best,

Rafi

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

From: Ahmed, Rafi
Sent: Sunday, March 29, 2020 11:09 AM
To: Graham, Barney (NIH/VRC) [E] (b) (6)>
Subject: RE: [External] RE: COVID -19 Advice

Thanks, Barney. This will be great. Should I just call your number and you will then connect her?
Rafi

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

From: Graham, Barney (NIH/VRC) [E] (b) (6)
Sent: Sunday, March 29, 2020 11:00 AM
To: Ahmed, Rafi (b) (6)>
Subject: RE: [External] RE: COVID -19 Advice

OK, sounds fine. I'd like to add Dr. Corbett as a 3-way because she can provide the current status of the (b) (4) (b) (4) and why one or the other may work better for you.

Barney

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

From: Ahmed, Rafi (b) (6)
Sent: Sunday, March 29, 2020 10:57 AM
To: Graham, Barney (NIH/VRC) [E] (b) (6)>
Subject: RE: [External] RE: COVID -19 Advice

Thanks, Barney. Can I call you at 2pm? Basically, I want to talk to you about the different (b) (4) (b) (4) assays and get your big picture view about the pros and cons of these assays. We want to set these up at Emory and don't want to re-invent the wheel or even worse do them incorrectly.
Rafi

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

From: Graham, Barney (NIH/VRC) [E] (b) (6)
Sent: Sunday, March 29, 2020 10:23 AM
To: Ahmed, Rafi (b) (6)>
Subject: [External] RE: COVID -19 Advice

Hi Rafi,

I'll be working at home most of the rest of the day. You can call my cell at (b) (6) any time. Depending on what you want to talk about I may want to add my junior colleague, Kizzmekia Corbett, into the discussion.

Take care,

Barney

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

From: Ahmed, Rafi <(b) (6)>
Sent: Saturday, March 28, 2020 10:19 PM
To: Graham, Barney (NIH/VRC) [E] (b) (6)
Subject: COVID -19 Advice

Barney,

Good to talk to you on the phone a few days back. Agree with you about keeping things simple with your vaccine trial.

We are setting up (b) (4) assays at Emory and would benefit greatly from your guidance. Do you have time for a brief chat? If so, please let me know what times are good for you and the number to call. Thanks.

Be safe, my friend!

Rafi

Sent from my iPhone

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From: Graham, Barney (NIH/VRC) [E]
Sent: Sat, 8 Feb 2020 22:39:08 +0000
To: Jason McLellan
Subject: Re: Manuscript v3
Attachments: image001.png

i will add additional comments before you wake up.

BG

Sent from my iPhone

On Feb 8, 2020, at 4:54 PM, Jason McLellan <(b) (6)> wrote:

Hi Everyone,

Attached are my edits/comments, this time with tracked changes. Mostly minor stuff and edits to improve clarity/accuracy.

Daniel, did you get a chance to go through the figure legends and make corrections? It seemed like some of my comments from the previous iteration weren't addressed or responded to.

Ok, I'm off to bed, and will head to the airport in 5 hours. Try to get me one more version within the next 8-12 hours if possible.

We're on track for a Monday submission!

Cheers,
Jason

From: Daniel P. Wrapp <(b) (6)>
Sent: Saturday, February 8, 2020 2:12 PM
To: Jason McLellan <(b) (6)>
(b) (6)
Cc: Graham, Barney (NIH/VRC) [E] <(b) (6)>
Subject: Re: Re: Manuscript v3

Hello all,

I've incorporated edits from Nianshuang, Barney and myself into a new version of the manuscript, which is attached here as v4. I've attached the clean version, but if anybody wants to go back and see the tracked changes, that version is also available on the drive.

Daniel

From: Jason McLellan (b) (6) >
Sent: Saturday, February 8, 2020 1:02 PM
To: (b) (6) Daniel P. Wrapp (b) (6)
(b) (6)
Cc: Graham, Barney (NIH/VRC) [E] (b) (6) >
Subject: RE: Re: Manuscript v3

Thanks Nianshuang for the many good citations and pointing out the recent Nature paper where they demonstrate nCoV can use ACE2. Looks like they didn't determine the binding affinity though, so that is still novel for us.

Thanks also for the (b) (4) Seems a bit complicated, so we can reword our sentence to make it (b) (4)

From: Nianshuang (b) (6)
Sent: Saturday, February 8, 2020 1:10 PM
To: Daniel P. Wrapp (b) (6) >; Jason McLellan (b) (6)
(b) (6)
Cc: Graham, Barney (NIH/VRC) [E] (b) (6) >
Subject: RE: Re: Manuscript v3

I read through the main text. I added and changed some citations, mostly in the introduction. I also made two major edits about (b) (4).

Nianshuang

Nianshuang Wang, Ph.D.
Research Fellow, McLellan Lab
Department of Molecular Biosciences
The University of Texas at Austin
4.320 Norman Hackerman Building
100 E 24th St., Austin, TX 78712
Tel. (b) (6)

From: [Daniel P. Wrapp](#)
Sent: Saturday, February 8, 2020 12:54 PM

To: [Jason McLellan](#); [REDACTED] (b) (6)
Cc: [Graham, Barney \(NIH/VRC\) \[E\]](#)
Subject: Re: Manuscript v3

New figures are on the drive as v3. I'm going to turn my attention back to the text, but let me know if there's anything else you want tweaked.

DWrapp
<image001.png>

From: Jason McLellan [REDACTED] (b) (6) >
Sent: Saturday, February 8, 2020 10:49 AM
To: Daniel P. Wrapp [REDACTED] (b) (6)
[REDACTED] (b) (6)
Cc: Graham, Barney (NIH/VRC) [E] [REDACTED] (b) (6)
Subject: RE: Manuscript v3

Updated figures look good. About half require no additional changes. Attached are my edits/comments.

Daniel, let me know if you have any questions.

Keep up the good work!
Jason

From: Daniel P. Wrapp [REDACTED] (b) (6)
Sent: Saturday, February 8, 2020 6:09 PM
To: Jason McLellan [REDACTED] (b) (6)
[REDACTED] (b) (6)
Cc: Graham, Barney (NIH/VRC) [E] [REDACTED] (b) (6) >
Subject: Re: Manuscript v3

All figure edits have been made and the powerpoint has been updated (including the new SARS RBD + ACE2 SPR which is the new SFig 7). It is now "WuCoV S Figures v2" in the same directory. I'll start going through the text now and then I'll take a stab at the movies.

DWrapp
<image001.png>

From: Daniel P. Wrapp [REDACTED] (b) (6) >
Sent: Saturday, February 8, 2020 7:32 AM
To: Jason McLellan [REDACTED] (b) (6)
[REDACTED] (b) (6)
Cc: Graham, Barney (NIH/VRC) [E] [REDACTED] (b) (6) >
Subject: Re: Manuscript v3

Also, I have some movie editing software that came free with my Mac, I'll trim those videos down and put the new versions in the same directory on the drive.

<image001.png>

From: Daniel P. Wrapp (b) (6) >

Sent: Saturday, February 8, 2020 7:27 AM

To: Jason McLellan (b) (6) >;
(b) (6)

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

Subject: Re: Manuscript v3

Thanks very much Jason, I'll get to work. I'm going to be in lab all day so if anything comes up, please feel free to Whatsapp or email me.

Daniel

<image001.png>

From: Jason McLellan (b) (6) >

Sent: Saturday, February 8, 2020 2:42 AM

To: Daniel P. Wrapp (b) (6)
(b) (6)

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

Subject: RE: Manuscript v3

Attached are my edits/comments on the figures. Many are just labeling, but some will take more time. Please let me know if you have any questions.

Also, has anyone trimmed the two videos I made showing the particle motion? The beginning and ends need to be cropped off because the spike is just sitting there.

(b) (6), but try to get me an updated version of the text and figures by 10 PM (b) (6) time if possible (3 pm Central). I could return comments by midnight (5 pm your time), and then maybe you could get me another version 7 hours after that so that I can work on it while flying home.

Thanks, good luck, and keep polishing!
Jason

From: Daniel P. Wrapp (b) (6) >

Sent: Friday, February 7, 2020 1:27 PM

To: Jason McLellan (b) (6)
(b) (6)

<[REDACTED] (b) (6)>

Subject: Manuscript v3

Hey everybody,

Thank you all for your comments on the initial draft! I've made some changes and tried to incorporate your edits/comments so there's a new version of the manuscript (attached here) and a new version of the figures that I would love to get some eyes on:

[REDACTED] (b) (4)

When you make your next round of edits, please add your initials to the end of the updated document name or just email me the new version directly.

Cheers,

DWrapp

<WuCoV main_text_v4_clean-JSM.docx>

From: Graham, Barney (NIH/VRC) [E]
Sent: Wed, 22 Jan 2020 12:29:41 +0000
To: Gall, Jason (NIH/VRC) [C]
Cc: Kwong, Peter (NIH/VRC) [E]; Mascola, John (NIH/VRC) [E]; Morabito, Kaitlyn (NIH/VRC) [E]; Bok, Karin (NIH/VRC) [E]
Subject: Fwd: Coronavirus Outbreak

We need to discuss in Strategic planning today how to respond to things like this as a Center.

BG

Sent from my iPhone

Begin forwarded message:

From: JohnDeng 鄧中信 <(b) (6)>
Date: January 21, 2020 at 11:29:27 PM EST
To: "Kwong, Peter (NIH/VRC) [E]" <(b) (6)>, "Graham, Barney (NIH/VRC) [E]" <(b) (6)>
Cc: "Soukas, Peter (NIH/NIAID) [E]" <(b) (6)>, JohnDeng 鄧中信 <(b) (6)>
Subject: Coronavirus Outbreak

Dear Dr. Graham and Dr. Kwong,

I am reaching out to you on behalf of Medigen Vaccine Biologics Corp. (MVC) in Taiwan via Mr. Peter Soukas' recommendation. It is particularly in regards to a novel coronavirus that has caused heightened concern globally because of its connection to Severe Acute Respiratory Syndrome (SARS).

With human-to-human transmission being confirmed, we are bracing for the worst for the Lunar New Year holidays with huge volume of domestic and international traffic in China. Since supportive care is the only means of therapy, preventative vaccines are our best chance against the spread of these emerging viral diseases. With (b) (4) (b) (4) picking up speed in vaccine development (and becoming the current trend), we are seeking collaboration on the co-development of (b) (4) vaccine against the new coronavirus with NIH/NIAID/VRC investigators of interest.

MVC is a comprehensive biopharmaceuticals manufacturer in Taiwan with focus on regions of Southeast Asia and business fields covering human cell-based vaccines and biosimilars. MVC is (b) (4)

[REDACTED] (b) (4)

Moreover, [REDACTED] (b) (4)

[REDACTED].
Our previous experiences with the US NIH includes technology transfer of [REDACTED] (b) (4)

[REDACTED] Please check out the following link for more details.

http://www.medigenvac.com/public/en/about_us/our_company

I would be grateful if I could have the opportunity to discuss details with you. I look forward to hearing from you.

Best regards,

John Deng, Ph.D.

Medigen Vaccine Biologics Corp.

From: Graham, Barney (NIH/VRC) [E]
Sent: Wed, 26 Feb 2020 02:16:13 +0000
To: Corbett, Kizzmekia (NIH/VRC) [E]
Cc: Michael Malison
Subject: Re: Moderna touts possible coronavirus vaccine mRNA-1273 - CNN

For the (b) (4) there could be (b) (4). One would be (b) (4)
(b) (4) This is based on the (b) (4)
(b) (4)
The other (b) (4)
(b) (4)

The other (b) (4)
(b) (4)

Contacting Stephane Bansel would be most productive way in.

Making your own (b) (4) product may be the best way to help the people of Taiwan if is a platform you are familiar with.

Barney

Sent from my iPhone

On Feb 25, 2020, at 7:17 PM, Corbett, Kizzmekia (NIH/VRC) [E]
(b) (6) wrote:

I think probably the best people on that level would be:
Hilary Marston NIAID
The CEO of Moderna.
I spoke with Dr. Graham, cc'ed here, who may have better ideas in this regard.
Cheers,
Sent from the mobile device of:
Kizzmekia S. Corbett, PhD
Senior Research Fellow
coVip Scientific Lead
VRC | NIAID | NIH
(b) (6)

From: "Michael Malison" (b) (6) >
Date: Tuesday, February 25, 2020 at 2:11:09 PM
To: "Corbett, Kizzmekia (NIH/VRC) [E]" (b) (6)
Subject: Re: Moderna touts possible coronavirus vaccine mRNA-1273 - CNN

Thanks for this info.

We have both (b) (4); Not sure (b) (4)
(b) (4) Any thoughts?

Fauci has been stating publicly that (b) (4)
(b) (4)
(b) (4) Any assistance in bringing this offer to the attention of someone at the right level would be most appreciated.

M. Malison

> On Feb 25, 2020, at 11:42 AM, Corbett, Kizzmekia (NIH/VRC) [E] (b) (6) wrote:
>
> Good afternoon,
> Yes, in a collaboration circle. NIH VRC (design sequence), Moderna (mRNA platform manufacture), NIH DMID is doing the clinical trial. (b) (4) I would reach out with that idea.
>
> --
> 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 2/25/20, 12:38 PM, "Michael Malison" <(b) (6)> wrote:
>
> Does this mean NIH is going to do the clinical trials, not Moderna? If so, might explain why
(b) (4)
>
> Any thoughts on how we can be helpful here?

>
> <https://www.cnn.com/2020/02/25/business/moderna-coronavirus-vaccine/index.html>
>
>
> M. Malison
>

From: Graham, Barney (NIH/VRC) [E]
Sent: Mon, 16 Mar 2020 00:01:08 +0000
To: Hiatt, Nissa (NIH/VRC) [C]
Cc: Mascola, John (NIH/VRC) [E]; Mowatt, Michael (NIH/NIAID) [E]; Routh, Jennifer (NIH/NIAID) [E]; Corbett, Kizzmekia (NIH/VRC) [E]; Stover, Kathy (NIH/NIAID) [E]; Green, Wade (NIH/NIAID) [E]
Subject: Re: Crisis Communication and trial questions - Seattle Children's Blog Post

I don't really understand this blog post, because our lab is supposed to do [REDACTED] (b) (5)

Barney

Sent from my iPhone

On Mar 15, 2020, at 7:44 PM, Hiatt, Nissa (NIH/VRC) [C] [REDACTED] (b) (6) > wrote:

Hi,
Reads well to me as well.
Best,
Nissa

Nissa Hiatt
Communications
Vaccine Research Center, NIAID, NIH
40 Convent Drive, Bldg 40, Rm 1100
Bethesda, MD 20892
Office: [REDACTED] (b) (6)
Mobile: [REDACTED] (b) (6)
[REDACTED] (b) (6)

On Mar 15, 2020, at 7:22 PM, Mascola, John (NIH/VRC) [E] [REDACTED] (b) (6) > wrote:

Mike's comments look good to me.
Nissa and Barney can take one more look.

John

From: Mowatt, Michael (NIH/NIAID) [E] <[REDACTED] (b) (6)>
Sent: Sunday, March 15, 2020 5:48 PM
To: Routh, Jennifer (NIH/NIAID) [E] [REDACTED] (b) (6) >; Hiatt, Nissa (NIH/VRC) [C]

(b) (6)>; Graham, Barney (NIH/VRC) [E] (b) (6); Corbett, Kizzmekia (NIH/VRC) [E] (b) (6)>; Mascola, John (NIH/VRC) [E] (b) (6)>
Cc: Stover, Kathy (NIH/NIAID) [E] (b) (6); Green, Wade (NIH/NIAID) [E] (b) (6); Mowatt, Michael (NIH/NIAID) [E] (b) (6)
Subject: RE: Crisis Communication and trial questions - Seattle Children's Blog Post

One suggestion – tracked in the attachment.

From: Routh, Jennifer (NIH/NIAID) [E] (b) (6)
Sent: Sunday, March 15, 2020 5:12 PM
To: Hiatt, Nissa (NIH/VRC) [C] (b) (6)>; Graham, Barney (NIH/VRC) [E] (b) (6); Corbett, Kizzmekia (NIH/VRC) [E] (b) (6); Mascola, John (NIH/VRC) [E] (b) (6); Mowatt, Michael (NIH/NIAID) [E] (b) (6)
Cc: Stover, Kathy (NIH/NIAID) [E] (b) (6)>
Subject: FW: Crisis Communication and trial questions - Seattle Children's Blog Post

Yet another announcement for review attached.

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: Schuster, Claire (NIH/NIAID) [E] (b) (6)>
Sent: Sunday, March 15, 2020 3:46 PM
To: Routh, Jennifer (NIH/NIAID) [E] (b) (6)>
Cc: NIAID BUGS <BUGS@niaid.nih.gov>; Graham, Barney (NIH/VRC) [E] (b) (6)>
Subject: FW: Crisis Communication and trial questions - Seattle Children's Blog Post

Hi Jen,

Please see attached for DMID's edits. Could you please incorporate any additional comments from VRC & OC and share with Dr. Coler?

Thank you!
Claire

From: Coler, Rhea (b) (6)
Sent: Saturday, March 14, 2020 8:04 PM
To: Roberts, Chris (NIH/NIAID) [E] (b) (6)>; Kathleen Neuzil
(b) (6); Graham, Barney (NIH/VRC) [E] (b) (6); Lisa A.
Jackson (b) (6) Buchanan, Wendy (NIH/NIAID) [E] <(b) (6)>; NIAID
BUGS <BUGS@niaid.nih.gov>
Subject: RE: Crisis Communication and trial questions

Dear All,

The following is a blog that Seattle Children's would like to post.
Is this okay with you?

We're on the frontlines of testing a coronavirus vaccine candidate in humans.

(b) (4)

All my best,
Rhea

Rhea N. Coler, M.Sc., Ph.D.
Center for Global Infectious Disease Research (CGIDR)
Seattle Children's Research Institute

(b) (6) OFFICE

(b) (6)

OFFICE 307 Westlake Ave N, Suite 421 Seattle, WA 98109

Affiliate Professor
Department of Global Health
University of Washington

From: Ashley Miller (b) (6)
Sent: Wednesday, March 11, 2020 10:26 AM
To: Andrews, Charla (NIH/NIAID) [C] (b) (6); Arega, Janice (NIH/NIAID) [E]
<(b) (6)>; Ashley Miller <(b) (6)>; Barbara Carste
<(b) (6)>; Beigel, John (NIH) [E] (b) (6); Hoang, Binh (NIH/NIAID) [E]
(b) (6); Cassandra Karcs (b) (6); corona (b) (6);
Harrington, Crystal (NIH/NIAID) [E] <(b) (6); Elisa Sindall (b) (6);
Elsafy, Mohamed (NIH/NIAID) [C] (b) (6); (b) (6)
(b) (6); Graham, Barney (NIH/VRC) [E] (b) (6);
Hamilton Bennett (b) (6); Hill, Heather (b) (6); Jim Albert
(b) (6); Neuzil, Kathleen (b) (6); Khan, Ahsen (NIH/NIAID) [C]
(b) (6); Koo, Hyung (NIH/NIAID) [E] (b) (6); Ledgerwood, Julie
(NIH/NIAID) [E] (b) (6); Lee, Marina (NIH/NIAID) [E] (b) (6); Linda

McNeil <(b) (6)>; Lisa A. Jackson <(b) (6)>; Makhene, Mamodikoe (NIH/NIAID) [E] (b) (6); Mat Makowski (b) (6)>; Maya Dunstan (b) (6)>; Morabito, Kaitlyn (NIH/VRC) [E] (b) (6) Nayak, Seema (NIH/NIAID) [E] (b) (6)>; Ormanoski, Kathy (NIH/NIAID) [E] (b) (6); Pikaart-Tautges, Rhonda (NIH/NIAID) [E] <(b) (6)>; Rhea Coler (b) (6)>; Roberts, Chris (NIH/NIAID) [E] <(b) (6)>; Kim, Sonnie (NIH/NIAID) [E] (b) (6); Veronica Faughnan (b) (6); Buchanan, Wendy (NIH/NIAID) [E] (b) (6)>
Subject: 20-0003 Clinical Ops Meeting Minutes 9 Mar 2020 - DRAFT

Dear all,

Please find attached draft meeting minutes from the March 9 Clinical Operations call. Kindly review and return any comments/edits to me by **noon on Friday, March 13**. Then the minutes will be finalized and circulated to the team.

Many thanks,
Ashley

Ashley Miller, MA | Research Associate

359 Blackwell Street, Suite 200 | Durham, NC 27701

O: (b) (6) | F: 919.405.1421 | (b) (6) | www.fhi360.org | [FHI 360](#)

[Facebook](#)

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From: Graham, Barney (NIH/VRC) [E]
Sent: Wed, 25 Mar 2020 01:14:21 +0000
To: Bok, Karin (NIH/VRC) [E]
Cc: Kanekiyo, Masaru (NIH/VRC) [E]
Subject: RE: Duke CIVICs Vaccine Center Semi-Annual Report - VRC

Thank you both for getting this done.

Barney

From: Bok, Karin (NIH/VRC) [E] (b) (6)
Sent: Tuesday, March 24, 2020 3:11 PM
To: Isabel Wright <(b) (6)>; Graham, Barney (NIH/VRC) [E] (b) (6);
Kanekiyo, Masaru (NIH/VRC) [E] (b) (6)
Cc: Hilary Bouton-Verville <(b) (6)>; Tony Moody, M.D.
(b) (6); Alvarado, Gabriela (NIH/VRC) [C] (b) (6)>
Subject: Re: Duke CIVICs Vaccine Center Semi-Annual Report - VRC

Isabel,

Thank you for the friendly reminder and for your patience while we reviewed this document during the coronavirus emergency.

We have reviewed the document and have a few minor suggestions. We agree with the progress reported.

Thank you!

Karin.

Karin Bok, MS, PhD

Senior Advisor, Vaccine Development

Office of the Director, Vaccine Research Center

National Institute of Allergy and Infectious Diseases

National Institutes of Health

phone: (b) (6) | mobile: (b) (6) | email: (b) (6)

<https://www.niaid.nih.gov/about/vrc>

From: Isabel Wright (b) (6)>
Date: Tuesday, March 24, 2020 at 10:04 AM
To: Karin Bok <(b) (6)>, "Graham, Barney (NIH/VRC) [E]" <(b) (6)>,

"Kanekiyo, Masaru (NIH/VRC) [E]" (b) (6)
Cc: Hilary Bouton-Verville (b) (6), "Tony Moody, M.D." (b) (6), "Alvarado, Gabriela (NIH/VRC) [C]" (b) (6)>
Subject: RE: Duke CIVICs Vaccine Center Semi-Annual Report - VRC

Hi Karin,

I just wanted to follow up on my previous email regarding the VRC Executive Summary (attached here).

We would like to incorporate it into the Duke CIVICs Component A Semi-Annual Report and were wondering if you've had a chance to review it. Please let me know if we need to make any edits/changes by the end of the day **tomorrow (3/25)**.

We realize this is a busy time with the COVID-19 situation, but we appreciate any feedback you could provide for this report.

Thanks!

Isabel

From: Isabel Wright
Sent: Tuesday, March 17, 2020 8:47 AM
To: Bok, Karin (NIH/VRC) [E] (b) (6); Graham, Barney (NIH/VRC) [E] (b) (6); Kanekiyo, Masaru (NIH/VRC) [E] (b) (6)>
Cc: Hilary Bouton-Verville (b) (6); Tony Moody, M.D. (b) (6); Alvarado, Gabriela (NIH/VRC) [C] (b) (6)>
Subject: RE: Duke CIVICs Vaccine Center Semi-Annual Report - VRC

Hi Karin,

We put together a draft of the VRC Executive Summary for the Duke CIVICs Component A Semi-Annual Report (attached here). As Tony mentioned, we pulled information from the VRC data package, target product profile, and GMP kickoff meeting. We hope this is a helpful starting point given the different project start date for the VRC, but please feel free to review and make any additional edits or changes.

Once the VRC approves the content, please return the file by **Monday, March 23, 2020** so that we may incorporate it into our report for submission.

Please let me know if you have any questions in the meantime.

Thank you,

Isabel

From: Bok, Karin (NIH/VRC) [E] (b) (6)
Sent: Tuesday, March 10, 2020 11:20 AM
To: Tony Moody, M.D. (b) (6); Isabel Wright (b) (6); Graham, Barney (NIH/VRC) [E] (b) (6); Kanekiyo, Masaru (NIH/VRC) [E] (b) (6)>

Cc: Hilary Bouton-Verville (b) (6) Alvarado, Gabriela (NIH/VRC) [C]
(b) (6)

Subject: Re: Duke CIVICs Vaccine Center Semi-Annual Report - VRC

Thank you! Happy to help with anything you need.

Karin.

Karin Bok, MS, PhD

Senior Advisor, Vaccine Development

Office of the Director, Vaccine Research Center

National Institute of Allergy and Infectious Diseases

National Institutes of Health

phone: (b) (6) | mobile: (b) (6) | email: (b) (6)

<https://www.niaid.nih.gov/about/vrc>

From: "Tony Moody, M.D." (b) (6) >

Date: Tuesday, March 10, 2020 at 11:05 AM

To: Karin Bok (b) (6) >, Isabel Wright (b) (6) >, "Graham, Barney (NIH/VRC) [E]" (b) (6) >, "Kanekiyo, Masaru (NIH/VRC) [E]"

<(b) (6)>

Cc: Hilary Bouton-Verville (b) (6) >, "Alvarado, Gabriela (NIH/VRC) [C]" (b) (6) >

Subject: Re: Duke CIVICs Vaccine Center Semi-Annual Report - VRC

Hi Karin,

You are correct, and you are different from our other partners. The start date is the date of the whole contract but you would only talk about the stuff you've done with us since you got approved. We can probably pull the relevant info from the docs you have already sent us. I'll talk to Isabel and Hilary tomorrow and we can come back with specific questions for you if there are any.

Cheers,

T

--

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

Date: Tuesday, March 10, 2020 at 9:50 AM

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

(b) (6), "Kanekiyo, Masaru (NIH/VRC) [E]" (b) (6) >

Cc: "Tony Moody, M.D." (b) (6), Hilary Bouton-Verville (b) (6) >
(b) (6) >, "Alvarado, Gabriela (NIH/VRC) [C]" (b) (6) >

Subject: Re: Duke CIVICs Vaccine Center Semi-Annual Report - VRC

Hi Isabel,

Thank you for sharing this. I am a little bit confused about the date of the contract start. From the VRC point of view, we just got approved to move forward with this project in January 2020. Thus there is not much to update at this point other than we have held our first meeting and are in the process of getting the project started.

Thank you, let me know if I can help with anything else,

Karin.

Karin Bok, MS, PhD

Senior Advisor, Vaccine Development

Office of the Director, Vaccine Research Center

National Institute of Allergy and Infectious Diseases

National Institutes of Health

phone: (b) (6) | mobile: (b) (6) | email: (b) (6)

<https://www.niaid.nih.gov/about/vrc>

From: Isabel Wright (b) (6) >

Date: Friday, March 6, 2020 at 4:25 PM

To: "Graham, Barney (NIH/VRC) [E]" <(b) (6)>, Karin Bok (b) (6), "Kanekiyo, Masaru (NIH/VRC) [E]" (b) (6)

Cc: "Tony Moody, M.D." <(b) (6)>, Hilary Bouton-Verville (b) (6), (b) (6)

Subject: Duke CIVICs Vaccine Center Semi-Annual Report - VRC

Good afternoon,

We are preparing the CIVICs Component A Semi-Annual Report, as required by NIAID, and we would like to include updates from the VRC. To capture all the information and updates since the start of the contract six months ago, NIAID provided their desired report template and we are asking that you please fill out the attached **Executive Summary template**, which spans September 10, 2019, through February 29, 2020. This is a high-level overview of your progress over the last six months. Instructions provided by NIAID for each section are in red font.

We ask that you please complete the attached report by **close of business on March 23, 2020**.

We realize this is a large undertaking but we appreciate all your help in assembling this information. As always, please reach out with any questions or concerns in the meantime.

All the best,
Isabel

Isabel Wright, MPH | Program Manager
Duke Human Vaccine Institute (DHVI)
2 Genome Court, MSRBII Rm. 3079
Durham, NC 27710
Phone: (b) (6)



From: Graham, Barney (NIH/VRC) [E]
Sent: Sat, 14 Mar 2020 15:03:54 +0000
To: Hutchinson, Geoffrey (NIH/VRC) [F]
Cc: Corbett, Kizzmekia (NIH/VRC) [E]
Subject: Re: With regard to telework

Thanks Geoff. I appreciate your dedication and I will work on something to make sure the NIH properly appreciates what our band of IRTAs has accomplished.

BG

Sent from my iPhone

On Mar 14, 2020, at 10:52 AM, Hutchinson, Geoffrey (NIH/VRC) [F]
(b) (6) wrote:

Hi Dr. Graham,

I want to let you know that because of the significance of our work in relation to the current coronavirus outbreak, I intend to continue coming to work. Due to current policies, Postbacs are not allowed to have laptops, so I will need to be here for experiments, data analysis, emails, etc., to ensure continuity of our work. I will seek a parking permit to limit my use of public transportation. In the spirit of the VRC's mission, the show must go on.

Best,
Geoff

Geoffrey Hutchinson
Post-baccalaureate Research Fellow
National Institutes of Health
National Institutes of Allergy and Infectious Diseases
Vaccine Research Center
Viral Pathogenesis Laboratory
Molecular Immunoengineering Unit
Coronavirus Vaccines and Immunopathogenesis

From: Graham, Barney (NIH/VRC) [E]
Sent: Sun, 2 Feb 2020 20:59:40 +0000
To: Corbett, Kizzmekia (NIH/VRC) [E]
Cc: Morabito, Kaitlyn (NIH/VRC) [E]; Abiona, Olubukola (NIH/VRC) [F]
Subject: Re: PICKUP-HWB: (b) (6) Feb 02 2020 1458 Ref:SHP-37850

I would start together as you have planned.

BG

Sent from my iPhone

On Feb 2, 2020, at 3:51 PM, Corbett, Kizzmekia (NIH/VRC) [E] (b) (6) >
wrote:

We won't have the (b) (4), until Feb.11. However, I have (b) (4), (b) (5) ready to go Wednesday. The research grade material is arriving tomorrow and GMP grade is arriving on Wednesday. I felt starting them at the same time would be best. We only lose 2 days. They wanted to (b) (4), (b) (5)

Would you prefer to start the research grade material tomorrow? We certainly can.

--

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: Sunday, February 2, 2020 at 3:44 PM
To: Kizzmekia Corbett (b) (6)

Cc: Kaitlyn Morabito (b) (6), "Abiona, Olubukola (NIH/VRC) [F]" (b) (6) >

Subject: Re: PICKUP-HWB (b) (6) Feb 02 2020 1458 Ref:SHP-37850

Did you tell me (b) (4), (b) (5) couldn't start until Wednesday?

BG

Sent from my iPhone

On Feb 2, 2020, at 3:41 PM, Corbett, Kizzmekia (NIH/VRC) [E] (b) (6) wrote:

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: "WC_Shipment_Alert@worldcourier.com" <WC_Shipment_Alert@worldcourier.com>

Date: Sunday, February 2, 2020 at 3:00 PM

To: Kizzmekia Corbett (b) (6)

Subject: PICKUP-HWB (b) (6) Feb 02 2020 1458 Ref:SHP-37850

Shipment Notification For Pickup

House Way Bill: (b) (6)

Attention: Kizzmekia Corbett,

Customer: Moderna TX

Customer #: (b) (6)

Job Number: 5962-000

Reference: SHP-37850

Charge (b) (6)

Code:

SHIPPER

Moderna

Elder Barros / John Zajac

100 UPLAND RD

Dock 10

NORWOOD, MA 02062 USA

(b) (6)

CONSIGNEE

NIH

Kizzmekia Corbett,

40 Convent Drive

Building 40 Room 2608

BETHESDA, MD 20892 USA

(b) (6)

PICKUP: February 02, 2020 1458

ESTIMATED DELIVERY: February 03, 2020 at 0800

Item: Pharmaceuticals, (b) (4)

Dangerous Goods Declaration: No

Pcs: 1 WGT: 50 Lbs DIMS: 19x17x18 INs

Refrig(Kgs): Gel Packs - frozen

Temp_Mon: Y

Temperature: Frozen

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mkfxfil V.17Sep22_2256

From: Graham, Barney (NIH/VRC) [E]
Sent: Tue, 10 Mar 2020 20:53:51 +0000
To: Cornelia L. Dekker; Baric, Ralph; Arnaud Didierlaurent
Cc: Robert Chen; Ángel Honrado; Paul Henri Lambert
Subject: RE: URGENT Draft questions for CEPI-BC meeting on preventing disease enhancement with COVID-19 vaccines

I will do what I can later tonight.

Barney

From: Cornelia L. Dekker <(b) (6)>
Sent: Tuesday, March 10, 2020 4:13 PM
To: Graham, Barney (NIH/VRC) [E] <(b) (6)>; Baric, Ralph <(b) (6)>; Arnaud Didierlaurent <(b) (6)>
Cc: Robert Chen <(b) (6)>; Ángel Honrado <(b) (6)>; Paul Henri Lambert <(b) (6)>
Subject: FW: URGENT Draft questions for CEPI-BC meeting on preventing disease enhancement with COVID-19 vaccines

Dear presenters, I have prepared the slides with Paul Henri Lambert that we will use to help guide the discussion following each session (after your presentations). In the attached PowerPoint, I have included space for each of you to briefly answer the questions posed on the L side of the slide (same questions I sent out earlier in WORD format). Arnaud has sent in many of the responses which I have put in but I'm now asking Drs. Baric and Graham to do the same and return to me so that I can collate the responses. Please let me know if you have questions and please also send me and Angel (copied above) a copy of your presentation slides. Thank you to Arnaud for sending in his.

Best regards, Corry

From: Cornelia Dekker <(b) (6)>
Date: Monday, March 9, 2020 at 10:29 AM
To: Barney Graham <(b) (6)>, Arnaud Didierlaurent <(b) (6)>, Ralph Baric <(b) (6)>
Cc: Paul Henri Lambert <(b) (6)>, Robert Chen <(b) (6)>, Ángel Honrado <(b) (6)>
Subject: FW: Draft questions for CEPI-BC meeting on preventing disease enhancement with COVID-19 vaccines

Dear Drs. Baric, Graham and Didierlaurent, to help shape our discussion of these questions, we are asking the presenters to draft answers to the questions that I will then put into slides showing the questions and answers for the Day 1 (Thursday) session. If you would be so kind as to send me your answers and a copy of the slides you will use by **end of the day tomorrow**, we can put a master slide set

together for your presentations and prepare the Q&A slides for discussion on Thursday. Prof. Lambert and I plan to draft a summary guidance based on the Day 1 discussion immediately following the end of the session and we will send this out to the presenters for comments. We will use your feedback to draft slides for the following day's discussions of the draft guidance with the peer reviewers. Thank you again for participating in this videoconference and please let me know if you have any questions.

Best wishes, Corry

From: Cornelia Dekker (b) (6) >
Date: Wednesday, March 4, 2020 at 4:02 PM
To: Barney Graham <(b) (6)>, Arnaud Didierlaurent (b) (6) >, Ralph Baric (b) (6) >
Cc: Paul Henri Lambert <(b) (6)>, Ángel Honrado (b) (6) >, Imanol Urcola Lecuona (b) (6) >, "Baric, Toni C" (b) (6) >, Robert Chen (b) (6) >, Steve Black (b) (6) >
Subject: Re: Draft questions for CEPI-BC meeting on preventing disease enhancement with COVID-19 vaccines

Dear Drs. Baric, Graham and Didierlaurent,

Let me add my thanks for your willingness to speak during our session on March 12. For your consideration, I have attached a draft list of questions to focus our discussion after your presentations for the guidance document we hope to develop. I would welcome your comments and suggestions. I'm looking forward to our discussion next week; please let me know if you have questions or comments.

Best wishes, Corry Dekker

Cornelia L. Dekker, MD, FAAP, FIDSA, FPIDS | Professor of Pediatrics, Emerita | Division of Pediatric Infectious Diseases | Stanford University School of Medicine | email: (b) (6)

From: Robert Chen (b) (6) >
Date: Friday, February 28, 2020 at 7:12 AM
To: Barney Graham <(b) (6)>, Arnaud Didierlaurent (b) (6) >, Ralph Baric (b) (6) >
Cc: Paul Henri Lambert (b) (6) >, Cornelia Dekker (b) (6) >, Ángel Honrado <(b) (6)>, Imanol Urcola Lecuona (b) (6) >, "Baric, Toni C" (b) (6) >
Subject: URGENT: Action Items: CEPI-BC meeting on preventing disease enhancement with COVID-19 vaccines

Dear Ralph, Barney and Arnaud,

Greetings! I'm writing to confirm you as a speaker for this important videoconference (revised draft agenda with time zone annexes attached), Mar. 12-13, 2020, [12:00-17:00 (GMT/London); 08:00-13:00 (EDT/DC); 13:00-1800 CET/Geneva].

On Mar. 12, 2020, all of you will be speaking in session 4 (Potential implication of IgG mediated pathology for vaccine design) 14:20-16:45 GMT/10:20-12:45 EDT/15:20-17:45 CET). You'll each have 20 minutes Talk + 15 minutes Q&A. Corry Dekker will then moderate a session where we'll try to jointly draft guidance on COVID-19 immunological markers.

14:20-16:45	145	4	Potential implication of IgG mediated pathology for vaccine design. Should one focus on ACE2-binding epitopes (RBD) to reduce the risk of enhanced antibody-mediated immunopathology?
14:20-14:40 Talk 14:40-14:55 Q&A	20 15	4.1	Structure and function of CoV spike protein Ralph Baric (UNC)
14:55-15:15 Talk 15:15-15:30 Q&A	20 15	4.2	Immunogenicity and neutralizing efficacy of truncated spike antigens Barney Graham (NIH)
15:30-15:50 Talk 15:50-16:05 Q&A	20 15	4.3	Which immunological/inflammatory markers should we monitor during a first Phase 1 trial, including impact of adjuvants? Arnaud Didierlaurent (Geneva Centre of Vaccinology)
16:05-16:45	40	4.4	Drafting guidance on COVID-19 immunological markers; moderator: Corry Dekker (Stanford/BC)

On Mar. 13, 2020 (14:00-15:30 GMT/10:00-11:30 EDT/15:00-16:30 CET). these draft guidance will be presented and peer reviewed with the web audience

14:00-15:30	90	8	Review draft guidance on COVID-19 immunological markers
14:00-14:10	10	8.1	Summary draft guidance by moderator Corry Dekker (Stanford/BC)
14:10-15:30	80	8.2	Peer review with web audience guided by moderator & videoconference coordinator

Please feel free to email Dr. Dekker and Dr. Lambert (overall planner of agenda) in case you have any questions on this session. Angel/Imanol can organize a conf call if needed.

Action Items:

- 1) Contact me ASAP if your plans to attend have changed. Angel/Imanol will send out a calendar invite to you also.
- 2) Email moderator or other speaker in Session as needed
- 3) Prepare and share (ahead of the meeting by Mar. 10 if possible)
 - a) 1-2 page summary with citations (can include unpublished info) in Endnote that can be easily incorporated into a master summary document, and
 - b) your Powerpoint slides.
- 4) Please suggest up to 5 peer reviewers (for Day 2, assuming only some can make it) to invite with their emails.

Best regards,

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

----- Forwarded message -----

From: **Robert Chen** <(b) (6)>

Date: Mon, Feb 24, 2020 at 6:42 PM

Subject: Re: URGENT: Invitation to CEPI-BC meeting on preventing disease enhancement with COVID-19 vaccines

To: <(b) (6)>, Perlman, Stanley <(b) (6)>, (b) (6)>, Arnaud Didierlaurent (b) (6)>

Cc: Jakob Cramer (b) (6)>, Svein Rune Andersen (b) (6), Melanie Saville (b) (6)>

Dear all,

Thanks for your timely reply to the Doodles. Unfortunately there was no single time suitable for all, so we had to make an executive decision to go with the video-conference on Mar. 12-13, 2020. I know Drs. Baric and Tseng had indicated that they were unavailable on these dates. Please let me know ASAP if you (or your team) might still be available in some way (e.g., you rescheduling your conflict, alternative presenter from your team or another team that you'd recommend, you taping your talk and someone else from your team presenting),

To maximize the productivity of the meeting, we ask each speaker to: prepare and share (ahead of the meeting by Mar. 10 if possible) a) 1-2 page summary with citations (can include unpublished info) in Endnote that can be easily incorporated into a master summary document, and b) your Powerpoint slides. For Day 2 (Revised agenda attached), we like to invite colleagues in the field who can provide best possible peer review. Please suggest up to 5 with their emails. They can view Day 1 if they wish but won't participate otherwise until Day 2. Other stakeholders (e.g., COVID-19 vaccine developers) will be invited to join on same terms.

Thanks again and please let us know if you have any questions,

Best regards,

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

JAKOB CRAMER
Head of Clinical Development
CEPI

On Fri, Feb 21, 2020 at 11:27 AM Robert Chen (b) (6)> wrote:
Dear Colleague,

The Coalition for Epidemic Preparedness and Innovation (CEPI) has funded several programs to develop a vaccine against COVID-19 (https://cepi.net/news_cepi/cepi-to-fund-three-programmes-to-develop-vaccines-against-the-novel-coronavirus-ncov-2019/). CEPI has partnered with the Brighton Collaboration (BC) to support the safety assessment of its vaccine candidates (https://cepi.net/news_cepi/cepi-partners-with-brighton-collaboration-to-support-safety-assessment-of-vaccine-candidates-against-emerging-infectious-diseases/)

Some prior coronavirus vaccine candidates vs. SARS and MERS have shown enhanced disease (ED) can occur in immunized animals upon subsequent exposure to live virus. To better understand and hopefully prevent this phenomenon with COVID-19 vaccine candidates, CEPI and BC are organizing an urgent internal scientific consensus meeting (Draft Agenda attached; your suggestions welcome).

Please complete the doodles for each of the Options below by 5PM PDT, Monday Feb. 24, 2020:

Option A: Standard one day face-to-face meeting in a major city TBD (e.g., London, UK; Brussels, Belgium, Geneva, Switzerland). Please arrive by the night before. Your travel expenses will be covered by CEPI.

Option B: aims to cut the challenges, cost, and risk associated with traveling by using an internet conference platform for 5 hours duration on two successive days at the following times on both days:

21:00-02:00+1 (Beijing)
13:00-18:00 GMT (London)
08:00-13:00 EDT (New York)
05:00-10:00 PDT (San Francisco)

We anticipate the meeting outcomes to be presented and published in multiple scientific and policy forums subsequently. We look forward to your reply and your contribution towards a fruitful meeting. We'll follow up with more details as soon as we can. Please let me know if you have any questions.

Best regards,

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

JAKOB CRAMER
Head of Clinical Development
CEPI

From: Graham, Barney (NIH/VRC) [E]
Sent: Thu, 19 Mar 2020 08:55:52 +0000
To: Douek, Daniel (NIH/VRC) [E]; Boritz, Eli (NIH/NIAID) [E]; Mascola, John (NIH/VRC) [E]; Koup, Richard (NIH/VRC) [E]; Adrian McDermott; Seder, Robert (NIH/VRC) [E]
Cc: Corbett, Kizzmekia (NIH/VRC) [E]; Kanekiyo, Masaru (NIH/VRC) [E]; Ruckwardt, Tracy (NIH/VRC) [E]
Subject: RE: Influenza lethality prediction draft and original Cell paper

Thanks Danny. I had not seen this paper before. Will help in counteracting the enhanced illness rhetoric.

BG

From: Douek, Daniel (NIH/VRC) [E] (b) (6)
Sent: Thursday, March 19, 2020 4:30 AM
To: Boritz, Eli (NIH/NIAID) [E] (b) (6)>; Mascola, John (NIH/VRC) [E] (b) (6)>; Graham, Barney (NIH/VRC) [E] (b) (6)>; Koup, Richard (NIH/VRC) [E] <(b) (6)>; Adrian McDermott (b) (6)>; Seder, Robert (NIH/VRC) [E] (b) (6)>
Cc: Corbett, Kizzmekia (NIH/VRC) [E] (b) (6)>; Kanekiyo, Masaru (NIH/VRC) [E] (b) (6) Ruckwardt, Tracy (NIH/VRC) [E] (b) (6)>
Subject: Re: Influenza lethality prediction draft and original Cell paper

Eli

I think your analysis is spot on.

1. First, I think there is a (b) (5)
(b) (5) For me,
those papers all point to (b) (5) Also, I
don't buy the " (b) (5)
(b) (5)
2. There was talk a while back (b) (5)
(b) (5). I
can't remember where this came from....
3. Take a look at the attached paper showing that Th2 (b) (5)
(b) (5)

So, I agree with you that what you need (b) (5)
(b) (5) I also believe that
(b) (5)

(b) (5) I have high hopes for the mRNA vaccine.

d

From: Eli Boritz (b) (6)

Date: Thursday, March 19, 2020 at 5:44 AM

To: John Mascola (b) (6)>, Barney Graham (b) (6) Richard Koup (b) (6)>, Adrian McDermott (b) (6)>, Robert Seder (b) (6)>

Cc: "Corbett, Kizzmekia (NIH/VRC) [E]" (b) (6)>, "Kanekiyo, Masaru (NIH/VRC) [E]" (b) (6) "Ruckwardt, Tracy (NIH/VRC) [E]" (b) (6), Daniel Douek (b) (6)

Subject: Re: Influenza lethality prediction draft and original Cell paper

Amateur thoughts from an HIV guy who does ID. . .there is a lot to try to integrate here. The clinical paper shows (b) (5)
However, (b) (5)
(b) (5); it's not clear whether (b) (5)
(b) (5)
(b) (5).

It is impressive that (b) (5)
(b) (5) and interesting that (b) (5)
(b) (5) The part of the Cell paper addressing (b) (5)
– seemed a little unclear. However, the (b) (5)

It seems like they think (b) (5),
(b) (5)
(b) (5)
(b) (5)

Eli

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

Date: Wednesday, March 18, 2020 at 9:14 PM

To: "Graham, Barney (NIH/VRC) [E]" (b) (6)>, "Koup, Richard (NIH/VRC) [E]" (b) (6)>, Adrian McDermott (b) (6)>, "Seder, Robert (NIH/VRC) [E]" (b) (6)

Cc: "Corbett, Kizzmekia (NIH/VRC) [E]" (b) (6)>, "Kanekiyo, Masaru (NIH/VRC) [E]" (b) (6), "Ruckwardt, Tracy (NIH/VRC) [E]" (b) (6)>, "Douek, Daniel (NIH/VRC) [E]" <(b) (6)>, "Koup, Richard (NIH/VRC) [E]" <(b) (6)>, "Boritz, Eli (NIH/NIAID) [E]"

(b) (6)

Subject: RE: Influenza lethality prediction draft and original Cell paper

Adding Danny, and Eli and Rick.

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

Sent: Wednesday, March 18, 2020 8:01 PM

To: Koup, Richard (NIH/VRC) [E] (b) (6); Adrian McDermott <(b) (6)>; Seder, Robert (NIH/VRC) [E] (b) (6)

Cc: Mascola, John (NIH/VRC) [E] (b) (6)>; Corbett, Kizzmekia (NIH/VRC) [E] (b) (6); Kanekiyo, Masaru (NIH/VRC) [E] (b) (6)>; Ruckwardt, Tracy (NIH/VRC) [E] (b) (6)

Subject: Fwd: Influenza lethality prediction draft and original Cell paper

FYI. From Ron Germain. Anything here we should be thinking of?

The RSV enhanced illness syndrome includes neutrophilic alveolitis.

BG

Sent from my iPhone

Begin forwarded message:

From: "Germain, Ronald (NIH/NIAID) [E]" <(b) (6)>

Date: March 18, 2020 at 11:16:56 AM EDT

To: "Feldmann, Heinrich (NIH/NIAID) [E]" (b) (6)>, "De wit, Emmie (NIH/NIAID) [E]" <(b) (6)>, "Graham, Barney (NIH/VRC) [E]" (b) (6)>

Subject: FW: Influenza lethality prediction draft and original Cell paper

Heinz, Emmie, and Barney

I am forwarding some material from the lab that may of interest in the current situation. The Cell paper described the key role of neutrophils in a feedforward circuit that is the major driver of lethality in an acute influenza model in mice, with evidence that interrupting the acceleration in this circuit saves animals from death. The draft ms. is (b) (5)

(b) (5)

The connection to COVID-19 disease seems obvious and a recent paper from China suggests that the neutrophil:T cell ratio is predictive of outcome (see attached e mail). There is a lot more to do to work out when the adaptive response is helpful and when it is harmful, and how to act going forward with this knowledge.

I don't know if any of this information is actionable or relevant to your efforts, but Steve H. suggested I let you know about it just in case. I would be happy to discuss what we have done, the model systems, etc. if you need/want any more info. Otherwise, keep up the great work you are all doing.

Ron

Ronald N. Germain, M.D., Ph. D.

NIH Distinguished Investigator

Chief, Laboratory of Immune System Biology (LISB)

Chief, Lymphocyte Biology Section, LISB

Director, Center for Advanced Tissue Imaging (CAT-I)

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URL: <http://www.niaid.nih.gov/lab-sections/3171>

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From: Ronald Germain (b) (6) >

Date: Wednesday, February 19, 2020 at 4:19 PM

To: Hugh Auchincloss (b) (6)

Subject: Influenza lethality prediction draft and original Cell paper

Hugh

Per our discussion.

Ron

Ronald N. Germain, M.D., Ph. D.
NIH Distinguished Investigator
Chief, Laboratory of Immune System Biology (LISB)
Chief, Lymphocyte Biology Section, LBS
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<https://www.niaid.nih.gov/research/ronald-n-germain-md-phd>

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From: Graham, Barney (NIH/VRC) [E]
Sent: Sun, 12 Apr 2020 02:23:54 +0000
To: Corbett, Kizzmekia (NIH/VRC) [E]
Subject: COVID-19 viewpoint for JCI V3
Attachments: COVID-19 viewpoint for JCI V3.docx

This is what I was thinking for the JCI viewpoint. I think they wanted 1200 words. This is a little over, but not much.

I will try to send the other piece on risk:benefit calculations and vaccine-enhanced disease tomorrow.

BG

From: Graham, Barney (NIH/VRC) [E]
Sent: Wed, 8 Apr 2020 06:59:25 +0000
To: Mascola, John (NIH/VRC) [E]
Subject: Re: [REDACTED] (b) (4)

OK. Glad it is going through double checking. I'm a little more relaxed since [REDACTED] (b) (5)

Barney

Sent from my iPhone

On Apr 7, 2020, at 11:17 PM, Mascola, John (NIH/VRC) [E] [REDACTED] (b) (6) wrote:

Just FYI. Should have data tomorrow. The current process [REDACTED] (b) (5)

[REDACTED] (b) (5)

Thus, we've implemented [REDACTED] (b) (5).

From: Schmidt, Stephen (NIH/VRC) [C] [REDACTED] (b) (6) >
Sent: Tuesday, April 7, 2020 11:13 PM
To: Wang, Lingshu (NIH/VRC) [E] [REDACTED] (b) (6); Mascola, John (NIH/VRC) [E]
[REDACTED] (b) (6)
Cc: Zhang, Yi (NIH/NIAID) [C] [REDACTED] (b) (6) >; Yang, Eun Sung (NIH/VRC) [C]
[REDACTED] (b) (6); Kong, Wing-Pui (NIH/VRC) [E] [REDACTED] (b) (6); Doria-Rose, Nicole
(NIH/NIAID) [E] [REDACTED] (b) (6) >; O'Dell, Sijy (NIH/VRC) [E] [REDACTED] (b) (6)
Subject: RE: [REDACTED] (b) (4)

Hi Everyone,

The [REDACTED] (b) (4), (b) (5) They are
[REDACTED] (b) (4), (b) (5)
[REDACTED] (b) (4), (b) (5)
[REDACTED] (b) (4), (b) (5)
[REDACTED] (b) (4), (b) (5) I will update the [REDACTED] (b) (4), (b) (5). I should have mentioned that to you earlier
Lingshu.

This is a complicated spreadsheet and it can be tedious use. It also takes a while to cut and paste the
data. It will be great when we can start [REDACTED] (b) (5), as planned, as that will allow us
to [REDACTED] (b) (5)

I will send the corrected file later tonight.

Steve

From: Wang, Lingshu (NIH/VRC) [E] (b) (6)
Sent: Tuesday, April 7, 2020 11:06 PM
To: Mascola, John (NIH/VRC) [E] (b) (6)
Cc: Zhang, Yi (NIH/NIAID) [C] (b) (6); Schmidt, Stephen (NIH/VRC) [C] (b) (6); Yang, Eun Sung (NIH/VRC) [C] (b) (6); Kong, Wing-Pui (NIH/VRC) [E] (b) (6); Doria-Rose, Nicole (NIH/NIAID) [E] (b) (6); O'Dell, Sijy (NIH/VRC) [E] (b) (6)
Subject: Re: (b) (4)

Hi John,
Yi and I put this data together. But it would be great if someone else could double check.
Thanks,
lingshu

From: "Mascola, John (NIH/VRC) [E]" (b) (6)>
Date: Tuesday, April 7, 2020 at 10:41 PM
To: "Wang, Lingshu (NIH/VRC) [E]" (b) (6)>
Cc: "Zhang, Yi (NIH/NIAID) [C]" (b) (6), "Schmidt, Stephen (NIH/VRC) [C]" (b) (6), "Yang, Eun Sung (NIH/VRC) [C]" (b) (6), "Kong, Wing-Pui (NIH/VRC) [E]" (b) (6), "Doria-Rose, Nicole (NIH/NIAID) [E]" (b) (6), "O'Dell, Sijy (NIH/VRC) [E]" (b) (6)
Subject: Re: (b) (4)

Thank you Lingshu, and all those who helped with this!

I'd like another member of the team to assist Lingshu by reviewing the data and double checking that all looks fine to share.

Thanks
John

From: "Wang, Lingshu (NIH/VRC) [E]" (b) (6)>
Date: Tuesday, April 7, 2020 at 22:34:35
To: "Mascola, John (NIH/VRC) [E]" (b) (6)>
Cc: "Zhang, Yi (NIH/NIAID) [C]" (b) (6), "Schmidt, Stephen (NIH/VRC) [C]" (b) (6), "Yang, Eun Sung (NIH/VRC) [C]" (b) (6), "Kong, Wing-Pui (NIH/VRC) [E]" (b) (6), "Doria-Rose, Nicole (NIH/NIAID) [E]" (b) (6), "O'Dell, Sijy (NIH/VRC) [E]" (b) (6)
Subject: Re: (b) (4)

Hi John,
We ran (b) (4) Please see attached 3 files.

1. [REDACTED] (b) (4) Kizz sent, total
[REDACTED] (b) (4)
2. [REDACTED] (b) (4)
3. [REDACTED] (b) (4)

Please advise,
lingshu

From: "Mascola, John (NIH/VRC) [E]" [REDACTED] (b) (6)>
Date: Sunday, April 5, 2020 at 5:43 PM
To: "Wang, Lingshu (NIH/VRC) [E]" [REDACTED] (b) (6)>
Cc: "Zhang, Yi (NIH/NIAID) [C]" <[REDACTED] (b) (6)>, "Schmidt, Stephen (NIH/VRC) [C]" <[REDACTED] (b) (6)>, "Yang, Eun Sung (NIH/VRC) [C]" [REDACTED] (b) (6)>, "Kong, Wing-Pui (NIH/VRC) [E]" [REDACTED] (b) (6)>, "Doria-Rose, Nicole (NIH/NIAID) [E]" [REDACTED] (b) (6)>, "O'Dell, Sijy (NIH/VRC) [E]" <[REDACTED] (b) (6)>
Subject: RE: [REDACTED] (b) (4)

Wow, this group is amazing.

So looks some additional hits here – this is good news.

Best,
John

From: Wang, Lingshu (NIH/VRC) [E] [REDACTED] (b) (6)
Sent: Sunday, April 5, 2020 5:40 PM
To: Mascola, John (NIH/VRC) [E] [REDACTED] (b) (6)>
Cc: Zhang, Yi (NIH/NIAID) [C] [REDACTED] (b) (6); Schmidt, Stephen (NIH/VRC) [C] [REDACTED] (b) (6)>; Yang, Eun Sung (NIH/VRC) [C] [REDACTED] (b) (6)>; Kong, Wing-Pui (NIH/VRC) [E] [REDACTED] (b) (6)>; Doria-Rose, Nicole (NIH/NIAID) [E] [REDACTED] (b) (6)>; O'Dell, Sijy (NIH/VRC) [E] [REDACTED] (b) (6)>
Subject: Re: [REDACTED] (b) (4)

Hi John,
We also ran [REDACTED] (b) (4), (b) (5)
[REDACTED]
I think there are [REDACTED] (b) (4), (b) (5)
So far, [REDACTED] (b) (4), (b) (5) Hopefully we could
[REDACTED] (b) (4), (b) (5)
Thanks,
lingshu

From: "Mascola, John (NIH/VRC) [E]" (b) (6) >
Date: Sunday, April 5, 2020 at 4:44 PM
To: "Wang, Lingshu (NIH/VRC) [E]" (b) (6)
Cc: "Zhang, Yi (NIH/NIAID) [C]" (b) (6), "Schmidt, Stephen (NIH/VRC) [C]" (b) (6), "Yang, Eun Sung (NIH/VRC) [C]" (b) (6), "Kong, Wing-Pui (NIH/VRC) [E]" <(b) (6)>, "Doria-Rose, Nicole (NIH/NIAID) [E]" (b) (6), "O'Dell, Sijy (NIH/VRC) [E]" <(b) (6)>
Subject: RE: (b) (4)

Also, lets clarify why (b) (4)

One other point. (b) (4), (b) (5). Don't need it right away, but I'd like to (b) (4), (b) (5) And We should (b) (4), (b) (5) (b) (4), (b) (5)

Thanks,
John

From: Wang, Lingshu (NIH/VRC) [E] (b) (6)
Sent: Sunday, April 5, 2020 12:12 PM
To: Mascola, John (NIH/VRC) [E] (b) (6)
Cc: Zhang, Yi (NIH/NIAID) [C] (b) (6) Schmidt, Stephen (NIH/VRC) [C] (b) (6) Yang, Eun Sung (NIH/VRC) [C] (b) (6) Kong, Wing-Pui (NIH/VRC) [E] (b) (6) >; Doria-Rose, Nicole (NIH/NIAID) [E] (b) (6) >; O'Dell, Sijy (NIH/VRC) [E] (b) (6)
Subject: Re: (b) (4)

Hi John,
I put information and data to the ppt slides, included (b) (4), (b) (5) in the data sheet and made changes for (b) (4), (b) (5). Please let me know if you have other suggestions.
Thanks,
lingshu

From: "Mascola, John (NIH/VRC) [E]" (b) (6) >
Date: Sunday, April 5, 2020 at 10:22 AM
To: "Wang, Lingshu (NIH/VRC) [E]" (b) (6) >
Cc: "Zhang, Yi (NIH/NIAID) [C]" (b) (6) >, "Schmidt, Stephen (NIH/VRC) [C]" (b) (6) >, "Yang, Eun Sung (NIH/VRC) [C]" (b) (6) >, "Kong, Wing-Pui (NIH/VRC) [E]" (b) (6) >, "Doria-Rose, Nicole (NIH/NIAID) [E]" (b) (6) >, "O'Dell, Sijy (NIH/VRC) [E]" (b) (6)
Subject: RE: (b) (4)

Ok, good and thanks. See my noets below in Blue.

From: Wang, Lingshu (NIH/VRC) [E] (b) (6)
Sent: Sunday, April 5, 2020 10:14 AM
To: Mascola, John (NIH/VRC) [E] (b) (6)
Cc: Zhang, Yi (NIH/NIAID) [C] (b) (6); Schmidt, Stephen (NIH/VRC) [C] (b) (6); Yang, Eun Sung (NIH/VRC) [C] (b) (6); Kong, Wing-Pui (NIH/VRC) [E] (b) (6); Doria-Rose, Nicole (NIH/NIAID) [E] (b) (6); O'Dell, Sijy (NIH/VRC) [E] (b) (6)
Subject: Re: (b) (4)

Hi John,
Thanks for your advice. I will include more information into data report slides. Please see my answers below in red.
Thanks,
lingshu

From: "Mascola, John (NIH/VRC) [E]" (b) (6)>
Date: Sunday, April 5, 2020 at 9:56 AM
To: "Wang, Lingshu (NIH/VRC) [E]" (b) (6)
Cc: "Zhang, Yi (NIH/NIAID) [C]" (b) (6), "Schmidt, Stephen (NIH/VRC) [C]" (b) (6), "Yang, Eun Sung (NIH/VRC) [C]" (b) (6), "Kong, Wing-Pui (NIH/VRC) [E]" (b) (6), "Doria-Rose, Nicole (NIH/NIAID) [E]" (b) (6), "O'Dell, Sijy (NIH/VRC) [E]" (b) (6)
Subject: RE: (b) (4)

Hi Lingshu and all,

Great work. (b) (4), (b) (5).
(b) (4), (b) (5) Steve, Nicole – your thoughts here?

One key question is (b) (4), (b) (5) We should (b) (4), (b) (5)
(b) (4), (b) (5) Will do

Regarding (b) (4), we need (b) (4), (b) (5) What about
using (b) (4), (b) (5) Can we add that. (b) (4), (b) (5)
(b) (4), (b) (5)
(b) (4), (b) (5)

Also, please (b) (4), (b) (5)

[REDACTED] (b) (4), (b) (5)
[REDACTED].

There are some [REDACTED] (b) (4), (b) (5)
[REDACTED] (b) (4), (b) (5)

I would like to [REDACTED] (b) (4), (b) (5)

So make a [REDACTED] (b) (4), (b) (5) where we [REDACTED] (b) (4), (b) (5) What was
[REDACTED] (b) (4), (b) (5)

What was [REDACTED] (b) (4), (b) (5)
[REDACTED]

You have done amazing work here – so these are just polishing steps – so we can be fully systematic about this. Steve can assist with some of above if helpful.

Finally, [REDACTED] (b) (4), (b) (5) I would really like to know [REDACTED] (b) (4), (b) (5)
[REDACTED] (b) (4), (b) (5)

So we want to [REDACTED] (b) (4), (b) (5) – but we want to [REDACTED] (b) (4), (b) (5)
[REDACTED].

Thanks,
John

From: Wang, Lingshu (NIH/VRC) [E] [REDACTED] (b) (6)
Sent: Saturday, April 4, 2020 11:47 PM
To: Mascola, John (NIH/VRC) [E] [REDACTED] (b) (6)
Cc: Zhang, Yi (NIH/NIAID) [C] <[REDACTED] (b) (6)>; Schmidt, Stephen (NIH/VRC) [C]
[REDACTED] (b) (6)>; Yang, Eun Sung (NIH/VRC) [C] [REDACTED] (b) (6); Kong, Wing-Pui
(NIH/VRC) [E] [REDACTED] (b) (6)>
Subject: [REDACTED] (b) (4)

Hi John,
Today we [REDACTED] (b) (4), (b) (5) As you advised I put the
data into the templates Steve sent to us. I attached two files, one is [REDACTED] (b) (4), (b) (5) and another is [REDACTED] (b) (4), (b) (5)
[REDACTED]

In [REDACTED] (b) (4), (b) (5) you can see the [REDACTED] (b) (4), (b) (5)
[REDACTED] (b) (4), (b) (5) I included the [REDACTED] (b) (4), (b) (5)
[REDACTED] (b) (4), (b) (5)
[REDACTED] (b) (4), (b) (5)

I also included the (b) (4), (b) (5)
(b) (4), (b) (5). We do
not (b) (4), (b) (5). We try to (b) (4), (b) (5). We
will (b) (4), (b) (5).

We also ran (b) (4), (b) (5).
I will (b) (4), (b) (5) next Monday.

Please let me know if anything needs to be modified and please advise whether we could share the data
with (b) (4).

Thanks,
lingshu

From: Graham, Barney (NIH/VRC) [E]
Sent: Mon, 9 Mar 2020 17:19:10 +0000
To: Nabel, Gary /US
Subject: Re: Invite: Research America dinner

Ok. Good to know I'll have another chance. Fortunately, teaching is relatively apolitical.

Barney

Sent from my iPhone

On Mar 9, 2020, at 1:05 PM, Nabel, Gary /US (b) (6) wrote:

Hi Barney,

It turns out that there has been a reprieve. We learned this morning that the Research America meeting has been postponed.

Frankly, I'm not sure why it took so long. The optics of holding a large meeting where Tony, Francis and Bob Redfield would attend, along with vaccine experts, in the midst of a COVID-19 outbreak was not good.

Let's see how things look when they reschedule.

Great job on the work you are doing to combat the virus! It must have been a challenge explaining it to the POTUS and (b) (6) ... 😊

Best

Gary

From: Graham, Barney (NIH/VRC) [E] (b) (6)
Sent: Monday, March 9, 2020 12:58 PM
To: Nabel, Gary /US (b) (6)
Subject: [EXTERNAL] RE: Invite: Research America dinner

EXTERNAL : Real sender is (b) (6)

Hi Gary,

I've been waiting to see if this would be feasible. We are trying to start the nCoV mRNA study this week and I've been up every night writing and reviewing documents (and trying to keep up with emails).

Although it would be fun to join you and Rick and John, I'm afraid I will need to decline this time around.

Congratulations on this award! You are in good company with Mike Levine and Paul Offit. Please give them and Betsy my regards.

Best wishes,

Barney

From: Nabel, Gary /US [REDACTED] (b) (6)>
Sent: Wednesday, February 19, 2020 6:08 PM
To: Graham, Barney (NIH/VRC) [E] [REDACTED] (b) (6)>
Subject: Invite: Research America dinner

Hi Barney,

Congratulations on your elegant paper today in Science. It's nice to see that you've teamed up with Jason on yet another virus....

If you don't have other plans, I'd like to invite you to join the Research America dinner on March 11. Please see the attached background information. Much of the evening is intended to highlight vaccine research and for my part, work at the VRC. Since you have played such a major role in these efforts, it would be great if you could come. Tony and John will attend, and we have invited other VRC PIs. Research America has found a way to allow NIH scientists to join at no expense and is compliant with the government ethics requirement. So no need to worry about the logistics.

I know that you have a busy calendar but if you're free and in town, I'd be delighted if you could come.

Best
Gary

From: Graham, Barney (NIH/VRC) [E]
Sent: Mon, 20 Apr 2020 20:26:54 +0000
To: Mascola, John (NIH/VRC) [E]; Gall, Jason (NIH/VRC) [C]
Subject: FW: chat with John and Jason?
Attachments: 04.17.20_Gates_SARS (b) (5), (b) (4)_BG.pptx

FYI. We showed some of our data on the (b) (5), (b) (4) we have made with Neil King's group. This uses the same (b) (5), (b) (4) which we have already made.

I wonder if it would be better to (b) (4), (b) (5) It could then (b) (4), (b) (5)

BG

From: Neil King (b) (6)
Sent: Monday, April 20, 2020 9:04 AM
To: Graham, Barney (NIH/VRC) [E] (b) (6)>
Subject: chat with John and Jason?

Hi Barney,

I hope you got a chance to rest this weekend! I ended up building a 3D printer with my (b) (6) (b) (6). It was a blast, and now we are printing Harry Potter wands and stuff like that. It was a good change of pace!

Thanks again for providing the slides on Friday and catching up on the phone too. It would be great if we could consider (b) (4) If there's a willingness to pursue this as an option, we can figure out the how (i.e., who does what), with a focus on speed. Definitely let me know what you hear back from John and Jason!

Thanks,
Neil

From: Graham, Barney (NIH/VRC) [E]
Sent: Mon, 30 Mar 2020 20:45:04 +0000
To: Lo, Jasper
Subject: Re: Fact-Check Questions *Deadline is 1pm*

You can do it either way in scientific writing. Singular is shorthand for lung tissue. Plural would be talking about the Lung as an organ. Each person has two lungs.

Barney

Sent from my iPhone

On Mar 30, 2020, at 4:05 PM, Lo, Jasper <jasper_lo@newyorker.com> wrote:

Dr Graham one follow up, you write “survivors may develop enough immunity to keep the virus from getting deeply into the **small airways and lung**, confining it to the upper airways.” Is it correct to use "lung" singular as opposed to "lungs"? Is it anatomically correct to say "small airways and the lungs"?

On Mon, Mar 30, 2020 at 12:49 PM Lo, Jasper <jasper_lo@newyorker.com> wrote:
Thanks for the prompt response, good luck with the rest of your work.

On Mon, Mar 30, 2020 at 12:47 PM Graham, Barney (NIH/VRC) [E] [REDACTED] (b) (6)> wrote:

See below **in red**.

From: Lo, Jasper <jasper_lo@newyorker.com>
Sent: Monday, March 30, 2020 9:22 AM
To: Graham, Barney (NIH/VRC) [E] [REDACTED] (b) (6)>
Subject: Fact-Check Questions *Deadline is 1pm*

Hi Dr Graham, thanks for taking the time out of your busy schedule to check over your interview. Please let me know if you think there needs to be any changes to the following text.

If the virus does have the capacity to sicken people who have already become ill from it, devising a vaccine might have little impact on future infections. Dr. Barney Graham, who is the deputy director of the Vaccine Research Center at the National Institute of Allergy and Infectious Diseases, points out that “even common viruses like **respiratory syncytial virus or** influenza can also reinfect”; **these viruses**, fortunately, “**tend to** cause progressively less disease **on subsequent infections.**” With COVID-19, Graham said, “survivors may develop enough immunity to keep the virus from getting deeply into the **small airways and lung**, confining it to the upper airways.” In that case, a repeat infection of COVID-19 would be more like a cold than pneumonia.

--

Jasper Lo

Fact Checker

(b) (6)

--

Jasper Lo

Fact Checker

(b) (6)

--

Jasper Lo

Fact Checker

(b) (6)

From: Graham, Barney (NIH/VRC) [E]
Sent: Sun, 22 Mar 2020 15:08:17 +0000
To: Seder, Robert (NIH/VRC) [E];Roederer, Mario (NIH/VRC) [E];Alvarado, Gabriela (NIH/VRC) [C]
Cc: Mascola, John (NIH/VRC) [E];Corbett, Kizzmekia (NIH/VRC) [E]
Subject: Fwd: [External] Re: Call

FYI. Just to get all of our immunologists in the conversation

BG

Sent from my iPhone

Begin forwarded message:

From: "Mascola, John (NIH/VRC) [E]" (b) (6) >
Date: March 22, 2020 at 10:53:53 AM EDT
To: "Graham, Barney (NIH/VRC) [E]" (b) (6) >, "Stephens, David (NIH)" <(b) (6)>
Cc: Michael Gale (b) (6) >, Julie McElrath (b) (6) >, "Ahmed, Rafi" (b) (6) >, Kathleen Neuzil (b) (6) >, "Corbett, Kizzmekia (NIH/VRC) [E]" (b) (6) >, "McDermott, Adrian (NIH/VRC) [E]" (b) (6) >, "Koup, Richard (NIH/VRC) [E]" (b) (6) >, "Bok, Karin (NIH/VRC) [E]" (b) (6) >, "Douek, Daniel (NIH/VRC) [E]" (b) (6) >, "Ledgerwood, Julie (NIH/NIAID) [E]" (b) (6) >
Subject: RE: [External] Re: Call

Great to see interest in coordinating here.

I am copying Adrian McDermott, Danny Douek, and Rick Koup on our end – who are thinking through key immunological analyses that would be key on these studies.
As Barney notes, the key is to rapidly move into vaccine efficacy, and the initial immunological data will be critical for this. All this needs to be well thought out and coordinated.

These are extraordinary, and all will depending on us to synergize to get a vaccine developed.

John R. Mascola, M.D.
Director, Vaccine Research Center
National Institute of Allergy and Infectious Diseases
National Institutes of Health
email: (b) (6)
office tel: (b) (6)

From: Graham, Barney (NIH/VRC) [E] (b) (6) >
Sent: Sunday, March 22, 2020 10:29 AM
To: Stephens, David (NIH) (b) (6) >
Cc: Michael Gale (b) (6); Julie McElrath (b) (6); Ahmed, Rafi (b) (6); Kathleen Neuzil (b) (6); Mascola, John (NIH/VRC) [E] (b) (6); Corbett, Kizzmekia (NIH/VRC) [E] (b) (6) >
Subject: Re: [External] Re: Call

Good to see the broader research community being able to pivot into a new problem. All the HIV and flu efforts over the years have produced some great tools. As the trials expand to Emory and other sites and as more convalescent samples are available there will be more opportunities to sort this out.

As long as John Beigel and DMID and the VRC are kept in the loop so things can be coordinated without too much redundancy and as long as this first study is not slowed down i think it will be helpful to extend the work and get more immunologists involved.

Getting this first trial done quickly determines our chance to initiate a phase 2 in May/June and have advanced trials and product ready to go by October time frame, so these next few weeks have to go smoothly.

Dr Corbett is coordinating the CoV scientific plans at VRC and she can help find a time to talk and have the right people on the call.

Barney

Sent from my iPhone

On Mar 21, 2020, at 5:28 PM, Stephens, David S (b) (6) wrote:

Thanks Barney,

Prob. some of both from my perspective. Mike indicates there is a call with DMID TH, March 26 at 11:30 PST but want to be sure the LOU questions about (b) (4) are fully addressed. I think there is also interest in ancillary studies that might help drive the science which could be a separate call. Certainly would include John in either of these calls. Challenging times! Thanks

David

From: Graham, Barney (NIH/VRC) [E] (b) (6)
Sent: Saturday, March 21, 2020 4:06 PM
To: Stephens, David S (b) (6)
Cc: Michael Gale (b) (6); Julie McElrath (b) (6); Ahmed, Rafi (b) (6); Kathleen Neuzil (b) (6)
Subject: [External] Re: Call

Hi David et al.

Glad to talk. Would you want people like John Beigel on the line to say what is planned or do you just want to talk ancillary studies and potential protocol amendments and (b) (4)?

Barney

Sent from my iPhone

On Mar 21, 2020, at 3:25 PM, Stephens, David S (b) (6) wrote:

Barney,

Congratulations in getting this key study launched! As the IDCRC/VTEU network is actively supporting DMID, the 20-0003 study site at Kaiser Washington and preparing to launch the study at Emory, we want to be on the same page regarding how best the IDCRC LOU (Laboratory Operations) in particular can best help support these studies. It would be quite helpful if we can set up a call with you to discuss. Realize there was a discussion yesterday that included Mike Gale from the LOU about the (b) (4) as examples are also questions. Thanks.

Best regards,

David and Kathy,

IDCRC Chair and Co-Chair

David S Stephens MD
Vice President for Research
Robert W Woodruff Health Sciences Center
Stephen W Schwarzmans Distinguished Professor and
Chair Department of Medicine
Emory University
1440 Clifton Road NE, #420
Atlanta, Georgia, 30322

(b) (6)
<image001.png>

From: Graham, Barney (NIH/VRC) [E] (b) (6)
Sent: Monday, March 16, 2020 1:51 PM
To: Routh, Jennifer (NIH/NIAID) [E] (b) (6); Kathleen Neuzil (b) (6); Lisa A. Jackson (b) (6); Joan Declaire (b) (6); Rebecca Hughes (b) (6); Colleen Hussey (b) (6); Rachel Grant (b) (6); Stephens, David S (b) (6); Thompson, Elizabeth Pittman <(b) (6)>
Cc: Stover, Kathy (NIH/NIAID) [E] <(b) (6)>; Hiatt, Nissa (NIH/VRC) [C] (b) (6); NIAID BUGS <BUGS@niaid.nih.gov>; Beigel, John (NIH) [E] (b) (6); Erbeling, Emily (NIH/NIAID) [E] (b) (6); Mascola, John (NIH/VRC) [E] <(b) (6)>; Corbett, Kizzmekia (NIH/VRC) [E] (b) (6)
Subject: [External] RE: close hold UPDATE to Monday press plans

Thanks Jen! Great work by the DMID and Moderna teams.

Barney

From: Routh, Jennifer (NIH/NIAID) [E] (b) (6)>
Sent: Monday, March 16, 2020 12:36 PM
To: Kathleen Neuzil (b) (6); Lisa A. Jackson (b) (6); Joan Declaire (b) (6); Rebecca Hughes (b) (6); Colleen Hussey (b) (6); Rachel Grant (b) (6); Stephens, David (NIH) (b) (6); Thompson, Elizabeth Pittman (b) (6)
Cc: Stover, Kathy (NIH/NIAID) [E] (b) (6); Hiatt, Nissa (NIH/VRC) [C] (b) (6); NIAID BUGS <BUGS@niaid.nih.gov>; Beigel, John (NIH) [E] (b) (6); Erbeling, Emily (NIH/NIAID) [E] (b) (6); Graham, Barney (NIH/VRC) [E] (b) (6); Mascola, John (NIH/VRC) [E] (b) (6); Corbett, Kizzmekia (NIH/VRC) [E] (b) (6)>
Subject: RE: close hold UPDATE to Monday press plans

Hello – the first participant has been vaccinated and we just hit send on NIAID's release. All partners are free to share their releases. Thanks, all!!

Jennifer Routh [E]
News and Science Writing Branch
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From: Routh, Jennifer (NIH/NIAID) [E]

Sent: Monday, March 16, 2020 10:09 AM

To: Neuzil, Kathleen (b) (6); Lisa A. Jackson (b) (6); Joan Declaire (b) (6); Rebecca Hughes (b) (6); Colleen Hussey (b) (6); Rachel Grant (b) (6); Stephens, David (NIH) (b) (6); Thompson, Elizabeth Pittman <(b) (6)>

Cc: Stover, Kathy (NIH/NIAID) [E] (b) (6); Hiatt, Nissa (NIH/VRC) [C]

(b) (6); NIAID BUGS <BUGS@niaid.nih.gov>; Beigel, John (NIH) [E] (b) (6); Erbelding, Emily (NIH/NIAID) [E] (b) (6); Graham, Barney (NIH/VRC) [E] (b) (6); Mascola, John (NIH/VRC) [E] (b) (6); Corbett, Kizzmekia (NIH/VRC) [E] <(b) (6)>

Subject: RE: close hold UPDATE to Monday press plans

OK despite a 3:30 press conference, NIAID will stick to original plan of issuing the release once we receive confirmation of first vaccination. Thanks!

Jennifer Routh [E]
News and Science Writing Branch
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National Institute of Allergy and Infectious Diseases (NIAID)
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From: Neuzil, Kathleen <(b) (6)>

Sent: Monday, March 16, 2020 9:56 AM

To: Routh, Jennifer (NIH/NIAID) [E] (b) (6); Lisa A. Jackson (b) (6); Joan Declaire <(b) (6)>; Rebecca Hughes <(b) (6)>; Colleen Hussey <(b) (6)>; Rachel Grant (b) (6); Stephens, David (NIH) (b) (6); Thompson, Elizabeth Pittman (b) (6)>

Cc: Stover, Kathy (NIH/NIAID) [E] (b) (6); Hiatt, Nissa (NIH/VRC) [C]

<(b) (6)>; NIAID BUGS <BUGS@niaid.nih.gov>; Beigel, John (NIH) [E] (b) (6); Erbelding, Emily (NIH/NIAID) [E] <(b) (6)>; Graham, Barney (NIH/VRC) [E] (b) (6); Mascola, John (NIH/VRC) [E] (b) (6); Corbett, Kizzmekia (NIH/VRC) [E] (b) (6)

Subject: RE: close hold UPDATE to Monday press plans

We appreciate the proactive communication and will follow your lead.

From: Routh, Jennifer (NIH/NIAID) [E] (b) (6)
Sent: Monday, March 16, 2020 9:24 AM
To: Lisa A. Jackson (b) (6); Joan Declaire (b) (6); Rebecca Hughes (b) (6); Colleen Hussey (b) (6); Rachel Grant (b) (6); Stephens, David (NIH) (b) (6); Neuzil, Kathleen (b) (6); Thompson, Elizabeth Pittman (b) (6)
Cc: Stover, Kathy (NIH/NIAID) [E] (b) (6); Hiatt, Nissa (NIH/VRC) [C] (b) (6); NIAID BUGS <BUGS@niaid.nih.gov>; Beigel, John (NIH) [E] (b) (6); Erbelding, Emily (NIH/NIAID) [E] (b) (6); Graham, Barney (NIH/VRC) [E] (b) (6); Mascola, John (NIH/VRC) [E] (b) (6); Corbett, Kizzmekia (NIH/VRC) [E] (b) (6)
Subject: RE: close hold UPDATE to Monday press plans

It looks like the WH briefing has now moved to 3:30. Please stay tuned for guidance but in general please hold until I confirm NIAID's release is out. Thanks for your patience.

Jennifer Routh [E]
News and Science Writing Branch
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From: Routh, Jennifer (NIH/NIAID) [E]
Sent: Sunday, March 15, 2020 10:49 PM
To: Lisa A. Jackson (b) (6); 'Joan Declaire' (b) (6); 'Rebecca Hughes' (b) (6); 'Colleen Hussey' (b) (6); 'Rachel Grant' (b) (6); Stephens, David (NIH) (b) (6); Kathleen Neuzil (b) (6); 'Thompson, Elizabeth Pittman' (b) (6)
Cc: 'Stover, Kathy (NIH/NIAID) [E]' (b) (6); Hiatt, Nissa (NIH/VRC) [C] (b) (6); NIAID BUGS <BUGS@niaid.nih.gov>; Beigel, John (NIH) [E] (b) (6); Erbelding, Emily (NIH/NIAID) [E] (b) (6); Graham, Barney (NIH/VRC) [E] (b) (6); Mascola, John (NIH/VRC) [E] (b) (6); Corbett, Kizzmekia (NIH/VRC) [E] (b) (6)
Subject: RE: close hold UPDATE to Monday press plans

Hi all – apologies for the late note.

The White House will be holding a task force press briefing at 10:30 a.m. ET tomorrow. During this briefing, Dr. Fauci will say something along the lines of “sometime in the next 24 hours we expect to begin the trial.” NIAID will continue to hold on issuing its release until we receive confirmation that the

first participant has been vaccinated, likely after noon ET. Once NIAID's release is on its way out, I will let this group know.

Thanks,
Jen

Jennifer Routh [E]
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Bethesda, MD 20892
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(b) (6)

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From: Routh, Jennifer (NIH/NIAID) [E]
Sent: Sunday, March 15, 2020 8:35 PM
To: Lisa A. Jackson (b) (6); Joan Declaire (b) (6); Rebecca Hughes (b) (6); Colleen Hussey (b) (6); Rachel Grant (b) (6); Stephens, David (NIH) (b) (6); Kathleen Neuzil (b) (6); Thompson, Elizabeth Pittman (b) (6)
Cc: 'Stover, Kathy (NIH/NIAID) [E]' (b) (6); Hiatt, Nissa (NIH/VRC) [C] (b) (6); NIAID BUGS <BUGS@niaid.nih.gov>; Beigel, John (NIH) [E] (b) (6); Erbelding, Emily (NIH/NIAID) [E] (b) (6); Graham, Barney (NIH/VRC) [E] (b) (6); Mascola, John (NIH/VRC) [E] (b) (6); Corbett, Kizzmekia (NIH/VRC) [E] (b) (6)
Subject: RE: close hold UPDATE to Monday press plans

Hi everyone –

You might have seen that a DC-based AP reporter has confirmed that the trial will begin tomorrow. It appears they received this information from someone at the White House. For now, NIAID will be responding to reporters by saying that NIAID will confirm that the trial has begun once a participant has been vaccinated as per our usual process.

<https://apnews.com/8089a3d0ec8f9fde971bddd7b3aa2ba1>.

Once I know more about the plan for tomorrow I will let this group know. I still do not know when a press conference might be or if the plan is still to make the announcement at a press conference given the leak.

Thanks,
Jen

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

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From: Routh, Jennifer (NIH/NIAID) [E]

Sent: Saturday, March 14, 2020 9:18 PM

To: Lisa A. Jackson (b) (6); Joan Declaire (b) (6); Rebecca Hughes

<(b) (6); Colleen Hussey (b) (6); Rachel Grant

(b) (6); Stephens, David (NIH) (b) (6); Neuzil, Kathleen

(b) (6); Thompson, Elizabeth Pittman (b) (6)

Cc: 'Stover, Kathy (NIH/NIAID) [E]' (b) (6); Hiatt, Nissa (NIH/VRC) [C]

(b) (6); NIAID BUGS <BUGS@niaid.nih.gov>; Beigel, John (NIH) [E]

(b) (6); Erbeling, Emily (NIH/NIAID) [E] (b) (6); Graham, Barney

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

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

Subject: close hold UPDATE to Monday press plans

Good evening KPWHRI, Emory, IDCRC, Moderna and CEPI (+NIAID folks) –

Apologies for the large group email—I am trying to work efficiently. As previously discussed, please hold on any press releases about the start of vaccinations in the Phase 1 clinical trial of mRNA-1273 until I have confirmed that NIAID's release has been distributed. I will make this confirmation via an email to this group on Monday.

We had originally discussed that NIAID would issue its release once I receive confirmation from Kaiser that the first participant has been vaccinated, which is expected around 9:30 a.m. PT/12:30 p.m. ET Monday. I have been informed that Dr. Fauci and/or other members of the White House Coronavirus Task Force will be making an announcement about the start of the study at Monday's Task Force press conference. I am trying to confirm the exact time of this press conference, and I will keep this group informed as I get more information. The current plan is to issue NIAID's release once the announcement is made. I will still plan to send a confirmation email to this group once releases can be issued.

I attached a final version of NIAID's press release. We will add in the latest #s from WHO and CDC on Monday morning.

Thanks,

Jen

Cell: (b) (6)

Jennifer Routh [E]
News and Science Writing Branch
Office of Communications and Government Relations
National Institute of Allergy and Infectious Diseases (NIAID)
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From: Graham, Barney (NIH/VRC) [E]
Sent: Mon, 6 Jan 2020 21:03:47 +0000
To: Embry, Alan (NIH/NIAID) [E]
Cc: Marston, Hilary (NIH/NIAID) [E]
Subject: Re: Wuhan

Thanks Alan. That is interesting. We have a plan of action in place to make reagents and stabilizing mutations as soon as we have a sequence.

BG

Sent from my iPhone

On Jan 6, 2020, at 3:58 PM, Embry, Alan (NIH/NIAID) [E] (b) (6) wrote:

Hilary and Barney,

Again, I don't know about the reliability of this information, but we heard that fragments of coronavirus RNA with an 86% homology to SARS has been found in one patient. Based on our call, it sounds like they may have more than this by now.

I'll let you know if we hear anything more.

Alan

From: Graham, Barney (NIH/VRC) [E]
Sent: Wed, 29 Apr 2020 16:06:42 +0000
To: Mascola, John (NIH/VRC) [E]; Austin, Sarah (NIH/NIAID) [E]
Cc: Suhana, Tina (NIH/VRC) [E]
Subject: RE: clinical development call

I'll be on .

BG

From: Mascola, John (NIH/VRC) [E] (b) (6) >
Sent: Wednesday, April 29, 2020 12:06 PM
To: Austin, Sarah (NIH/NIAID) [E] (b) (6)
Cc: Suhana, Tina (NIH/VRC) [E] <esuhana@mail.nih.gov>; Graham, Barney (NIH/VRC) [E]
(b) (6)
Subject: RE: clinical development call

Ok, we need Barney on this call.

From: Austin, Sarah (NIH/NIAID) [E] (b) (6)
Sent: Wednesday, April 29, 2020 11:21 AM
To: Mascola, John (NIH/VRC) [E] (b) (6) >
Cc: Suhana, Tina (NIH/VRC) [E] (b) (6)
Subject: RE: clinical development call

Hi John – unless Barney indicates otherwise, I think we can move forward with scheduling for tomorrow from 10:30-11AM. I've confirmed that Dr. Johnson is also available at this time. I'll give Barney a chance to respond, but will tentatively confirm with Moderna in the meantime.

Sarah

From: Young, Monique (NIH/VRC) [E] (b) (6) >
Sent: Wednesday, April 29, 2020 11:08 AM
To: Austin, Sarah (NIH/NIAID) [E] (b) (6) >
Cc: Suhana, Tina (NIH/VRC) [E] (b) (6) >; Graham, Barney (NIH/VRC) [E]
(b) (6)
Subject: RE: clinical development call

Hi Sarah –

As suggested in my email this morning, Jason is on the schedule at 10:30 am tomorrow, which can be moved to accommodate your call.

I have included Barney to confirm his availability per your request.

Thanks...Monique

From: Austin, Sarah (NIH/NIAID) [E] <(b) (6)>
Sent: Wednesday, April 29, 2020 10:50 AM
To: Young, Monique (NIH/VRC) [E] (b) (6)
Cc: Suhana, Tina (NIH/VRC) [E] (b) (6)>
Subject: RE: clinical development call

Thanks Monique. John is looking at a 30-minute call from 10:30-11AM but all participants must be 100% confirmed. Can you please double-confirm with Barney that if the call is scheduled for 10:30 that he will be fully available until 11AM?

Much appreciated!
Sarah

From: Young, Monique (NIH/VRC) [E] <(b) (6)>
Sent: Wednesday, April 29, 2020 9:46 AM
To: Austin, Sarah (NIH/NIAID) [E] (b) (6)>
Cc: Suhana, Tina (NIH/VRC) [E] <(b) (6)>
Subject: RE: clinical development call

Hi Sarah –

Barney will be on an international call until 10:30 am. He could join 10:30 am – 11:00 am. He has a meeting at 10:30 am that I can move.

Thanks...Monique

From: Austin, Sarah (NIH/NIAID) [E] (b) (6)
Sent: Wednesday, April 29, 2020 9:35 AM
To: Young, Monique (NIH/VRC) [E] (b) (6)>
Cc: Suhana, Tina (NIH/VRC) [E] (b) (6)>
Subject: RE: clinical development call

Good morning Monique – would Barney be available for this call tomorrow from 10-11AM (please see string below for more details)?

Thanks!
Sarah

From: Nadege Ripley (b) (6)
Sent: Wednesday, April 29, 2020 9:29 AM
To: Austin, Sarah (NIH/NIAID) [E] (b) (6) >
Cc: Suhana, Tina (NIH/VRC) [E] (b) (6) >
Subject: RE: clinical development call

Hi Sarah - Let's confirm Thursday 4/30 from 10:00 to 11:00 am. Will you be sending a meeting invitation?

Thank you,
Nadege

From: Austin, Sarah (NIH/NIAID) [E] (b) (6)
Sent: Tuesday, April 28, 2020 6:30 PM
To: Nadege Ripley <(b) (6)>
Cc: Suhana, Tina (NIH/VRC) [E] (b) (6) >
Subject: RE: clinical development call

Greetings Nadege - please let me know if any of the dates/times proposed by Dr. Mascola work on your end.

- Wednesday before 10:30AM, or 5PM or after
- Thursday 8-9am, 10-Noon, 3-5PM, 6 or after
- Friday before 8:30AM, 10 - Noon, 1-4PM

Thank you!
Sarah

Sarah Austin, M.S.
Office of the Scientific Director
Vaccine Research Center

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From: Tal Zaks (b) (6) >
Sent: Tuesday, April 28, 2020 5:35 PM
To: Mascola, John (NIH/VRC) [E] (b) (6) >; Stephane Bancel (b) (6) >
Cc: Graham, Barney (NIH/VRC) [E] <(b) (6)>; Johnson, Robert (OS/ASPR/BARDA) (b) (6) >; Austin, Sarah (NIH/NIAID) [E] (b) (6) >; Nadege Ripley (b) (6) >; Isabel Ramsey (b) (6) >
Subject: Re: clinical development call

Dear John,

Thank you for the note. We look forward to the Zoom meeting. Nadege cc'd on our side.
In parallel, we will have a synopsis of a pivotal trial for NIAID and BARDA's review tomorrow, based on the discussion we had with Larry Corey over the weekend, as well as initial question for FDA.
Warm regards,
Tal

From: "Mascola, John (NIH/VRC) [E]" (b) (6) >
Date: Tuesday, April 28, 2020 at 5:01 PM
To: Stephane Bancel <(b) (6)>, Tal Zaks
(b) (6) >
Cc: "Graham, Barney (NIH/VRC) [E]" (b) (6) >, "Johnson, Robert (OS/ASPR/BARDA)" (b) (6) >, "Austin, Sarah (NIH/NIAID) [E]" (b) (6) >
Subject: clinical development call

Dear Stephane,
I understand you had a good call with Barney and also Robert Johnson of BARDA and I also promised Tal to provide some clarity on what HHS/BARDA will ask of Moderna regarding clinical development.

I know that there has been some inconsistency in communications and expectations, so I ask for your forbearance there - during this public health emergency.

Recently, The Assistant Secretary for Health Preparedness (ASPR) asked Robert Johnson and me to work together to establish a more coordinated HHS approach to COVID-19 vaccines. We will work closely with Peter Marks, head of CBER/FDA on this.

It would be useful to have a call with just us here – to review. Briefly, HHS leadership, including Dr Collins, Dr. Fauci, and ASPR/BARDA - agreed that HHS needs to coordinate phase 3 trials closely with our industry partners. Tangibly, this means that for phase 3, Moderna will be asked to do the pivotal phase 3 via a large adaptive NIH clinical trials network, while still holding the IND. This would be a close collaboration on trial design and conduct - and the group will have the full access to the most updated CDC epidemiology, and >50 sites across the country that could be augmented by CROs as needed. The goal here is to generate the key efficacy data that would allow, as appropriate, for Moderna to be able to file a successful BLA.

Separately, I understand that you need (b) (4)
(b) (6) Barney and I will work to ensure that happens quickly.

Sarah Austin can help set up a Zoom call. Some suggested times below.

Thank you and best regards,
John

Available times.

Wednesday Before 10:30am, or 5pm or after
Thursday, 8-9am, 10-Noon, 3-5Pm, 6 or after.
Friday, before 8:30am, 10 – Noon. 1-4PM

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From: Graham, Barney (NIH/VRC) [E]
Sent: Mon, 24 Feb 2020 14:03:33 +0000
To: Morabito, Kaitlyn (NIH/VRC) [E]; Corbett, Kizzmekia (NIH/VRC) [E]
Cc: Marston, Hilary (NIH/NIAID) [E]; Bok, Karin (NIH/VRC) [E]
Subject: FW: NIAID Coronavirus SWAT Weekly Meeting
Attachments: Update 2-22-2020 rhesus macaques SARS-CoV-2.pdf

FYI. I know that they don't want to hear this, but just as (b) (5) this could all be (b) (5)
(b) (5) The main thing that (b) (5)
(b) (5)

I think they need to (b) (5)
(b) (5) In the rush to publish, we may (b) (5) Perhaps (b) (5)
(b) (5).

Barney

From: De wit, Emmie (NIH/NIAID) [E] (b) (6)>
Sent: Saturday, February 22, 2020 1:54 PM
To: Bushar, Nicholas (NIH/NIAID) [E] (b) (6); Beigel, John (NIH) [E]
(b) (6); Bok, Karin (NIH/VRC) [E] (b) (6); Bryant, Paula (NIH/NIAID) [E]
(b) (6); Cassetti, Cristina (NIH/NIAID) [E] (b) (6)>; Corbett,
Kizzmekia (NIH/VRC) [E] (b) (6)>; Embry, Alan (NIH/NIAID) [E]
(b) (6)>; Graham, Barney (NIH/VRC) [E] (b) (6); Handley, Gray
(NIH/NIAID) [E] (b) (6)>; Lerner, Andrea (NIH/NIAID) [E] (b) (6);
Manning, Jessica (NIH/NIAID) [E] (b) (6)>; Marston, Hilary (NIH/NIAID) [E]
(b) (6)>; Morabito, Kaitlyn (NIH/VRC) [E] (b) (6)>; Munster,
Vincent (NIH/NIAID) [E] <(b) (6)>; Post, Diane (NIH/NIAID) [E]
(b) (6); Ranjan, Mukul (NIH/NIAID) [E] (b) (6)>; Schmaljohn, Connie
(NIH/NIAID) [E] (b) (6); Stemmy, Erik (NIH/NIAID) [E] (b) (6)>
Cc: Derocco, Amanda (NIH/NIAID) [E] (b) (6) Yang, Linda (NIH/NIAID) [E]
(b) (6)>; Johnson, Martin S. (NIH/NIAID) [E] (b) (6)>; Lee, Kun-Lin
(NIH/NIAID) [E] (b) (6)>; Routh, Jennifer (NIH/NIAID) [E] (b) (6)>;
Degrace, Marciela (NIH/NIAID) [E] (b) (6); Miller, Katherine (NIH/NIAID) [E]
(b) (6)
Subject: RE: NIAID Coronavirus SWAT Weekly Meeting

All,
As promised in yesterday's call, I have attached a summary of our data on (b) (5)
(b) (5). Keep in mind that today is (b) (5)

We will need another two weeks to complete the study and compile all data. The attached data are thus preliminary and confidential, please use your best judgment when sharing.

Thanks,

Emmie

Emmie de Wit, PhD
Chief, Molecular Pathogenesis Unit
NIH Distinguished Scholar
Laboratory of Virology
Rocky Mountain Laboratories
NIAID, NIH
903 South 4th Street
Hamilton, MT 59840
USA
Phone: (b) (6)

From: Graham, Barney (NIH/VRC) [E]
Sent: Thu, 9 Apr 2020 16:31:00 +0000
To: Corbett, Kizzmekia (NIH/VRC) [E]
Cc: Todd, John-Paul (NIH/VRC) [E]
Subject: Re: 857.1 Injections

That means have a documented destruction of the material.

BG

Sent from my iPhone

On Apr 9, 2020, at 12:29 PM, Corbett, Kizzmekia (NIH/VRC) [E]

(b) (6) > wrote:

Thanks!!! Throw it away! ☺

--

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, April 9, 2020 at 12:29 PM
To: John-Paul Todd (b) (6) >
Cc: Kizzmekia Corbett (b) (6) >
Subject: Re: 857.1 Injections

Great! Thanks for your help JP.

Barney

Sent from my iPhone

On Apr 9, 2020, at 12:28 PM, Todd, John-Paul (NIH/VRC) [E] (b) (6) wrote:

Hi Kizzi and Barney,

Just letting you the injections are completed and there were no issues! I have the leftover RNA, what would you like me to do with it?

JP

~~~~~

John-Paul Todd  
Translational Research Program  
Vaccine Research Center  
National Institutes of Health  
40 Convent Drive  
Room 1404  
Bethesda, MD 20892  
Phone: (b) (6)  
Fax: 301-402-8114

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**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Sun, 29 Mar 2020 14:31:46 +0000  
**To:** Mittelman, Abraham (NIH/VRC) [C]  
**Subject:** RE: COVID-19 Daily Check-in

Thanks Abe,

It's a strange existence. Even though we are relatively isolated, it's one of the most intense periods of my life. It would be hard to write a believable novel about this. Even 1 year ago our video telecommunications would not have been adequate to manage a lot of this response from home. A year ago we would not have had the experimental evidence we have from MERS CoV mRNA to make the confident choice we made for the construct in this vaccine. Timing and events are almost surreal.

We had a Zoom family meeting last night with (b) (6). Everyone seems to be surviving and making it through. Will be interesting to see how many young scientists we get out of this and to know how this has affected their thinking about life.

Hope you and the family are able to weather the storm. (b) (6)

Take care,

Barney

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

From: Mittelman, Abraham (NIH/VRC) [C] <(b) (6)>  
Sent: Saturday, March 28, 2020 11:05 PM  
To: Graham, Barney (NIH/VRC) [E] (b) (6)  
Subject: RE: COVID-19 Daily Check-in

Hi Barney:

On a personal note, how are you and (b) (6) and family doing? We're all well and (b) (6) are all teleworking/tele-learning and sheltering in place. We're planning to celebrate (b) (6) as a family via shared video link; definitely a weird first for me. (b) (6) is mostly ok, but has moments when it all seems too grim to bear. I'll also try to follow the example in the film clip - breathe deeply and stay calm.

Hope you can rest a bit this weekend.

Abe

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

From: Graham, Barney (NIH/VRC) [E] (b) (6)>  
Sent: Saturday, March 28, 2020 9:28 AM  
To: Mittelman, Abraham (NIH/VRC) [C] (b) (6)v>  
Subject: RE: COVID-19 Daily Check-in

Thanks Abe,

I'll plan to do this before and after our next call.

BG

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

From: Mittelman, Abraham (NIH/VRC) [C] (b) (6) >  
Sent: Friday, March 27, 2020 3:50 PM  
To: Reilly, Deborah (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) >; Koup, Richard (NIH/VRC) [E] (b) (6) >; Austin, Sarah (NIH/NIAID) [E] (b) (6) >; Ledgerwood, Julie (NIH/NIAID) [E] <(b) (6) >; Hirsch, Marie (NIH/VRC) [E] (b) (6) >; Prince, Tasheema (NIH/VRC) [C] (b) (6) >  
Cc: Suhana, Tina (NIH/VRC) [E] (b) (6) >; Taylor, Stephanie (NIH/NIAID) [E] (b) (6) >; Young, Monique (NIH/VRC) [E] (b) (6) >; Thompson, Danielle (NIH/NIAID) [E] (b) (6) >  
Subject: RE: COVID-19 Daily Check-in

A contribution to the VRC communication plan..... ☺

Abe

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

From: Reilly, Deborah (NIH/VRC) [E] (b) (6) >  
Sent: Friday, March 27, 2020 3:45 PM  
To: Daucher, Marybeth (NIH/NIAID) [E]; Harris, Christina (NIH/NIAID) [E]; Graham, Barney (NIH/VRC) [E]; Koup, Richard (NIH/VRC) [E]; Austin, Sarah (NIH/NIAID) [E]; Ledgerwood, Julie (NIH/NIAID) [E]; Hirsch, Marie (NIH/VRC) [E]; Prince, Tasheema (NIH/VRC) [C]  
Cc: Suhana, Tina (NIH/VRC) [E]; Taylor, Stephanie (NIH/NIAID) [E]; Mittelman, Abraham (NIH/VRC) [C]; Young, Monique (NIH/VRC) [E]; Thompson, Danielle (NIH/NIAID) [E]  
Subject: COVID-19 Daily Check-in  
When: Friday, March 27, 2020 5:00 PM-5:30 PM (UTC-05:00) Eastern Time (US & Canada).  
Where: (b) (6)

Heads up: COVID-19 meetings occurring on Friday's will be held at 5:00 pm starting today.

Heads up: COVID-19 meetings occurring Monday - Thursday will be held at 6:00 pm until further notice.

Goal: Review new COVID-19 findings, guidance, and needs, and develop effective messaging for staff.

Agenda: Updated daily, send Marybeth any agenda items in advance.

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)  
US (New York)  
US (Chicago)  
US (San Jose)  
US  
US  
US (Houston)

Meeting ID: (b) (6)

Find your local number: (b) (6)

Join by SIP

(b) (6)

Join by H.323

Meeting ID: (b) (6)

**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Fri, 20 Mar 2020 14:15:06 +0000  
**To:** De wit, Emmie (NIH/NIAID) [E]; Corbett, Kizzmekia (NIH/VRC) [E]; Munster, Vincent (NIH/NIAID) [E]  
**Subject:** RE: Elisa results NHPs

Sounds good.

BG

---

**From:** De wit, Emmie (NIH/NIAID) [E] (b) (6)  
**Sent:** Friday, March 20, 2020 10:11 AM  
**To:** Graham, Barney (NIH/VRC) [E] <(b) (6)>; Corbett, Kizzmekia (NIH/VRC) [E] (b) (6)>; Munster, Vincent (NIH/NIAID) [E] (b) (6)>  
**Subject:** RE: Elisa results NHPs

We'll be uploading a manuscript to a preprint tomorrow (I hope) with a lot more evidence of (b) (5)  
(b) (5)

---

**From:** Graham, Barney (NIH/VRC) [E] (b) (6)  
**Sent:** Friday, March 20, 2020 8:04 AM  
**To:** Corbett, Kizzmekia (NIH/VRC) [E] (b) (6); Munster, Vincent (NIH/NIAID) [E] (b) (6)  
**Cc:** De wit, Emmie (NIH/NIAID) [E] <(b) (6)>  
**Subject:** RE: Elisa results NHPs

Nice to see the (b) (5)  
(b) (5)

Thanks,

Barney

---

**From:** Corbett, Kizzmekia (NIH/VRC) [E] (b) (6)  
**Sent:** Friday, March 20, 2020 9:30 AM  
**To:** Munster, Vincent (NIH/NIAID) [E] <(b) (6)>; Graham, Barney (NIH/VRC) [E] (b) (6)>  
**Cc:** De wit, Emmie (NIH/NIAID) [E] (b) (6)>  
**Subject:** Re: Elisa results NHPs

See 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

Building 40 Room 2608

40 Convent Drive

Bethesda MD 20892

Laboratory: (b) (6)

Personal: (b) (6)

Fax: (301) 480-2771

---

**From:** "Munster, Vincent (NIH/NIAID) [E]" (b) (6) >

**Date:** Friday, March 20, 2020 at 9:18 AM

**To:** Barney Graham <(b) (6)> Kizzmekia Corbett (b) (6) >

**Cc:** "De wit, Emmie (NIH/NIAID) [E]" (b) (6)

**Subject:** Elisa results NHPs

Hi Barney and Kizzmekia,

See below the results of our Elisa of the 4 day 21 NHPs from our first study. We used the protein obtained from your lab (thanks). Please let us know whom from your team we should include as author/acknowledge. (Along with Dr. Graham and I, Olubukola Abiona made these proteins and should be included. We are happy with authorship or acknowledgement as you wish) We are rapidly finalizing the manuscript (hopefully today) to send to all the co-authors and aiming to submit tomorrow.

Should we refer to the Science paper for the S protein? YES



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

**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Sat, 15 Feb 2020 21:36:48 +0000  
**To:** Young, Monique (NIH/VRC) [E]  
**Subject:** Fwd: Lecture in Biological Basis of Vaccine Development  
**Attachments:** Dr. Graham.docx, ATT00001.htm

Hi Monique. Do any of these dates work in April?

BG

Sent from my iPhone

Begin forwarded message:

**From:** Anna P Durbin (b) (6)  
**Date:** February 13, 2020 at 3:14:21 PM EST  
**To:** "Graham, Barney (NIH/VRC) [E]" (b) (6)  
**Cc:** "Young, Monique (NIH/VRC) [E]" (b) (6), Jay Bream  
(b) (6)  
**Subject:** Lecture in Biological Basis of Vaccine Development

Dear Barney,

I just wanted to follow-up and see if you would be available again this year to lecture in the biological basis of vaccine development class. I know you must be very busy but hoped you might be able to fit us in. I am sure the VRC is working on a coronavirus vaccine. I've attached a letter of invitation with the dates listed. Just let me know if you have any preference. If your schedule doesn't allow this year, is there someone you would recommend? Your lecture is always very popular because of the novel vaccine designs that come from VRC!

Thanks so much!

Anna

Anna Durbin, M.D.  
Professor  
Johns Hopkins Bloomberg School of Public Health  
624 N. Broadway, Room 251  
Baltimore, MD 21205

(b) (6)  
(b) (6)

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**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Sun, 1 Mar 2020 21:50:19 +0000  
**To:** Beigel, John (NIH) [E]; Coler, Rhea; Buchanan, Wendy (NIH/NIAID) [E]  
**Cc:** Lisa A. Jackson; Barbara A. Carste (b) (6); Kathleen Neuzil (b) (6); Ledgerwood, Julie (NIH/NIAID) [E]; Morabito, Kaitlyn (NIH/VRC) [E] (b) (6); Ashley Miller; Arega, Janice (NIH/NIAID) [E]; Chun, Guinevere (NIH/NIAID) [E]; Elsafy, Mohamed (NIH/NIAID) [C]; Gill, Ranjodh (NIH/NIAID) [E]; Harrington, Crystal (NIH/NIAID) [E]; Hoang, Binh (NIH/NIAID) [E]; Kenny, Frank (NIH/NIAID) [E]; Khan, Ahsen (NIH/NIAID) [C]; Koo, Hyung (NIH/NIAID) [E]; Lee, Marina (NIH/NIAID) [E]; Makhene, Mamodikoe (NIH/NIAID) [E]; Nayak, Seema (NIH/NIAID) [E]; Ormanoski, Kathy (NIH/NIAID) [E]; Pikaart-Tautges, Rhonda (NIH/NIAID) [E]; Roberts, Chris (NIH/NIAID) [E]; Sindall, Elisa (NIH/NIAID) [E]; (b) (6)  
**Subject:** RE: SIO, NLM Protocol 20-0003, Posted to the NLM

I agree with you John. This should not (b) (4)  
(b) (4)

Barney

---

**From:** Beigel, John (NIH) [E] (b) (6)>  
**Sent:** Sunday, March 1, 2020 4:46 PM  
**To:** Coler, Rhea (b) (6)>; Buchanan, Wendy (NIH/NIAID) [E] (b) (6)  
**Cc:** Lisa A. Jackson (b) (6); Barbara A. Carste (b) (6); (b) (6); Kathleen Neuzil (b) (6); (b) (6); (b) (6); Graham, Barney (NIH/VRC) [E] (b) (6)>; Ledgerwood, Julie (NIH/NIAID) [E] (b) (6); Morabito, Kaitlyn (NIH/VRC) [E] (b) (6); Ashley Miller (b) (6)>; Arega, Janice (NIH/NIAID) [E] (b) (6); Chun, Guinevere (NIH/NIAID) [E] (b) (6); Elsafy, Mohamed (NIH/NIAID) [C] (b) (6); Gill, Ranjodh (NIH/NIAID) [E] (b) (6); Harrington, Crystal (NIH/NIAID) [E] (b) (6)>; Hoang, Binh (NIH/NIAID) [E] (b) (6); Kenny, Frank (NIH/NIAID) [E] (b) (6)>; Khan, Ahsen (NIH/NIAID) [C] (b) (6); Koo, Hyung (NIH/NIAID) [E] (b) (6)>; Lee, Marina (NIH/NIAID) [E] (b) (6)>; Makhene, Mamodikoe (NIH/NIAID) [E] (b) (6)>; Nayak, Seema (NIH/NIAID) [E] (b) (6)>; Ormanoski, Kathy (NIH/NIAID) [E] (b) (6); Pikaart-Tautges, Rhonda (NIH/NIAID) [E] (b) (6); Roberts, Chris (NIH/NIAID) [E] (b) (6); Sindall, Elisa (NIH/NIAID) [E] (b) (6)  
**Subject:** Re: SIO, NLM Protocol 20-0003, Posted to the NLM

There was a separate email about this topic. In that email I noted that I see (b) (4)  
(b) (4)

There is (b) (4). Probably (b) (4)  
(b) (4) there was (b) (4)  
(b) (4) but nothing that (b) (4)  
(b) (4) but we have  
(b) (4)

There is (b) (4)  
(b) (4) However, (b) (4), as we have  
previously discussed, (b) (4)

So to me – (b) (4) which would mean (b) (4)  
(b) (4). We are proposing (b) (4)  
(b) (4)

I suggested we may want to write something up (b) (4)  
(b) (4)  
Chris is going to try to put this into a written communication if needed.

--  
**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:** "Coler, Rhea" (b) (6)  
**Date:** Saturday, February 29, 2020 at 10:32 PM  
**To:** "Buchanan, Wendy (NIH/NIAID) [E]" (b) (6)  
**Cc:** "Lisa A. Jackson" <(b) (6)>, "Barbara A. Carste"  
(b) (6) Kathleen  
Neuzil (b) (6)  
(b) (6)  
(b) (6)>, "Graham, Barney (NIH/VRC) [E]"  
<(b) (6)>, Julie Ledgerwood (b) (6)>, "Morabito, Kaitlyn  
(NIH/VRC) [E]" <(b) (6)>, (b) (6)>,  
(b) (6)>, Ashley Miller (b) (6)>, Jae  
Arega (b) (6)>, John Beigel (b) (6)>, "Chun, Guinevere  
(NIH/NIAID) [E]" (b) (6)>, "Elsafy, Mohamed (NIH/NIAID) [C]"  
(b) (6)>, "Gill, Ranjodh (NIH/NIAID) [E]" (b) (6)>,  
Crystal Harrington (b) (6), "Hoang, Binh (NIH/NIAID) [E]"  
(b) (6), "Kenny, Frank (NIH/NIAID) [E]" (b) (6)>, "Khan,  
Ahsen (NIH/NIAID) [C]" (b) (6)>, Hyung Koo (b) (6)>, Marina  
Lee (b) (6)>, "Makhene, Mamodikoe (NIH/NIAID) [E]"  
(b) (6)>, Seema Nayak (b) (6), "Ormanoski, Kathy  
(NIH/NIAID) [E]" <(b) (6)>, "Pikaart-Tautges, Rhonda (NIH/NIAID) [E]"



(b) (6)>, Chris Roberts (b) (6), "Sindall, Elisa (NIH/NIAID)  
[E]" (b) (6)>

**Subject:** Re: SIO, NLM Protocol 20-0003, Posted to the NLM

Hello Everyone,

Perhaps I missed this discussion or decision but have there been (b) (4)  
(b) (4)

Will (b) (4) I think this would be an important aspect for the study.

**All my best,  
Rhea**

**Rhea N. Coler, M.Sc., Ph.D.**  
**Center for Global Infectious Disease Research (CGIDR)**  
Seattle Children's Research Institute

(b) (6)  
(b) (6)  
**OFFICE** [307 Westlake Ave N, Suite 500](#) (#421) Seattle, WA 98109

Affiliate Professor  
**Department of Global Health**  
**University of Washington**

On Feb 25, 2020, at 6:45 AM, Buchanan, Wendy (NIH/NIAID) [E] (b) (6)  
wrote:

FYI

Wendy L Buchanan, BSN, MS  
Nurse Consultant  
Respiratory Diseases Branch  
DMID/NIAID/NIH/DHHS  
[5601 Fishers Lane](#)  
Room 8E38, MSC 9825  
[Bethesda, Maryland 20892-9825](#)  
(courier/FedEx/UPS: [Rockville, Maryland 20852](#))  
Tel: (b) (6)  
Fax: [301-496-8030](#)  
Mobile: (b) (6)  
Email: (b) (6)

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Begin forwarded message:

**From:** DMID CROMS Study Information Office (b) (6)  
**Date:** February 25, 2020 at 9:00:59 AM EST  
**To:** "Buchanan, Wendy (NIH/NIAID) [E]" (b) (6)>  
**Cc:** (b) (6) "Vinson, Josephine (NIH/NIAID) [E]"  
(b) (6)>, Janice Arega <(b) (6)>, DMID CROMS Study  
Information Office (b) (6)>, DMID RAS TRI <(b) (6)>  
>  
**Subject:** SIO, NLM Protocol 20-0003, Posted to the NLM

Dear Wendy,

|                                                                         |                                                                                 |
|-------------------------------------------------------------------------|---------------------------------------------------------------------------------|
| Protocol Number:                                                        | 20-0003                                                                         |
| Version Number:                                                         | 1.0                                                                             |
| Version Date:                                                           | 14-Feb-2020                                                                     |
| <a href="https://clinicaltrials.gov">ClinicalTrials.gov</a> Identifier: | <a href="https://clinicaltrials.gov/ct2/show/study/NCT04283461">NCT04283461</a> |

This protocol has been accepted and posted to the National Library of Medicine (NLM).

To access the NLM web site, click the following link: [www.ClinicalTrials.gov](https://www.ClinicalTrials.gov). The NLM can be searched by using the DMID protocol number or the [ClinicalTrials.gov](https://clinicaltrials.gov) Identifier listed above.

Thank you,

**Nikolai Hladick**

*Clinical Information Specialist for DMID-CROMS (Contractor)*

Technical Resources International, Inc.

6500 Rock Spring Drive, Suite 650

Bethesda, MD 20817

Phone: (b) (6)

(b) (6)

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**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Wed, 18 Mar 2020 13:28:55 +0000  
**To:** Jon Cohen  
**Cc:** Hao Wu; Hiatt, Nissa (NIH/VRC) [C]; Routh, Jennifer (NIH/NIAID) [E]; Oplinger, Anne (NIH/NIAID) [E]  
**Subject:** RE: Few questions

Hi Jon,

I'm copying you to VRC and NIAID communications office.

Hi Nissa, Jon Cohen writes for Science and is working on a story about COVID-19 vaccines. He wrote about the original RSV F backstory from the VRC that was the basis of the current vaccine.

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

From: Jon Cohen <jcohen@aaas.org>  
Sent: Wednesday, March 18, 2020 9:24 AM  
To: Graham, Barney (NIH/VRC) [E] (b) (6) >  
Cc: Hao Wu (b) (6) >  
Subject: Few questions

Hi Barney,

I'm wondering whether we can set up a time to talk. I'm finally getting around to the vaccine story. Crazy times.

I'm ccing Hao Wu, a documentary film maker I'm helping, who is interested in possibly shooting you and VRC. Can you put him in touch with the right permission to seek permission?

Hope you and yours are well.

All the best,

Jon



**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Fri, 1 May 2020 15:30:35 +0000  
**To:** Nason, Martha (NIH/NIAID) [E]  
**Cc:** Morabito, Kaitlyn (NIH/VRC) [E]; Phung, Emily (NIH/VRC) [F]; Ruckwardt, Tracy (NIH/VRC) [E]  
**Subject:** Re: VRC 317 Paper Draft



Sent from my iPhone

On May 1, 2020, at 11:01 AM, Nason, Martha (NIH/NIAID) [E] (b) (6) wrote:

I answered you!!! Exactly 4 minutes after you answered me! Check your inbox for 9:30am yesterday. I'm more than happy to help with COVID. Just let me know when/where.  
M

---

**From:** Barney Graham (b) (6)  
**Date:** Friday, May 1, 2020 at 10:58 AM  
**To:** "Nason, Martha (NIH/NIAID) [E]" (b) (6), "Morabito, Kaitlyn (NIH/VRC) [E]" (b) (6), "Phung, Emily (NIH/VRC) [F]" (b) (6)  
**Cc:** "Ruckwardt, Tracy (NIH/VRC) [E]" (b) (6)  
**Subject:** RE: VRC 317 Paper Draft

How about my question on COVID? We need help.

BG

---

**From:** Nason, Martha (NIH/NIAID) [E] (b) (6)  
**Sent:** Friday, May 1, 2020 10:49 AM

**To:** Morabito, Kaitlyn (NIH/VRC) [E] (b) (6)>; Phung, Emily (NIH/VRC) [F] (b) (6)>  
**Cc:** Ruckwardt, Tracy (NIH/VRC) [E] (b) (6); Graham, Barney (NIH/VRC) [E] (b) (6)  
**Subject:** Re: VRC 317 Paper Draft

Thanks Kaitlyn! I'll fill in the p-values and send to you later today, and go through the rest of the paper today or tomorrow.

Best,  
Martha

---

**From:** "Morabito, Kaitlyn (NIH/VRC) [E]" (b) (6)>  
**Date:** Friday, May 1, 2020 at 9:20 AM  
**To:** "Phung, Emily (NIH/VRC) [F]" (b) (6)>, "Nason, Martha (NIH/NIAID) [E]" (b) (6)  
**Cc:** "Ruckwardt, Tracy (NIH/VRC) [E]" (b) (6)>, Barney Graham (b) (6)  
**Subject:** VRC 317 Paper Draft

Hi Martha,

Attached is the draft of the VRC 317 paper, which we plan to circulate to the other co-authors on Monday. I've highlighted a few sections where we need your feedback. This includes the method section and the figure legends where we want to make sure we accurately captured the methodology for the stats.

We're also still missing p values for the following data sets.

1. (b) (5)
- 2.

Let us know if you have any questions.

Best,  
Kaitlyn

---

**From:** Kaitlyn Morabito <(b) (6)>  
**Date:** Monday, April 27, 2020 at 4:25 PM  
**To:** Emily Phung (b) (6)>, Martha Nason (b) (6)>

**Cc:** Tracy Ruckwardt [REDACTED] (b) (6)

**Subject:** Re: VRC 317 Statistics

Hi Martha,

We are only going to briefly mention the [REDACTED] (b) (5), so we are only missing the stats for

1. [REDACTED] (b) (5)

2.

Thanks!

Kaitlyn

---

**From:** Emily Phung [REDACTED] (b) (6)

**Date:** Friday, April 17, 2020 at 5:41 PM

**To:** Martha Nason [REDACTED] (b) (6)

**Cc:** Tracy Ruckwardt [REDACTED] (b) (6), Kaitlyn Morabito [REDACTED] (b) (6)

**Subject:** VRC 317 Statistics

Hi Martha,

Thank you so much for pulling together the statistics for the VRC 317 trial!

Upon going through the data, I have a couple of comments:

1. [REDACTED] (b) (5)

2.

3.

1.

Thank you and have a great weekend!  
Emily Phung

**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Mon, 23 Mar 2020 21:45:04 +0000  
**To:** (b) (4)  
**Subject:** Re: NHP for SARS-CoV-2

That is a very long story. For your purposes I would think of it like (b) (4)  
(b) (4)

Barney

Sent from my iPhone

On Mar 23, 2020, at 5:23 PM, (b) (4) <(b) (6), (b) (4)> wrote:

thanks. Stanley Perlman talks about vaccine disease enhancement in his Fields Chapter, and there are sporadic but conflicting reports in animals, and of course this has not been seen in humans as in RSV. (b) (4)

On Mon, Mar 23, 2020 at 2:11 PM Graham, Barney (NIH/VRC) [E] (b) (6) wrote:

Hi (b) (4)

This is still evolving. (b) (4). I haven't seen (b) (4)

(b) (4)  
I would say that (b) (4)

Take care,

Barney



**From:** (b) (4) (b) (6), (b) (4)  
**Sent:** Monday, March 23, 2020 5:01 PM  
**To:** Graham, Barney (NIH/VRC) [E] (b) (6)>  
**Subject:** NHP for SARS-CoV-2

Dear Barney,

I'm sure you are super busy.


We are looking into (b) (4)

Thanks for any info and hope you are safe and sound.

best wishes,

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

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



**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Fri, 6 Mar 2020 18:39:47 +0000  
**To:** Corbett, Kizzmekia (NIH/VRC) [E]; Hall, Matthew (NIH/NCATS) [E]  
**Cc:** Kim, Dami Kim (NIH/NCATS) [C]; Young, Monique (NIH/VRC) [E]  
**Subject:** RE: Invite

Should be fine.

BG

---

**From:** Corbett, Kizzmekia (NIH/VRC) [E] (b) (6)  
**Sent:** Friday, March 6, 2020 1:27 PM  
**To:** Hall, Matthew (NIH/NCATS) [E] (b) (6)  
**Cc:** Kim, Dami Kim (NIH/NCATS) [C] (b) (6); Graham, Barney (NIH/VRC) [E] (b) (6); Young, Monique (NIH/VRC) [E] (b) (6)  
**Subject:** Re: Invite

I would love to. Please let me know if you have a date in mind. Since it's intramural I think ethical approval may not be needed.

--

**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:** "Hall, Matthew (NIH/NCATS) [E]" (b) (6)  
**Date:** Friday, March 6, 2020 at 9:12 AM  
**To:** Kizzmekia Corbett (b) (6)  
**Cc:** "Kim, Dami Kim (NIH/NCATS) [C]" (b) (6) >  
**Subject:** Invite

Hi Kizzmekia,

At NCATS we've been following the coronavirus research you've been doing to develop a vaccine. Would you be willing to visit us at NCATS in Shady Grove and present a research seminar? I think we'd value hearing about the VRC and the coronavirus work specifically. NCATS is a translational science research center, mainly focus on therapeutic development – our scientists and trainees would enjoy hearing your story.

Look forward to hearing from you, and I can chat by phone in advance – we are an NIH intramural IC so shouldn't be an issue from a disclosure point of view.

I look forward to hearing from you,  
Matt

**Matthew D. Hall**

Acting Branch Chief, Early Translation Branch  
Group Leader, Biology

National Center for Advancing Translational Sciences (NCATS)  
National Institutes of Health  
9800 Medical Center Drive  
Rockville, MD 20850  
Office: (b) (6)  
<https://ncats.nih.gov/staff/hallma>

(b) (6)

NCATS Website: <http://ncats.nih.gov>

**NIH NCATS: COLLABORATE. INNOVATE. ACCELERATE.**

**From:** (b) (6)  
**Sent:** Fri, 28 Feb 2020 15:05:54 -0500  
**To:** Andrea Carfi  
**Subject:** IABS\_New paths for sustainable solutions to tackle global and emerging infectious threats - my slides  
**Attachments:** Precision vaccinology for sharing.pdf, ATT00001.htm

Hi Andrea,

The slides I used are attached below. Hope this was OK. I tried to keep it generic and I think the MERS mRNA slides have been shown before.

Barney



**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Tue, 17 Mar 2020 01:20:18 +0000  
**To:** Cassetti, Cristina (NIH/NIAID) [E]  
**Cc:** [REDACTED] (b) (6); Marston, Hilary (NIH/NIAID) [E]; NIAID BUGS; Mascola, John (NIH/VRC) [E]  
**Subject:** Re: COVID-19

Hi Jim,

I took Drs. Fauci and Collins off because of the state of their inbox during this crisis.

We are working with a biotech organization [REDACTED] (b) (4) but we don't have anything yet. There are a few [REDACTED] (b) (4) but I think the [REDACTED] (b) (4). If you are doing this [REDACTED] (b) (4) you might consider using [REDACTED] (b) (4).

Best wishes,

Barney

Sent from my iPhone

On Mar 16, 2020, at 8:08 PM, Cassetti, Cristina (NIH/NIAID) [E] <[REDACTED] (b) (6)> wrote:

Dear Dr. Wilson,

Several groups are currently working to [REDACTED] (b) (4). One of these groups is our own Vaccine Research Center in collaboration with others. I have copied our colleague Dr. Barney Graham who leads these efforts. Another investigator that might be able to help is Dr. Jim Crowe at Vanderbilt ([REDACTED] (b) (6)).

Best wishes,

Cristina

Cristina Cassetti, Ph.D.  
Deputy Director  
Division of Microbiology and Infectious Diseases  
National Institute of Allergy and Infectious Diseases, NIH  
[5601 Fishers Lane](#), Room 7G51

[Rockville, MD 20852](#)

Tel: (b) (6)

(b) (6)

---

**From:** Collins, Francis (NIH/OD) [E] (b) (6) >

**Sent:** Monday, March 16, 2020 6:13 PM

**To:** Fauci, Anthony (NIH/NIAID) [E] (b) (6); Marston, Hilary (NIH/NIAID) [E]

(b) (6); NIAID BUGS <BUGS@niaid.nih.gov>

**Cc:** (b) (6)

**Subject:** FW: COVID-19

Hi Tony, Hilary, and the DMID team,

Please see note below from Jim Wilson, who is seeking (b) (4)

(b) (4)

Can this be triaged to the right person or team to provide advice?

Thanks, Francis

---

**From:** Wilson MD, PhD, James M. (b) (6)

**Sent:** Monday, March 16, 2020 11:14 AM

**To:** Collins, Francis (NIH/OD) [E] (b) (6)

**Cc:** Jameson, James L (b) (6) >

**Subject:** COVID-19

Francis

As you may or may not know I have been working with several stakeholders about (b) (4)

(b) (4) The concept is to (b) (4)

(b) (4)

(b) (4). We developed this (b) (4)

Recently, I was approached by (b) (4)

(b) (4) Penn Medicine wants to help in any way we can. The reason I am writing is that I am trying to access any information regarding (b) (4)

Could you forward this email to relevant members of NIH? I don't have Tony Fauci's email.

Thanks Jim

James M. Wilson, MD PhD  
Rose H. Weiss Professor and Director, Orphan Disease Center  
Professor of Medicine and Pediatrics  
Director, Gene Therapy Program  
Perelman School of Medicine at the University of Pennsylvania  
Philadelphia PA

(b) (6)

O: (b) (6)

<http://www.med.upenn.edu/orphandisease/>

<http://www.med.upenn.edu/gtp/>

**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Tue, 21 Apr 2020 19:45:43 +0000  
**To:** Fisher, Brian (NIH/VRC) [E]; Hutchinson, Geoffrey (NIH/VRC) [F]; Abiona, Olubukola (NIH/VRC) [F]  
**Cc:** Corbett, Kizzmekia (NIH/VRC) [E]; Ruckwardt, Tracy (NIH/VRC) [E]; Kanekiyo, Masaru (NIH/VRC) [E]  
**Subject:** RE: Mistreating of Lab Equipment

Can we please let them know it is being used in the COVID vaccine development and that we need a loaner or very fast turn around?

Barney

---

**From:** Fisher, Brian (NIH/VRC) [E] (b) (6) >  
**Sent:** Tuesday, April 21, 2020 3:40 PM  
**To:** Graham, Barney (NIH/VRC) [E] (b) (6); Hutchinson, Geoffrey (NIH/VRC) [F] (b) (6) >; Abiona, Olubukola (NIH/VRC) [F] (b) (6) >  
**Cc:** Corbett, Kizzmekia (NIH/VRC) [E] (b) (6); Ruckwardt, Tracy (NIH/VRC) [E] (b) (6) >; Kanekiyo, Masaru (NIH/VRC) [E] (b) (6) >  
**Subject:** Re: Mistreating of Lab Equipment

We have to send the head out for service. Last time the repair took ~1 month. So unfortunately we will be without the use of this instrument for a period of time.

B.

---

**From:** Graham, Barney (NIH/VRC) [E] (b) (6)  
**Sent:** Tuesday, April 21, 2020 3:30:22 PM  
**To:** Fisher, Brian (NIH/VRC) [E] (b) (6); Hutchinson, Geoffrey (NIH/VRC) [F] (b) (6) >; Abiona, Olubukola (NIH/VRC) [F] (b) (6)  
**Cc:** Corbett, Kizzmekia (NIH/VRC) [E] (b) (6) >; Ruckwardt, Tracy (NIH/VRC) [E] (b) (6) >; Kanekiyo, Masaru (NIH/VRC) [E] (b) (6) >  
**Subject:** RE: Mistreating of Lab Equipment

With so few people in the building at any given time, no telling who is on the machine.

Let's try to repair as soon as possible. Do these service people need to be accompanied? How hard will it be to schedule?

Barney

---

**From:** Fisher, Brian (NIH/VRC) [E] (b) (6)  
**Sent:** Tuesday, April 21, 2020 3:00 PM  
**To:** Hutchinson, Geoffrey (NIH/VRC) [F] <(b) (6)>; Abiona, Olubukola (NIH/VRC) [F] (b) (6)  
**Cc:** Corbett, Kizzmekia (NIH/VRC) [E] (b) (6)>; Ruckwardt, Tracy (NIH/VRC) [E] (b) (6)>; Kanekiyo, Masaru (NIH/VRC) [E] (b) (6)>; Graham, Barney (NIH/VRC) [E] (b) (6)  
**Subject:** Re: Mistreating of Lab Equipment

Ok, at least for the last 1.5 months (b) (6)

I'm willing to listen.

Regardless of who spilled what or when, the last person to use the instrument is responsible for cleaning it. It's obvious neither (b) (6)  
And it's still filthy today.

(b) (6)

B.

---

**From:** Hutchinson, Geoffrey (NIH/VRC) [F] (b) (6)>  
**Sent:** Tuesday, April 21, 2020 1:56:23 PM  
**To:** Fisher, Brian (NIH/VRC) [E] (b) (6); Abiona, Olubukola (NIH/VRC) [F] (b) (6)>  
**Cc:** Corbett, Kizzmekia (NIH/VRC) [E] (b) (6)>; Ruckwardt, Tracy (NIH/VRC) [E] (b) (6)>; Kanekiyo, Masaru (NIH/VRC) [E] (b) (6)>; Graham, Barney (NIH/VRC) [E] (b) (6)  
**Subject:** Re: Mistreating of Lab Equipment

Brian,

First and foremost, (b) (6)

Over the years, (b) (6)

(b) (6) fact, (b) (6)

(b) (6)

Much of the mess seen in your photos is from people not cleaning up spills, (b) (4), (b) (6)

(b) (4), (b) (6) With that said, I'm not aware of (b) (4), (b) (6)

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

To my knowledge (b) (4), (b) (6)

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



(b) (6) With that said, the damage to the current head is likely not due to this. The mechanical issues I've heard coming from loading tips has always come from properly loading them.

I have worked with this machine for the majority of my time at the VPL with relatively little issue. Overall I've found it to be an extremely reliable and critical tool for large scale ELISAs and plate coating.

Besides the fact that (b) (6)  
(b) (6)  
(b) (6)  
(b) (6)

Sincerely,

Geoff

---

**From:** "Fisher, Brian (NIH/VRC) [E]" (b) (6) >  
**Date:** Tuesday, April 21, 2020 at 1:35 PM  
**To:** "Hutchinson, Geoffrey (NIH/VRC) [F]" (b) (6) >, "Abiona, Olubukola (NIH/VRC) [F]" <(b) (6)>  
**Cc:** "Corbett, Kizzmekia (NIH/VRC) [E]" (b) (6), "Ruckwardt, Tracy (NIH/VRC) [E]" (b) (6), "Kanekiyo, Masaru (NIH/VRC) [E]" (b) (6), "Graham, Barney (NIH/VRC) [E]" (b) (6) >  
**Subject:** Mistreating of Lab Equipment

Hi Geoff and Olu,

You informed me the Rainin benchsmart (96) pipetting instrument was broken. I looked at it today (b) (6)  
(b) (6)

(b) (6)



NIH-003291



NIH-003292



Thanks

B.

**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Tue, 31 Mar 2020 22:47:46 +0000  
**To:** Scherer, Erin  
**Cc:** Corbett, Kizzmekia (NIH/VRC) [E]  
**Subject:** RE: [External] RE: Connecting you

Hi Erin,

We've been communicating with Rafi Ahmed and he is planning to contact you. They have set up some of the same assays that you are interested in.

Once you've coordinated with him then let us know what you still might need and we will make some arrangements.

I've copied Dr. Corbett here who has been responsible for developing the assays.

Take care,

Barney

---

**From:** Scherer, Erin (b) (6) >  
**Sent:** Tuesday, March 31, 2020 5:22 PM  
**To:** Graham, Barney (NIH/VRC) [E] (b) (6)  
**Subject:** FW: [External] RE: Connecting you

Dr. Graham,

Jason McLellan suggested I should write to you for the following (his email below mine).  
So, I am writing, as I am sure many people are, to request the following:

(b) (4)

We have access to COVID-19 samples via internal protocols and as a VTEU site and would like to  
(b) (4)



Thank you very much for your time and please let me know if you would like to discuss by phone or have questions.

All best,  
Erin

**Erin M Scherer, PhD, DPhil**

Assistant Professor, Division of Infectious Diseases, School of Medicine, Emory University  
Director, Hope Clinic Research Laboratory, Emory Vaccine Center

(b) (6)  
work | (b) (6)  
mobile | (b) (6)

---

**From:** Jason McLellan (b) (6)  
**Date:** Friday, March 27, 2020 at 11:50 AM  
**To:** "Scherer, Erin" <(b) (6)>, Laura Walker  
(b) (6)  
**Cc:** (b) (6) >, "Ludes-Meyers, John" (b) (6) >, Jason McLellan Lab  
(b) (6) >  
**Subject:** RE: [External] RE: Connecting you

Hi Erin,

We are happy to send you (b) (4),  
(b) (4). We can also send you the (b) (4)  
(b) (4) We might have some (b) (4) that we could send along too.

All of the (b) (4) will need to be  
obtained from our collaborator Dr. Barney Graham at the NIH. His lab created (b) (4) and we  
can't distribute them.

Someone from my team will contact you to arrange shipment.

Good luck with your studies!  
Jason

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**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Wed, 26 Feb 2020 05:28:07 +0000  
**To:** Handley, Gray (NIH/NIAID) [E]  
**Cc:** Marston, Hilary (NIH/NIAID) [E]; Ledgerwood, Julie (NIH/NIAID) [E]  
**Subject:** Re: Taiwan interest in COVID-19 vaccine research.

We have been communicating with Medigen who was referred to us by Steve. They are actively trying to contribute something. Have not heard yet from this other company. Contacting the NIAID TTIPO is a good place to start.

Barney

Sent from my iPhone

On Feb 25, 2020, at 11:18 PM, Handley, Gray (NIH/NIAID) [E] (b) (6) > wrote:

Here is serious reach out from Taiwan. They have good experience with vaccine trials and high level government support that could include funding. NIAID's experience with them on Steve Whitehead's dengue vaccine RCT has been very good.

(b) (5) Please let me know how you want to proceed.  
Gray

Begin forwarded message:

**From:** "Chung, Tina (NIH/FIC) [E]" <(b) (6)>  
**Date:** February 24, 2020 at 8:45:56 PM GMT+7  
**To:** "Handley, Gray (NIH/NIAID) [E]" <(b) (6)>, "Bernabe, Gayle (NIH/NIAID) [E]" <(b) (6)>, "Dominique, Joyelle (NIH/NIAID) [E]" <(b) (6)>  
**Cc:** "Sizemore, Christine (NIH/FIC) [E]" <(b) (6)>  
**Subject:** FW: NIH Technology transfer contact window re COVID-19

Hi Gray,

Would NIAID have any comments about this request from TECRO?

Tina

---

**From:** 技監參事室林麗芳 (b) (6)>  
**Sent:** Sunday, February 23, 2020 7:07 PM  
**To:** Chung, Tina (NIH/FIC) [E] (b) (6)  
**Subject:** NIH Technology transfer contact window  
**Importance:** High

Hi Tina,

Your contact information was referred by the Science and Technology Division of TECRO. My name is Grace Lin, the Director of Agricultural Division of TECRO. I am writing to seek your assistance to find the contact window for technology transfer at NIH regarding COVID-19 if it is accessible.

The vaccine manufacturing company in Taiwan, (b) (4), acquired news published in Taiwan regarding Medigen vaccine biologics corporation, announced that there was a cooperation between NIH and Medigen to develop the coronavirus vaccine. They would like to learn more regarding the contents of the collaboration, and (b) (4)

(b) (4)

(b) (4)

(b) (4) has reached out to the technology transfer offices at NIH and did not get any response. I am wondering if you could help to refer a contact window in NIH for them to connect for the aforementioned COVID-19 vaccine development. If you need any further information, please feel free to contact me. I very much appreciate your assistance and look forward to your response at your earliest convenience.

Have a good evening!

Best Regards,  
Grace

---

Grace Lih-Fang Lin, Ph. D.

Director (Counselor)

Agricultural Division

Taipei Economic and Cultural Representative Office in the U.S.

Tel: (b) (6)

Cell: (b) (6)

Fax: 202-363-6294

Email: (b) (6)



**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Mon, 16 Mar 2020 00:14:08 +0000  
**To:** Stephane Bancel  
**Cc:** Jeremy Farrar;Andrea Carfi;Stephen Hoge;Lori Henderson  
**Subject:** Re: SARS-COV-2 sequence available. Original date.

I sent George Gao an email on January 10th encouraging him to share sequences and later that day the first 6 sequences were posted online. (Not sure if those two events were connected but George did tell me he was working on it). That was nighttime for us, so we didn't see them until Saturday the 11th. (b) (4)

(b) (4)

Barney

Sent from my iPhone

> On Mar 15, 2020, at 8:03 PM, Stephane Bancel (b) (6) wrote:

>

> Jeremy and Barney,

>

> I hope all is well despite the marathon pace since January for you and your teams.

>

> We are trying to nail when was the date when the sequence of the virus published online the first time? January 10th, 11th or 12?

>

> Can you please confirm to us as we want to have the date correct?

>

> We know that (b) (4)

>

> Thanks a lot

>

> Much appreciated.

>

> Cheers

>

> Stephane

>

> Sent from my iPad

>

>

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>

>

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>

**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Fri, 24 Jan 2020 16:36:12 +0000  
**To:** Whitehead, Steve (NIH/NIAID) [E]  
**Subject:** RE: Coronavirus

Hi Steve,

He may have already contacted me if it is a company trying to make (b) (4), (b) (5). I'm willing to take the email, but may forward it to DMID where we have agreed for these types of inquiries could start.

We are trying to make (b) (4), (b) (5) this weekend. We know how to (b) (4), (b) (5). Moderna is (b) (4), (b) (5).

What I could offer is a sequence that should (b) (4), (b) (5), and when we have them, (b) (4), (b) (5).

BG

---

**From:** Whitehead, Steve (NIH/NIAID) [E] (b) (6)  
**Sent:** Friday, January 24, 2020 11:32 AM  
**To:** Graham, Barney (NIH/VRC) [E] <(b) (6)>  
**Subject:** Coronavirus

Hi Barney,

Michael Malison, formerly of the CDC, now consults with a company in Taiwan, Medigen Vaccines and has contacted me regarding vaccines for the new Wuhan coronavirus. Medigen is one of our dengue vaccine licensees. He asked for your contact information and an introduction so that they could discuss any opportunities for collaborating on the coronavirus vaccine. Their most important contribution would be providing clinical sites for testing the vaccine in Taiwan. They successfully recently completed a trial for us.

I just wanted to check with you before I forwarded your information to him.

Warm regards,

--Steve Whitehead

Laboratory of Viral Diseases  
NIAID, NIH, DHHS  
Bldg 33, Room 3W10A  
33 North Drive  
Bethesda, MD 20892

Tel: (b) (6)

Mobile: (b) (6)

Fax: 301-480-4873

email: (b) (6)

**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Thu, 12 Mar 2020 06:39:55 +0000  
**To:** angel@wedo-projects.com  
**Cc:** Cornelia L. Dekker  
**Subject:** RE: CEPI-BC meeting on preventing disease enhancement with COVID-19 vaccines Confirmation  
**Attachments:** CEPI-BC spike specific neutralization 12Mar2020 for sending.pdf

I've attached my slides as pdf because they were too large to send as ppt (>30 mB).

Hopefully, I can project from my own computer so I can point and use the animated powerpoint version.

Barney

---

**From:** Ángel Honrado <customercare@gotowebinar.com>  
**Sent:** Wednesday, March 11, 2020 7:19 PM  
**To:** Graham, Barney (NIH/VRC) [E] (b) (6)  
**Subject:** CEPI-BC meeting on preventing disease enhancement with COVID-19 vaccines Confirmation



Dear Barney,

Thank you for registering for "CEPI-BC meeting on preventing disease enhancement with COVID-19 vaccines".

Accelerated assessment of the risk of disease enhancement with COVID-19 vaccines



A Coalition for Epidemic Preparedness Innovation (CEPI) / Brighton Collaboration (BC) scientific working meeting

Please send your questions, comments and feedback to: [angel@wedo-projects.com](mailto:angel@wedo-projects.com)

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**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Sat, 14 Mar 2020 15:14:51 +0000  
**To:** c.thomas@nature.com  
**Subject:** Re: Nature review request on (b) (6)

Hi Claire,

I'm sorry to be a bit behind on emails. I can see (b) (4) and am (b) (4)  
(b) (4). We are a (b) (4) but also have (b) (4)  
(b) (4). We are trying to have (b) (4)

We are so busy and working 24/7 and so far behind on other commitments that I will not have time to do this. I think it's an editorial decision about whether you want (b) (4)

James Crowe at Vanderbilt may have time for this. He is not quite as much in the nCoV storm at the moment.

Best wishes,

Barney

Sent from my iPhone

On Mar 14, 2020, at 8:36 AM, "c.thomas@nature.com" <c.thomas@nature.com> wrote:

\*\*\* Strictly Confidential \*\*\*

Dear Dr. Graham,

A couple of days ago I sent you an email to enquire whether you would be able to help us with a manuscript review. I am still looking for a qualified reviewer and I wondered whether you had had a chance to consider? It would be great if you could let me know, either way.

Thanks in advance for considering and all the best,

Clare

Clare Thomas  
Senior Editor  
Nature

Dear Dr Graham,

A manuscript has been submitted to Nature, which we were hoping you would be interested in reviewing. The manuscript comes from (b) (6)

(b) (6)

Is this a paper that you would be able to review for us within 7 days? If so, please let me know as soon as possible, and I will send instructions to you on how to access the manuscript.

If you are unable to review this paper, we would be grateful if you could suggest potential alternative reviewers, keeping in mind that Nature-branded journals strive toward an equitable demographic representation within our reviewer pool, for example, with respect to gender and geography. More information about our commitment to diversity can be found [here](#).

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Many thanks in advance for your help; I look forward to hearing from you.

Yours sincerely,

Clare Thomas  
Senior Editor  
Nature



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**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Mon, 27 Apr 2020 13:06:18 +0000  
**To:** Mascola, John (NIH/VRC) [E]; Corbett, Kizzmekia (NIH/VRC) [E]  
**Subject:** RE: 04.27.20\_Moderna\_mRNA-1273 (b) (4)

Yes, (b) (4), (b) (5).

BG

---

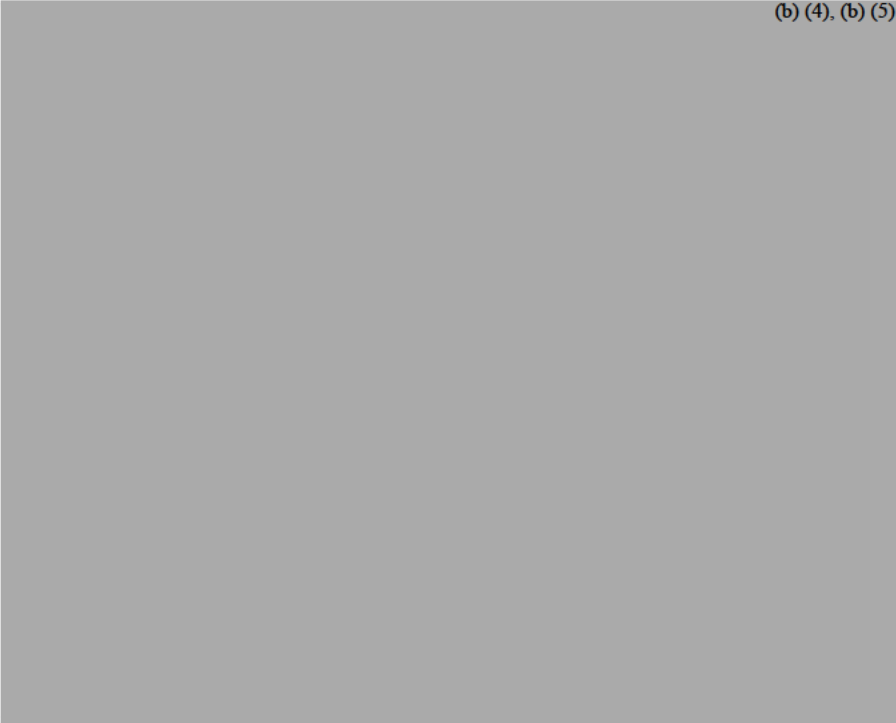
**From:** Mascola, John (NIH/VRC) [E] (b) (6) >  
**Sent:** Monday, April 27, 2020 9:05 AM  
**To:** Corbett, Kizzmekia (NIH/VRC) [E] (b) (6)  
**Cc:** Graham, Barney (NIH/VRC) [E] (b) (6)  
**Subject:** RE: 04.27.20\_Moderna\_mRNA-1273 (b) (4)

Are these (b) (4), (b) (5) – and if so, (b) (4), (b) (5)

---

**From:** Corbett, Kizzmekia (NIH/VRC) [E] (b) (6) >  
**Sent:** Monday, April 27, 2020 9:04 AM  
**To:** Graham, Barney (NIH/VRC) [E] (b) (6)  
**Cc:** VRC\_CoV\_NonClin (b) (6) >; Mascola, John (NIH/VRC) [E]  
(b) (6)  
**Subject:** Re: 04.27.20\_Moderna\_mRNA-1273 (b) (4)

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



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

**VRC only,**

Here are the (b) (4), (b) (5) Let me know if you have any questions.

--

**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 Carfi <(b) (6)>

**Date:** Monday, April 27, 2020 at 8:33 AM

**To:** Barney Graham (b) (6)

**Cc:** Darin Edwards <(b) (6)>, Bennett Hamilton

(b) (6)>, Sunny Himansu (b) (6)>,"Mascola, John (NIH/VRC) [E]"

VRC\_CoV\_NonClin <(b) (6)>

(b) (6)

**Subject:** Re: 04.27.20\_Moderna\_mRNA-1273 (b) (4)

Very nice, thanks.

A

On Apr 27, 2020, at 8:25 AM, Graham, Barney (NIH/VRC) [E] (b) (6)> wrote:

Hi Andrea,

(b) (4)

Take care,

Barney

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**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Mon, 6 Apr 2020 13:06:17 +0000  
**To:** Morabito, Kaitlyn (NIH/VRC) [E]  
**Cc:** Scorpio, Diana (NIH/VRC) [E]; Corbett, Kizzmekia (NIH/VRC) [E]; Bok, Karin (NIH/VRC) [E]; Alvarado, Gabriela (NIH/VRC) [C]  
**Subject:** Re: (b) (5) mice

We will try to talk to Ralph today about something else and try to explore this.

BG

Sent from my iPhone

On Apr 6, 2020, at 9:04 AM, Morabito, Kaitlyn (NIH/VRC) [E] (b) (6) wrote:

Hi all,

I think everyone is asking Ralph for (b) (5).

Kaitlyn

---

**From:** "Scorpio, Diana (NIH/VRC) [E]" (b) (6)  
**Date:** Friday, April 3, 2020 at 4:44 PM  
**To:** Kizzmekia Corbett (b) (6), "Morabito, Kaitlyn (NIH/VRC) [E]" (b) (6)  
**Cc:** Barney Graham (b) (6), Karin Bok (b) (6), "Alvarado, Gabriela (NIH/VRC) [C]" (b) (6)  
**Subject:** Re: (b) (5) mice

Meaning he (b) (5)

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**From:** Corbett, Kizzmekia (NIH/VRC) [E] (b) (6)>  
**Sent:** Friday, April 3, 2020 4:40:23 PM  
**To:** Scorpio, Diana (NIH/VRC) [E] (b) (6); Morabito, Kaitlyn (NIH/VRC) [E] (b) (6)>  
**Cc:** Graham, Barney (NIH/VRC) [E] (b) (6)>; Bok, Karin (NIH/VRC) [E]



(b) (6)>; Alvarado, Gabriela (NIH/VRC) [C] (b) (6)>  
**Subject:** Re: (b) (5) mice

We have (b) (5)

--

**Kizzmekia S. Corbett, PhD**

**Senior Research Fellow | Scientific Lead**

**Coronavirus Vaccines & Immunopathogenesis (coVip) Team**

Viral Pathogenesis Laboratory | Vaccine Research Center

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Personal: (b) (6)

Fax: (301) 480-2771

---

**From:** "Scorpio, Diana (NIH/VRC) [E]" (b) (6)

**Date:** Friday, April 3, 2020 at 4:39 PM

**To:** Kizzmekia Corbett <(b) (6)>, Kaitlyn Morabito

<(b) (6)>

**Cc:** Barney Graham (b) (6)>, "Bok, Karin (NIH/VRC) [E]" (b) (6),  
"Alvarado, Gabriela (NIH/VRC) [C]" (b) (6)

**Subject:** (b) (5) mice

Hi there to all of you!

Do we know if anyone (b) (5) COVID work? (b) (5)

Thanks for any help you can provide and hv a great weekend!

Diana

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**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Tue, 10 Mar 2020 01:50:50 +0000  
**To:** Payal Sipahimalani  
**Cc:** Morabito, Kaitlyn (NIH/VRC) [E]; Hiatt, Nissa (NIH/VRC) [C]; Prince, Tasheema (NIH/VRC) [C]; Corbett, Kizzmekia (NIH/VRC) [E]; Bok, Karin (NIH/VRC) [E]; Ester Falconer; Tiffany Chiu  
**Subject:** Re: [RESPONSE REQUESTED] Press release re: COVID-19 partnership

Thank you for including our communications team.

Barney

Sent from my iPhone

On Mar 9, 2020, at 9:31 PM, Payal Sipahimalani <[REDACTED] (b) (6)> wrote:

Hello Barney, Kaitlyn and VRC communications team,

As some of you know, we are finalizing the details of a partnership with Eli Lilly for development and manufacturing of a therapeutic antibody product as part of our COVID-19 response. We plan to issue a press release describing this on **Wednesday, March 11**.

We'd like to start to pitch the story tomorrow, ideally with the role of the VRC included - with your approval, of course. I have attached the draft release here. With apologies for the short notice, is there any way this could be reviewed and approved tomorrow morning (**Tuesday, March 10**), before we start to pitch the story?

Thank you very much,  
Payal.

--

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

2215 Yukon Street  
Vancouver BC V5Y 0A1

T: [REDACTED] (b) (6)  
M: [REDACTED] (b) (6)

[abcellera.com](http://abcellera.com)

<AbCellera Lilly Draft 20200309 v2.docx>

**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Wed, 5 Feb 2020 17:39:56 +0000  
**To:** Esser, Mark  
**Subject:** RE: AstraZeneca: Mene Pangalos awarded knighthood in the New Year 2020 Honours List

Thanks Mark. I was impressed with Mene and his questions about the proposed project.

It was a good meeting. Wish I had more time to hang out and discuss RSV projects and influenza.

Best wishes,

Barney

---

**From:** Esser, Mark [REDACTED] (b) (6)  
**Sent:** Wednesday, February 5, 2020 12:35 PM  
**To:** Graham, Barney (NIH/VRC) [E] [REDACTED] (b) (6)  
**Subject:** AstraZeneca: Mene Pangalos awarded knighthood in the New Year 2020 Honours List

Hi Barney,

Thank you again for making time to visit us yesterday and we are excited to work with you on Coronavirus and Influenza.

Attached, please find a pdf with an article on Mene being knighted.

He is an exceptional scientist and strong leader of BioPharma R&D here at AstraZeneca.

I am glad you were able to meet him.

Regards,  
Mark E

**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Thu, 19 Mar 2020 10:39:17 +0000  
**To:** (b) (4)  
**Subject:** RE: ADE for SARS-CoV vs. RSV  
**Attachments:** FI RSV JV.pdf, V beta JV paper.pdf, Priming immunization FI-RSV JImmunol 1993.pdf

H (b) (4),

These were our last two major publications on the FI-RSV vaccine-enhanced illness in 2004. I'm also including our 1<sup>st</sup> one just to show you where it started.

Both (b) (4)  
(b) (4)  
(b) (4) I think some of the (b) (4)  
(b) (4).

Barney

---

**From:** (b) (4) (b) (6), (b) (4)  
**Sent:** Wednesday, March 18, 2020 7:49 AM  
**To:** Graham, Barney (NIH/VRC) [E] <(b) (6)>  
**Subject:** ADE for SARS-CoV vs. RSV

Dear Barney,

I had the pleasure to attend the workshop organized from CEPI and Brighton collaboration last week.

Nevertheless, some questions remain for me. One is in regard of the comparison of RSV data vs. SARS-CoV data. For RSV (b) (4)  
(b) (4)  
However, (b) (4)  
(b) (4)  
(b) (4)  
(b) (4) (Iwata-Yoshikawa et al., 2014 JVI; at least partial survival is shown).  
So, (b) (4)  
(b) (4). So, was wondering (b) (4)  
(b) (4) I would rather (b) (4)  
(b) (4) I understood (b) (4)  
(b) (4)

A second question is more logistically, could you indicate a publication of the RSV challenge study design with break-through replication as you described earlier already (like in the RSV SAB we had in 2018)? That would be helpful.

Thanks a lot.

Best,

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



**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Wed, 12 Feb 2020 14:23:13 +0000  
**To:** Corbett, Kizzmekia (NIH/VRC) [E]  
**Cc:** Morabito, Kaitlyn (NIH/VRC) [E]  
**Subject:** RE: Gates? Re: Action Items: Re: Coronavirus (b) (4) Project Meeting Discussion

They want (b) (4) They want to  
(b) (4) They are also  
(b) (4) and they have (b) (4)  
(b) (4). For us, it is probably better to (b) (4), (b) (5)  
(b) (4), (b) (5) and we can discuss further when I  
get back.

Barney

---

**From:** Corbett, Kizzmekia (NIH/VRC) [E] (b) (6)  
**Sent:** Wednesday, February 12, 2020 9:15 AM  
**To:** Graham, Barney (NIH/VRC) [E] (b) (6)  
**Cc:** Morabito, Kaitlyn (NIH/VRC) [E] (b) (6)  
**Subject:** Re: Gates? Re: Action Items: Re: Coronavirus Nanoparticle Project Meeting Discussion

This is good to know. But, what about (b) (4)  
(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  
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Building 40 Room 2608  
40 Convent Drive  
Bethesda MD 20892  
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Personal (b) (6)  
Fax: (301) 480-2771

---

**From:** Barney Graham (b) (6) >  
**Date:** Wednesday, February 12, 2020 at 9:13 AM  
**To:** Kizzmekia Corbett <(b) (6)>

**Cc:** Kaitlyn Morabito (b) (6)>

**Subject:** RE: Gates? Re: Action Items: Re: Coronavirus (b) (4) Project Meeting Discussion

Gates (b) (4) Therefore, (b) (4)

(b) (4). For the CoV project, (b) (4)

BG

---

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

**Sent:** Wednesday, February 12, 2020 8:51 AM

**Cc:** Graham, Barney (NIH/VRC) [E] (b) (6)>; Morabito, Kaitlyn (NIH/VRC) [E]

(b) (6)

**Subject:** Gates? Re: Action Items: Re: Coronavirus (b) (4) Project Meeting Discussion

Piggybacking on Neil's comment, Dr. Graham, is there anything Kaitlyn and I should know about (b) (4),

(b) (5)?

--

**Kizzmekia S. Corbett, PhD**

**Senior Research Fellow | Scientific Lead**

**Coronavirus Vaccines & Immunopathogenesis (coVip) Team**

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---

**From:** Neil King <(b) (6)>

**Date:** Wednesday, February 12, 2020 at 8:26 AM

**To:** Kizzmekia Corbett (b) (6)>

**Cc:** Barney Graham (b) (6)>, "Hutchinson, Geoffrey (NIH/VRC) [F]"

(b) (6)>, Daniel Ellis (b) (6)>

**Subject:** Re: Action Items: Re: Coronavirus (b) (4) Project Meeting Discussion

Sounds good Kizzy, thanks for sending this out!

Barney, let us know what you'd like to do about IP. We could [REDACTED] (b) (4) [REDACTED]. Either way works for me.

Neil

On Wed, Feb 12, 2020 at 2:02 AM Corbett, Kizzmekia (NIH/VRC) [E] <[REDACTED] (b) (6)> wrote:  
Good morning all,

As always, thanks for a productive meeting. It's exciting to see things moving forward, particularly with the exciting data with the [REDACTED] (b) (4). As mentioned in the meeting, our main objective right now is to get the paper out and IP addressed. Thus the following action items are mostly ours (no pressure, I guess.)

#### VRC

- Discuss with Niel and Dr. Graham on IP (Lead: Kizzmekia)
- Discuss with Dr. Graham about Gates follow-up (Lead: Kizzmekia)
- Submit (b) (4) manuscript outline to group. (Lead: Geoffrey and Kizzmekia)
- Boost [REDACTED] (b) (4). (Lead: Geoffrey)
- Make appropriate [REDACTED] (b) (4) testing (Lead: Geoffrey)
- Dissect [REDACTED] (b) (4) (Lead: Geoffrey/Cynthia)
- Compare [REDACTED] (b) (4) (Lead: Cynthia)

#### U Washington

- Collaborate with VRC on [REDACTED] (b) (4) when needed. (Lead: Dan)

#### **Kizzmekia S. Corbett, PhD**

##### **Senior Research Fellow**

National Institutes of Health

National Institutes of Allergy and Infectious Diseases

Vaccine Research Center

Viral Pathogenesis Laboratory

Building 40 Room 2608

40 Convent Drive

Bethesda MD 20892

Laboratory: [REDACTED] (b) (6)

Personal: [REDACTED] (b) (6)

Fax: (301) 480-2771

**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Mon, 9 Mar 2020 17:20:40 +0000  
**To:** Hiatt, Nissa (NIH/VRC) [C]  
**Subject:** Fwd: SARS-COV-2

Hi Nissa, can you help to answer this. Maybe we could refer her to a CDC web site.

BG

Sent from my iPhone

Begin forwarded message:

**From:** Veronica Garcia <[REDACTED] (b) (6)>  
**Date:** March 9, 2020 at 1:03:23 PM EDT  
**To:** "Graham, Barney (NIH/VRC) [E]" <[REDACTED] (b) (6)>  
**Subject:** SARS-COV-2

Good morning Dr. Graham,

I just read the article in Science magazine and was wondering if you or someone in your team can help me answer the following regarding the way the virus behave:

1. if a person recovered from the virus, can the virus infect the person again?
2. Do you know which labs are working on vaccines?
3. Can one get tested even without symptoms?
4. At which temperatures and conditions can the virus survive? Would summer conditions relief the exponential growth of infections?

Since there is lots of misinformation I wanted to write you directly hoping to get the answer from a specialist.

Im looking forward to hearing from you,

Veronica Garcia Heller

**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Tue, 28 Jan 2020 18:56:47 +0000  
**To:** De wit, Emmie (NIH/NIAID) [E]  
**Cc:** Schmaljohn, Connie (NIH/NIAID) [E]; Marston, Hilary (NIH/NIAID) [E]; Morabito, Kaitlyn (NIH/VRC) [E]; Corbett, Kizzmekia (NIH/VRC) [E]  
**Subject:** Re: 2019-nCoV qRT-PCR

Thanks Emmie. We will not have virus at VRC so we are counting on you to sort this out. Natalie Thornburg at CDC has a diagnostic PCR working but not sure how well it can quantify.

We will be starting mouse immunogenicity over the next few weeks.

Barney

Sent from my iPhone

On Jan 28, 2020, at 7:22 PM, De wit, Emmie (NIH/NIAID) [E] (b) (6) wrote:

Dear Barry and Connie,  
In anticipation of our animal experiments we have tested the three 2019-nCoV qRT-PCR assays published by Christian Drosten using bat coronavirus RNA. All three assays appear to work well using standard reagents and cycling conditions (Drosten's protocol is a bit more complicated than ours). I wasn't sure if you had access to positive control material (or maybe you are not planning to use these assays), but just in case you are planning to use some of these assays but can't test them right now, I have attached a short overview of our results.  
Let me know if you have any questions,  
Emmie

Emmie de Wit, PhD  
Chief, Molecular Pathogenesis Unit  
NIH Distinguished Scholar  
Laboratory of Virology  
Rocky Mountain Laboratories  
NIAID, NIH  
903 South 4<sup>th</sup> Street  
Hamilton, MT 59840  
USA  
Phone: (b) (6)

<Short report qRT-PCR assays.docx>



**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Mon, 20 Apr 2020 20:33:02 +0000  
**To:** Mascola, John (NIH/VRC) [E]; Gall, Jason (NIH/VRC) [C]  
**Subject:** RE: chat with John and Jason?

It would be with the (b) (4), (b) (5)

BG

---

**From:** Mascola, John (NIH/VRC) [E] (b) (6) >  
**Sent:** Monday, April 20, 2020 4:31 PM  
**To:** Graham, Barney (NIH/VRC) [E] (b) (6) >; Gall, Jason (NIH/VRC) [C]  
(b) (6)  
**Subject:** RE: chat with John and Jason?

So (b) (4), (b) (5) Why not.. .

---

**From:** Graham, Barney (NIH/VRC) [E] (b) (6)  
**Sent:** Monday, April 20, 2020 4:27 PM  
**To:** Mascola, John (NIH/VRC) [E] (b) (6) >; Gall, Jason (NIH/VRC) [C]  
(b) (6)  
**Subject:** FW: chat with John and Jason?

FYI. We showed some of our data on the (b) (4), (b) (5) we have made with Neil King's group. This uses the same (b) (4), (b) (5) which we have already made.

I wonder if it would be better to (b) (4), (b) (5) It could then (b) (4), (b) (5)

BG

---

**From:** Neil King <(b) (6)>  
**Sent:** Monday, April 20, 2020 9:04 AM  
**To:** Graham, Barney (NIH/VRC) [E] (b) (6)  
**Subject:** chat with John and Jason?

Hi Barney,

I hope you got a chance to rest this weekend! I ended up building a 3D printer with my (b) (6) (b) (6). It was a blast, and now we are printing Harry Potter wands and stuff like that. It was a good change of pace!



Thanks again for providing the slides on Friday and catching up on the phone too. It would be great if we could consider [REDACTED] (b) (4) If there's a willingness to pursue this as an option, we can figure out the how (i.e., who does what), with a focus on speed. Definitely let me know what you hear back from John and Jason!

Thanks,  
Neil

**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Mon, 30 Mar 2020 20:56:06 +0000  
**To:** (b) (4)  
**Cc:** (b) (4); Gall, Jason (NIH/VRC) [C]; Mascola, John (NIH/VRC) [E]; Carlton, Kevin (NIH/VRC) [E]; Koup, Richard (NIH/VRC) [E]; Ledgerwood, Julie (NIH/NIAID) [E]  
**Subject:** Re: Follow up (b) (4) covid-19  
**Attachments:** image001.png

Hi (b) (4)

I did talk to Rino about this and I think it is a good idea to (b) (4).

We can discuss internally whether we can support a CRADA. At the moment we are working with a reduced work force and struggling to meet our prior obligations. Therefore, I'm not sure we have bandwidth to work with you collaboratively at this time. We will get back with you.

The longer term (b) (4) would definitely be of interest to me.

Barney

Sent from my iPhone

On Mar 30, 2020, at 3:53 PM, (b) (4) (b) (6), (b) (4) > wrote:

Dear Barney,

I hope you are doing well, and I'm certain you are extremely busy during this challenging time.

As you may recall (b) (4) to discuss (b) (4)

I am reaching out now to let you know that we would like to move further to establish a CRADA between (b) (4) (b) (4)

Could you confirm you are still interested to move forwards on this?

I look forward to hearing back from you. Ideally we would like to organize a call this week if feasible

Warm regards,  
(b) (4)



**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Sun, 22 Mar 2020 15:44:08 +0000  
**To:** Wheeland, Daniel (NIH/OD/ORF) [E]; Daucher, Marybeth (NIH/NIAID) [E]; Harper, Jill (NIH/NIAID) [E]; Phillips, Donna (NIH/OD/ORF) [E]  
**Cc:** Mascola, John (NIH/VRC) [E]; McGowan, Colleen (NIH/OD/ORS) [E]; Veitch, John (NIH/OD/ORS) [E]; Potts, Jeffrey (NIH/OD/ORS) [E]; Bok, Karin (NIH/VRC) [E]; Odegarden, Gregar (NIH/OD/ORF) [E]; Cowman, Gretchen (NIH/OD/ORF) [E]; Memarzadeh, Farhad (NIH/OD/ORF) [E]; Guptill, Virginia (NIH/CC/OCRS) [E]; Veitch, John (NIH/OD/ORS) [E]; Miller, Mark F. (NIH/OD/ORF) [E]; Laferriere, Roger (NIH/NIAID) [E]; Floyd, William (NIH/OD/ORF) [E]; Sullivan, Nancy (NIH/VRC) [E]; Corbett, Kizzmekia (NIH/VRC) [E]  
**Subject:** RE: URGENT: Bldg 40 Cleanup  
**Attachments:** Aerosol and surface survival of SARS-1 and SARS-2.pdf

Here is a paper that has not been peer reviewed yet, but was done by Vincent Munster at RML who is an experienced investigator. It shows virus survival in aerosol and environmental surfaces.

Barney

---

**From:** Wheeland, Daniel (NIH/OD/ORF) [E] (b) (6) >  
**Sent:** Saturday, March 21, 2020 7:28 PM  
**To:** Daucher, Marybeth (NIH/NIAID) [E] (b) (6) >; Harper, Jill (NIH/NIAID) [E] (b) (6) >; Phillips, Donna (NIH/OD/ORF) [E] (b) (6)  
**Cc:** Mascola, John (NIH/VRC) [E] (b) (6); Graham, Barney (NIH/VRC) [E] (b) (6) >; McGowan, Colleen (NIH/OD/ORS) [E] (b) (6); Veitch, John (NIH/OD/ORS) [E] (b) (6) >; Potts, Jeffrey (NIH/OD/ORS) [E] (b) (6); Odegarden, Gregar (NIH/OD/ORF) [E] (b) (6) >; Cowman, Gretchen (NIH/OD/ORF) [E] (b) (6); Memarzadeh, Farhad (NIH/OD/ORF) [E] (b) (6); Guptill, Virginia (NIH/CC/OCRS) [E] (b) (6) >; Veitch, John (NIH/OD/ORS) [E] (b) (6) >; Miller, Mark F. (NIH/OD/ORF) [E] (b) (6) >; Laferriere, Roger (NIH/NIAID) [E] (b) (6) >; Floyd, William (NIH/OD/ORF) [E] (b) (6)  
**Subject:** RE: URGENT: Bldg 40 Cleanup

All,

I have annotated the drawings with red dots to (b) (5). We agreed, I think, to (b) (5). NIAID will notify staff via e-mail and post signs.

Proposed action items:

- We agreed, I think, to (b) (5)
- NIAID will notify staff via e-mail and post signs.
- Roger Laferriere to (b) (5)

- Jeff Potts to contact (b) (5)
  - Farhad will contact (b) (5)
  - Mark Miller to contact (b) (5)
- (b) (5).

Perhaps we should have another teleconference tomorrow.

Dan



Thanks,  
Dan

Dan Wheeland, P.E.  
Director, Office of Research Facilities  
Office of Management

National Institutes of Health

(b) (6)

---

**From:** Wheeland, Daniel (NIH/OD/ORF) [E]

**Sent:** Saturday, March 21, 2020 6:20 PM

**To:** Daucher, Marybeth (NIH/NIAID) [E] <(b) (6)>; Harper, Jill (NIH/NIAID) [E]

(b) (6)>; Phillips, Donna (NIH/OD/ORF) [E] (b) (6)

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

<(b) (6)>; McGowan, Colleen (NIH/OD/ORS) [E] (b) (6)>; Veitch,

John (NIH/OD/ORS) [E] (b) (6)>; Potts, Jeffrey (NIH/OD/ORS) [E]

(b) (6)>; Odegarden, Gregar (NIH/OD/ORF) [E] (b) (6); Cowman,

Gretchen (NIH/OD/ORF) [E] (b) (6)>; Memarzadeh, Farhad (NIH/OD/ORF) [E]

(b) (6)>; Guptill, Virginia (NIH/CC/OCRS) [E] (b) (6)>; Veitch,

John (NIH/OD/ORS) [E] (b) (6)>; Miller, Mark F. (NIH/OD/ORF) [E]

(b) (6)>

**Subject:** RE: URGENT: Bldg 40 Cleanup

I've copied and pasted the floor plan below and (b) (5), (b) (6)

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



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

Thanks,  
Dan

Dan Wheeland, P.E.  
Director, Office of Research Facilities  
Office of Management  
National Institutes of Health

(b) (6)

---

**From:** Wheeland, Daniel (NIH/OD/ORF) [E]

**Sent:** Saturday, March 21, 2020 6:14 PM

**To:** Daucher, Marybeth (NIH/NIAID) [E] <(b) (6)>; Harper, Jill (NIH/NIAID) [E]  
(b) (6)>; Phillips, Donna (NIH/OD/ORF) [E] <(b) (6)>

**Cc:** Mascola, John (NIH/VRC) [E] (b) (6); Graham, Barney (NIH/VRC) [E]  
(b) (6)>; McGowan, Colleen (NIH/OD/ORS) [E] (b) (6)>; Veitch,  
John (NIH/OD/ORS) [E] (b) (6) Potts, Jeffrey (NIH/OD/ORS) [E]  
(b) (6); Odegarden, Gregar (NIH/OD/ORF) [E] (b) (6); Cowman,  
Gretchen (NIH/OD/ORF) [E] (b) (6)>; Memarzadeh, Farhad (NIH/OD/ORF) [E]  
(b) (6); Guptill, Virginia (NIH/CC/OCRS) [E] (b) (6)>; Veitch,

John (NIH/OD/ORS) [E] (b) (6) >

**Subject:** RE: URGENT: Bldg 40 Cleanup

I think a simple teleconference would work. Info is below.

Dial In Number (b) (6)

Passcode (b) (6)

Thanks,  
Dan

Dan Wheeland, P.E.  
Director, Office of Research Facilities  
Office of Management  
National Institutes of Health  
(b) (6)

---

**From:** Daucher, Marybeth (NIH/NIAID) [E] (b) (6) >

**Sent:** Saturday, March 21, 2020 6:11 PM

**To:** Harper, Jill (NIH/NIAID) [E] (b) (6); Wheeland, Daniel (NIH/OD/ORF) [E]

(b) (6) >; Phillips, Donna (NIH/OD/ORF) [E] (b) (6) >

**Cc:** Mascola, John (NIH/VRC) [E] (b) (6) >; Graham, Barney (NIH/VRC) [E]

(b) (6); McGowan, Colleen (NIH/OD/ORS) [E] <(b) (6)>; Veitch,

John (NIH/OD/ORS) [E] (b) (6) >; Potts, Jeffrey (NIH/OD/ORS) [E]

(b) (6); Odegarden, Gregar (NIH/OD/ORF) [E] (b) (6) >; Cowman,

Gretchen (NIH/OD/ORF) [E] (b) (6) >; Memarzadeh, Farhad (NIH/OD/ORF) [E]

(b) (6); Guptill, Virginia (NIH/CC/OCRS) [E] (b) (6) >

**Subject:** RE: URGENT: Bldg 40 Cleanup

Should we set up a zoom meeting?

---

**From:** Harper, Jill (NIH/NIAID) [E] (b) (6)

**Sent:** Saturday, March 21, 2020 6:10 PM

**To:** Wheeland, Daniel (NIH/OD/ORF) [E] (b) (6) >; Harper, Jill (NIH/NIAID) [E]

(b) (6) >; Phillips, Donna (NIH/OD/ORF) [E] (b) (6)

**Cc:** Mascola, John (NIH/VRC) [E] (b) (6) >; Graham, Barney (NIH/VRC) [E]

(b) (6) >; Daucher, Marybeth (NIH/NIAID) [E] (b) (6) >; McGowan,

Colleen (NIH/OD/ORS) [E] (b) (6) >; Veitch, John (NIH/OD/ORS) [E]

(b) (6) >; Potts, Jeffrey (NIH/OD/ORS) [E] (b) (6) >; Odegarden,

Gregar (NIH/OD/ORF) [E] (b) (6) >; Cowman, Gretchen (NIH/OD/ORF) [E]

(b) (6) >; Memarzadeh, Farhad (NIH/OD/ORF) [E] (b) (6) >;

Guptill, Virginia (NIH/CC/OCRS) [E] (b) (6) >

**Subject:** Re: URGENT: Bldg 40 Cleanup

VRC folks, please confirm room number and availability to call at 6:30 pm.

---

**From:** "Wheeland, Daniel (NIH/OD/ORF) [E]" (b) (6) >  
**Date:** Saturday, March 21, 2020 at 6:07:26 PM  
**To:** "Harper, Jill (NIH/NIAID) [E]" (b) (6), "Phillips, Donna (NIH/OD/ORF) [E]" (b) (6)  
**Cc:** "Mascola, John (NIH/VRC) [E]" (b) (6) >, "Graham, Barney (NIH/VRC) [E]" (b) (6) >, "Daucher, Marybeth (NIH/NIAID) [E]" (b) (6)  
"McGowan, Colleen (NIH/OD/ORS) [E]" (b) (6) >, "Veitch, John (NIH/OD/ORS) [E]" (b) (6), "Potts, Jeffrey (NIH/OD/ORS) [E]" (b) (6) >, "Odegarden, Gregar (NIH/OD/ORF) [E]" (b) (6) >, "Cowman, Gretchen (NIH/OD/ORF) [E]" (b) (6), "Memarzadeh, Farhad (NIH/OD/ORF) [E]" (b) (6)  
"Guptill, Virginia (NIH/CC/OCRS) [E]" (b) (6) >  
**Subject:** RE: URGENT: Bldg 40 Cleanup

Jill,

1. It was stated that (b) (5), (b) (6) Is that correct?
2. Could we use (b) (5) I think (b) (5)
3. I propose a teleconference at 6:30.

Teleconference info:

Dial In Number (b) (6)  
Passcode (b) (6)

Thanks,  
Dan

Dan Wheeland, P.E.  
Director, Office of Research Facilities  
Office of Management  
National Institutes of Health  
(b) (6)

---

**From:** Harper, Jill (NIH/NIAID) [E] <(b) (6)>  
**Sent:** Saturday, March 21, 2020 5:24 PM  
**To:** Phillips, Donna (NIH/OD/ORF) [E] <(b) (6)>; Wheeland, Daniel (NIH/OD/ORF) [E] (b) (6)  
**Cc:** Mascola, John (NIH/VRC) [E] (b) (6) >; Graham, Barney (NIH/VRC) [E] (b) (6); Daucher, Marybeth (NIH/NIAID) [E] (b) (6) >; Harper, Jill (NIH/NIAID) [E] (b) (6) >  
**Subject:** URGENT: Bldg 40 Cleanup  
**Importance:** High

Donna and Dan,

NIAID would greatly appreciate your assistance in expediting clean-up of areas of Bldg 40, following the identification of a COVID-19 case in the building. As you know, the Vaccine Research Center is conducting critical research to develop vaccines to prevent COVID-19 as well as other basic and applied research to support the response to the current pandemic. Given VRC's mission criticality, it is important to ensure that the research can continue as soon as possible without extended closure.

I've copied Drs. Mascola, Graham, and Daucher on this email. Please let us know how we can assist in this effort.

Thanks,  
Jill

Jill R. Harper, Ph.D.  
Associate Director for Science Management  
Office of Science Management and Operations (OSMO)  
NIAID/NIH/DHHS  
Bldg. 31, Room 7A24, MSC 2520  
Bethesda, MD 20892-2520  
Phone: (b) (6)  
(b) (6)

**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Thu, 30 Jan 2020 20:09:34 +0000  
**To:** Stover, Kathy (NIH/NIAID) [E]  
**Cc:** Corbett, Kizzmekia (NIH/VRC) [E]; Hiatt, Nissa (NIH/VRC) [C]  
**Subject:** RE: Interview request re: vaccine development for Wuhan coronavirus

I returned call to Canada. Dr. Corbett is arranging to return call to the Guardian.

Barney

---

**From:** Stover, Kathy (NIH/NIAID) [E] (b) (6)  
**Sent:** Thursday, January 30, 2020 12:19 PM  
**To:** Graham, Barney (NIH/VRC) [E] (b) (6)  
**Cc:** Corbett, Kizzmekia (NIH/VRC) [E] (b) (6); Hiatt, Nissa (NIH/VRC) [C]  
(b) (6) >  
**Subject:** RE: Interview request re: vaccine development for Wuhan coronavirus

Thanks. Both of you are cleared to do the interview, so whoever can get to her first would be greatly appreciated. She said she can go until COB today for an interview.

Thanks much,  
Kathy

---

**From:** Graham, Barney (NIH/VRC) [E] (b) (6) >  
**Sent:** Thursday, January 30, 2020 11:14 AM  
**To:** Stover, Kathy (NIH/NIAID) [E] (b) (6) >  
**Cc:** Corbett, Kizzmekia (NIH/VRC) [E] (b) (6); Hiatt, Nissa (NIH/VRC) [C]  
(b) (6)  
**Subject:** Re: Interview request re: vaccine development for Wuhan coronavirus

Better give this one to Dr. Corbett. I won't be available until about 2pm EST

BG

Sent from my iPhone

On Jan 30, 2020, at 5:07 PM, Stover, Kathy (NIH/NIAID) [E] (b) (6) > wrote:

Reporter: Devika Desai



Outlet: National Post (Canadian news publication)  
Phone: (b) (6) e-mail: [DDesai@postmedia.com](mailto:DDesai@postmedia.com)  
Deadline: COB today (preferably by 1 pm)  
Topic: Vaccine development for novel coronavirus  
Clearance: Not yet sought

Hello to you both,

This reporter from the Canadian news publication *the National Post* is writing a story looking at the various efforts underway to create a vaccine to prevent infection with the novel coronavirus. She'd like to talk to someone at NIAID about our efforts, ballpark idea of how long we expect the process to take and also what it's like to work to create a vaccine under the pressure of a SARS-like outbreak like this one. She insists no more than 4 questions and that it shouldn't take more than 20 mins.

If either of you is available and interested in doing this, please let me know, and I'll get clearance.

Thanks much,  
Kathy

Kathy Stover  
Branch Chief  
News and Science Writing Branch  
Office of Communications and Government Relations  
National Institute of Allergy and Infectious Diseases  
National Institutes of Health  
31 Center Drive, Room 7A17F  
Bethesda, MD 20892  
(b) (6)  
Media line: (301) 402-1663



**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Mon, 6 Jan 2020 21:05:12 +0000  
**To:** Corbett, Kizzmekia (NIH/VRC) [E]  
**Subject:** Fwd: Wuhan

Please keep Confidential

FYI. Sounds like it will be coronavirus.

BG

Sent from my iPhone

Begin forwarded message:

**From:** "Embry, Alan (NIH/NIAID) [E]" (b) (6) >  
**Date:** January 6, 2020 at 3:58:21 PM EST  
**To:** "Marston, Hilary (NIH/NIAID) [E]" (b) (6), "Graham, Barney (NIH/VRC) [E]" (b) (6)  
**Subject:** Wuhan

Hilary and Barney,

Again, I don't know about the reliability of this information, but we heard that fragments of coronavirus RNA with an 86% homology to SARS has been found in one patient. Based on our call, it sounds like they may have more than this by now.

I'll let you know if we hear anything more.

Alan

**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Tue, 3 Mar 2020 11:30:03 +0000  
**To:** Michela Gallo  
**Cc:** Ilaria Ferlenghi; Manuela Cresti  
**Subject:** Re: CANCELED: Scientific Workshop 20th March GSK Siena  
**Attachments:** image001.png

Sorry about the timing of this. I look forward to being there in the future. Take care and stay well. I'm sure anxiety levels are high.

Best wishes,

Barney

Sent from my iPhone

On Mar 3, 2020, at 6:19 AM, Michela Gallo <(b) (6)> wrote:

Good morning,

This email to inform you that the 20<sup>th</sup> March scientific workshop in Siena is canceled due to the coronavirus (SARS-CO-2) outbreak.

I take the opportunity to thank you for the willingness of being part of the workshop, and I look forward to your participation in future when the Scientific Committee will re-organize it.

Best regards

*On behalf of the scientific and organizing committee*

**Michela Gallo**  
**Administrative Assistant Preclinical R&D**  
**RDC Italy**  
**GSK Vaccines S.r.l.**  
Via Fiorentina 1, 53100 Siena, Italy  
**Email** (b) (6)  
**Phone** (b) (6)  
**Mobile** (b) (6)

[gsk.com](http://gsk.com) | [Twitter](#) | [YouTube](#) | [Facebook](#) | [Flickr](#)

<image001.png>

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**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Sun, 29 Mar 2020 14:57:34 +0000  
**To:** jean-claude weill  
**Subject:** RE: Re: spike sequence  
**Attachments:** pnas201707304\_6u2pqh.pdf

Dr. Weill,

I have attached the sequence here. For your purposes.

(b) (4)

(b) (4)

I have also attached the 2017 PNAS reference that shows the alignment with other beta coronaviruses.

Take care,

Barney

(b) (4)

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

From: jean-claude weill (b) (6)

Sent: Friday, March 27, 2020 6:10 AM

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

Subject: Re:

Dear Barney,

It would be helpful if you could tell me (b) (4). I want to underline again that (b) (4)

(b) (4)

Merci

jean-claude

>>

--

Jean-Claude Weill

Professeur d'Immunologie

Responsable équipe "Développement du système immunitaire"

INEM - Institut Necker-Enfants Malades - INSERM U1151/CNRS UMR8253 Faculté de Médecine de  
l'Université de Paris - Site Necker

156-160 rue de Vaugirard

75015 Paris

tel: (b) (6)

<http://www.institut-necker-enfants-malades.fr/>

**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Fri, 20 Mar 2020 14:34:45 +0000  
**To:** Seder, Robert (NIH/VRC) [E]  
**Cc:** Gall, Jason (NIH/VRC) [C]; Mascola, John (NIH/VRC) [E]  
**Subject:** Re: Adjuvant supply for Covid-19  
**Attachments:** image001.png

(b) (5)

BG

Sent from my iPhone

On Mar 20, 2020, at 10:29 AM, Seder, Robert (NIH/VRC) [E] <(b) (6)> wrote:

This company is focused on allergy. (b) (5)

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:** Barney Graham (b) (6) >  
**Date:** Friday, March 20, 2020 at 10:10 AM  
**To:** "Gall, Jason (NIH/VRC) [C]" <(b) (6)>  
**Cc:** "Mascola, John (NIH/VRC) [E]" (b) (6), "Seder, Robert (NIH/VRC) [E]" (b) (6)  
**Subject:** FW: Adjuvant supply for Covid-19

(b) (5) I've never heard of microcrystalline tyrosine.

BG

---

**From:** Heath, Matthew <(b) (6)>  
**Sent:** Friday, March 20, 2020 8:47 AM  
**To:** Graham, Barney (NIH/VRC) [E] (b) (6) >



**Subject:** Adjuvant supply for Covid-19

**Importance:** High

Dear Dr Barney Graham,

We are reaching out to you in light of the global effort to develop a vaccine for the 2019-nCoV virus. Allergy Therapeutics (UK) Ltd develops innovative vaccines in the niche area of allergy immunotherapy. Within our portfolio, we have established and pioneered a biodegradable depot adjuvant called Microcrystalline Tyrosine (MCT), which features in a number of our registered vaccines and in our clinical development programme.

Building on the vast, already established, human dataset of safety, efficacy and tolerability of MCT, we realised that the mechanisms of action of MCT might lend themselves to uses outside of the field of allergy. Within the last few years, we have invested significant effort in exploring MCT mode-of-action applied across a broader vaccine scope, harnessing superior biological efficacy and physicochemical compatibility with a diverse array of antigens and vectors in a number of comparative adjuvant studies.

We have been engaged in collaborations with various organisations (b) (4)

(b) (4)

We have selected a number of publications for your attention below.

In essence, we believe there are synergies worth exploring that harness the benefits MCT can offer in vaccine development. Of particular note, MCT's physicochemical properties and mechanistic profile lends itself compatible with virus-like particle scaffolds, recombinant subunit vaccines or other platforms not yet tested, for example, mRNA vaccines – which illustrate a rationale for formulating and testing with MCT to optimize the induction of a protective immunological responses for candidate 2019-nCoV vaccines.

As such, we would be delighted to discuss the development, use, and free access of MCT to leverage your rapid and growing response programmes for 2019-nCoV.

Kind regards,

<image001.png>

---

Dr Matthew Heath  
Principal Scientist: Innovation & Product Development

---

Allergy Therapeutics (UK) Ltd, Dominion Way, Worthing,  
West Sussex, BN14 8SA, United Kingdom

[www.allergytherapeutics.com](http://www.allergytherapeutics.com)

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**Selected Publications**

Microcrystalline Tyrosine and Aluminum as Adjuvants in Allergen-Specific Immunotherapy Protect from IgE-Mediated Reactivity in Mouse Models and Act Independently of Inflammasome and TLR Signaling, doi: 10.4049/jimmunol.1800035

Vaccination with nanoparticles combined with micro-adjuvants protects against cancer. doi: 10.1186/s40425-019-0587-z.

Microcrystalline Tyrosine (MCT®): A Depot Adjuvant in Licensed Allergy Immunotherapy Offers New Opportunities in Malaria, doi:10.3390/vaccines5040032

Virus-Like Particle (VLP) Plus Microcrystalline Tyrosine (MCT) Adjuvants Enhance Vaccine Efficacy Improving T and B Cell Immunogenicity and Protection against Plasmodium berghei/vivax, doi:10.3390/vaccines5020010

Comparison of a novel microcrystalline tyrosine adjuvant with aluminium hydroxide for enhancing vaccination against seasonal influenza. doi: 10.1186/s12879-017-2329-5.

The adsorption of allergoids and 3-O-desacyl-4-monophosphoryl lipid A (MPL®) to microcrystalline tyrosine (MCT) in formulations for use in allergy immunotherapy, doi.org/10.1016/j.jinorgbio.2015.08.007

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**Allergy  
Therapeutics**

**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Fri, 1 May 2020 15:34:12 +0000  
**To:** Cassetti, Cristina (NIH/NIAID) [E]  
**Cc:** McDermott, Adrian (NIH/VRC) [E]; McCormick, Christina (NIH/NIAID) [E]; Bok, Karin (NIH/VRC) [E]; Mascola, John (NIH/VRC) [E]  
**Subject:** Re: Invitation to attend and present at COVID-19 Serology workshop on May 7

Hi Cristina. We will discuss internally here and promise someone from VRC will do this. Agree with John that Adrian may be best for this.

BG

Sent from my iPhone

On May 1, 2020, at 11:32 AM, Cassetti, Cristina (NIH/NIAID) [E] <(b) (6)> wrote:

Great, thank you Adrian.

Please let us know if anybody from the VRC is available to give the presentation on "Serology's role in informing vaccine development"

Cheers,

Cristina

---

**From:** McDermott, Adrian (NIH/VRC) [E] <(b) (6)>  
**Sent:** Friday, May 1, 2020 11:26 AM  
**To:** Cassetti, Cristina (NIH/NIAID) [E] <(b) (6)>  
**Cc:** McCormick, Christina (NIH/NIAID) [E] <(b) (6)>; Bok, Karin (NIH/VRC) [E] <(b) (6)>; Mascola, John (NIH/VRC) [E] <(b) (6)>; Graham, Barney (NIH/VRC) [E] <(b) (6)>  
**Subject:** Re: Invitation to attend and present at COVID-19 Serology workshop on May 7

Dear Cristina,

I am already registered for the meeting. Very much look forward to it.

Thanks

Adrian

---

**From:** John Mascola <(b) (6)>  
**Date:** Friday, May 1, 2020 at 11:15 AM



**To:** "Cassetti, Cristina (NIH/NIAID) [E]" (b) (6), Barney Graham  
<(b) (6), "McDermott, Adrian (NIH/VRC) [E]" (b) (6)>  
**Cc:** "McCormick, Christina (NIH/NIAID) [E]" (b) (6) "Bok, Karin  
(NIH/VRC) [E]" (b) (6)  
**Subject:** RE: Invitation to attend and present at COVID-19 Serology workshop on May 7

Hi Cristina,

Adding Karin Bok and Adrian McDermott here to help see what VRC can do.  
Adrian might be best person to participate in this workshop.

Best,  
John

---

**From:** Cassetti, Cristina (NIH/NIAID) [E] (b) (6)  
**Sent:** Friday, May 1, 2020 8:17 AM  
**To:** Graham, Barney (NIH/VRC) [E] (b) (6); Mascola, John (NIH/VRC) [E]  
(b) (6)  
**Cc:** McCormick, Christina (NIH/NIAID) [E] (b) (6)  
**Subject:** RE: Invitation to attend and present at COVID-19 Serology workshop on May 7

Hi Barney and John,  
Re-sending the invitation. Can you please let us know?  
Thank you,  
Cristina

---

**From:** Cassetti, Cristina (NIH/NIAID) [E]  
**Sent:** Wednesday, April 29, 2020 3:21 PM  
**To:** Graham, Barney (NIH/VRC) [E] (b) (6); Mascola, John (NIH/VRC) [E]  
(b) (6)>  
**Cc:** McCormick, Christina (NIH/NIAID) [E] <(b) (6)>  
**Subject:** Invitation to attend and present at COVID-19 Serology workshop on May 7

Dear Barney and John,

We are pleased to invite you to the **COVID-19 Serological Studies Virtual Workshop** to be held on Thursday, May 7, 2020 from 10:00AM – 6:00PM EST and for one of you to give a presentation on "Serology's role in informing and developing vaccines" - see attached agenda.

This meeting is being organized by the Serology Research and Development (R&D) working group formed under an inter-agency project team at the Department of Health and Human Services to understand the opportunities and limitations of COVID-19 serological diagnostics. The mission of the R&D working group is to accelerate the evaluation of serological diagnostics tests and generate the scientific evidence needed to guide decisions from top leadership on back to work policies.

The goals of this workshop will be to:

1. Review ongoing serosurvey studies

2. Review current knowledge on serological assay performance
3. Identify gaps and outstanding issues
4. Deliver a summary and recommendations document for understanding and executing future serological studies

Please confirm your attendance by

registering here: [REDACTED] (b) (6)

[REDACTED].

After registering, you will receive a confirmation email containing information about joining the meeting. This meeting is invite-only and password protected, please do not forward the invite or share your Zoom meeting information, including your password, with anyone else. A draft agenda is attached.

We hope that you are able to accept this invitation. If you have any questions regarding the meeting, please contact Christina McCormick at [REDACTED] (b) (6).

Thank you,  
Cristina Cassetti and Matthew Hepburn

Cristina Cassetti, Ph.D.  
Deputy Director  
Division of Microbiology and Infectious Diseases  
National Institute of Allergy and Infectious Diseases, NIH  
[5601 Fishers Lane](#), Room 7G51  
[Rockville, MD 20852](#)

Tel: [REDACTED] (b) (6)

[REDACTED] (b) (6)

**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Sat, 15 Feb 2020 21:37:27 +0000  
**To:** Durbin, Anna (NIH)  
**Cc:** Young, Monique (NIH/VRC) [E]; Jay Bream  
**Subject:** Re: Lecture in Biological Basis of Vaccine Development

Monique and I will check and get back with you. We are indeed busy.

BG

Sent from my iPhone

On Feb 13, 2020, at 3:14 PM, Anna P Durbin (b) (6) wrote:

Dear Barney,

I just wanted to follow-up and see if you would be available again this year to lecture in the biological basis of vaccine development class. I know you must be very busy but hoped you might be able to fit us in. I am sure the VRC is working on a coronavirus vaccine. I've attached a letter of invitation with the dates listed. Just let me know if you have any preference. If your schedule doesn't allow this year, is there someone you would recommend? Your lecture is always very popular because of the novel vaccine designs that come from VRC!

Thanks so much!

Anna

Anna Durbin, M.D.  
Professor  
Johns Hopkins Bloomberg School of Public Health  
624 N. Broadway, Room 251  
Baltimore, MD 21205

(b) (6)  
(b) (6)

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<Dr. Graham.docx>

**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Wed, 18 Mar 2020 13:30:35 +0000  
**To:** Corbett, Kizzmekia (NIH/VRC) [E]; Stein, Judy (NIH/VRC) [C]  
**Subject:** RE: Can you please send the signed inventorship form

Probably not unless [REDACTED] (b) (5) I will be in tomorrow and we can talk about it and sign the forms if warranted.

BG

---

**From:** Corbett, Kizzmekia (NIH/VRC) [E] <[REDACTED] (b) (6)>  
**Sent:** Wednesday, March 18, 2020 9:25 AM  
**To:** Stein, Judy (NIH/VRC) [C] [REDACTED] (b) (6)  
**Cc:** Graham, Barney (NIH/VRC) [E] [REDACTED] (b) (6)  
**Subject:** Re: Can you please send the signed inventorship form

I don't believe that completing and planning [REDACTED] (b) (5) warrant inventorship. What are your 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:** "Stein, Judy (NIH/VRC) [C]" [REDACTED] (b) (6)  
**Date:** Wednesday, March 18, 2020 at 9:24 AM  
**To:** Kizzmekia Corbett [REDACTED] (b) (6)  
**Subject:** Can you please send the signed inventorship form

Hi Kizzmekia,  
If you do, I can send Vince the EIR so that he can docket it. Barney can sign when he is back.  
Thanks,  
Judy

**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Wed, 19 Feb 2020 19:31:47 +0000  
**To:** Jason McLellan; Hiatt, Nissa (NIH/VRC) [C]; Routh, Jennifer (NIH/NIAID) [E]  
**Subject:** RE: Science paper on novel coronavirus 2019-nCoV for Immediate Release

I think it's important to preface everything by saying historically it has taken ~2 decades to go from virus discovery to licensed vaccine.

BG

---

**From:** Jason McLellan (b) (6)  
**Sent:** Wednesday, February 19, 2020 2:25 PM  
**To:** Graham, Barney (NIH/VRC) [E] (b) (6); Hiatt, Nissa (NIH/VRC) [C]  
(b) (6); Routh, Jennifer (NIH/NIAID) [E] (b) (6)  
**Subject:** RE: Science paper on novel coronavirus 2019-nCoV for Immediate Release

A fact sheet would be great. I get asked the same questions over and over. People are particularly interested in how long it will take for a vaccine to be developed. I thought optimistically 18-24 months.

-Jason

---

**From:** Graham, Barney (NIH/VRC) [E] (b) (6)>  
**Sent:** Wednesday, February 19, 2020 10:57 AM  
**To:** Jason McLellan (b) (6)>; Hiatt, Nissa (NIH/VRC) [C] <(b) (6)>  
Routh, Jennifer (NIH/NIAID) [E] (b) (6)>  
**Subject:** RE: Science paper on novel coronavirus 2019-nCoV for Immediate Release

I think we need to have a fact sheet that answers some of these questions that are going to come up repeatedly. If Nissa and OCGR recommend we connect with selected reporters, we will find a way to answer.

Today and tomorrow we are trying to have an EV-D68 workshop (which will be a problem in September), but I can step out. I'm only going to be able to listen about half the time.

BG

---

**From:** Jason McLellan (b) (6)  
**Sent:** Wednesday, February 19, 2020 11:49 AM  
**To:** Graham, Barney (NIH/VRC) [E] (b) (6)>; Hiatt, Nissa (NIH/VRC) [C]  
(b) (6)>; Routh, Jennifer (NIH/NIAID) [E] (b) (6)>  
**Subject:** RE: Science paper on novel coronavirus 2019-nCoV for Immediate Release

Are you going to reply to that person, Barney?

Jason

---

**From:** Graham, Barney (NIH/VRC) [E] (b) (6) >  
**Sent:** Wednesday, February 19, 2020 10:41 AM  
**To:** Hiatt, Nissa (NIH/VRC) [C] <(b) (6)>; Routh, Jennifer (NIH/NIAID) [E]  
(b) (6) >  
**Cc:** Jason McLellan (b) (6) >  
**Subject:** Fwd: Science paper on novel coronavirus 2019-nCoV for Immediate Release

FYI. This set of questions is going to come repeatedly. Some of them are answered in the paper itself. E.g. the assertion is explained in the final paragraph.

Barney

Sent from my iPhone

Begin forwarded message:

**From:** Arthur Allen <aallen@politico.com>  
**Date:** February 19, 2020 at 10:42:15 AM EST  
**To:** "(b) (6)" (b) (6) "Graham, Barney (NIH/VRC) [E]"  
(b) (6)  
**Subject:** FW: Science paper on novel coronavirus 2019-nCoV for Immediate Release

**Hi there and congratulations on what looks to be some amazing science. In fact, the science you describe in this paper is way beyond my pay grade. But I had a few questions. Could I speak with one of you, or could one of you answer these questions by email?:**

--what's the public health/countermeasures-development significance of the fact that SARS RBD-specific mABs don't bind to the 2019Covid virus?

--why exactly do you assert in abstract that the structure you've detected should enable rapid development and evaluation of MCMs? What is basis of that—what finding might have occurred that would have been counterfactual to this assertion?

--one of the potential risks that has been brought up in the design of 2019-COVID vaccines is the antibody-dependent enhancement issue. Would your findings here have any bearing on that?

--does your research further refute the idea that 2019-COVID was created in a laboratory?

Thanks, best

Arthur Allen

POLITICO

Author, *Vaccine: the controversial story of medicine's greatest lifesaver* (WW Norton, 2007)

---

**From:** SciPak <[scipak@aaas.org](mailto:scipak@aaas.org)>

**Sent:** Wednesday, February 19, 2020 10:00 AM

**To:** Arthur Allen <[aallen@politico.com](mailto:aallen@politico.com)>

**Subject:** Science paper on novel coronavirus 2019-nCoV for Immediate Release

Science paper on novel coronavirus 2019-nCoV for Immediate  
Release

[View this email in your browser](#)



Dear SciPak Registrants,

*Science* is publishing the paper, "Cryo-EM Structure of the 2019-nCoV Spike in the Prefusion Conformation," by Daniel Wrapp and colleagues, for immediate release (with no embargo). A PDF version of this paper and a related press release from University of Texas at Austin can be found on the top of the SciPak portal on EurekAlert!: <https://www.eurekalert.org/jmls/sci/>

The paper is also available freely at Science's site:

<https://science.sciencemag.org/lookup/doi/10.1126/science.abb2507> A lay summary of this work can be found at the bottom of this email.

Author contacts for this study are as follows:

Jason McLellan (b) (6) email).

Barney Graham at (b) (6) (email).

Thank you,



The Science Press Package Team, Office of Public Programs

American Association for the Advancement of Science

1200 New York Avenue, NW | Washington, DC 20005

Phone: 202-326-6440 | E-mail: [scipak@aaaas.org](mailto:scipak@aaaas.org)

Twitter: @scipak | [www.aaaas.org](http://www.aaaas.org)

## **Determined: The Atomic-Level Structure of the Spike Protein of the Novel Coronavirus**

Just weeks after the genome sequence of recently emerged coronavirus – 2019-nCoV – was published online, researchers have reported the cryogenic electron microscopy (cryo-EM) structure of the spike (S) protein it uses to gain entry to host cells. The insights from their new study may inform efforts to design a precision vaccine against the virus and efforts to design antivirals. The 2019-nCoV makes use of a spike protein to recognize a host receptor and drive the fusion of the viral envelope with the target cell membrane, during viral entry. Binding triggers a structural change of the S protein that facilitates membrane fusion. The S protein thus represents an important target for therapy, and characterization of its structure before fusion would provide information to guide vaccine design and development. Here, using the reported genome sequence of 2019-nCoV to make and purify viral proteins for analysis, Daniel Wrapp and colleagues report the 3.5 angstrom cryo-EM structure of the spike protein of 2019-nCoV. Their analysis confirms the predicted similarity to the SARS coronavirus spike. However, the authors also report that the affinity of the 2019-nCoV S protein for human ACE2, the entry point into human cells for some coronaviruses, is ten-times higher than in the case of SARS. This provides a potential explanation for the apparent ease of human-to-human transmission demonstrated for the new virus, the authors say, though more studies are needed to investigate this possibility.



---

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**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Thu, 26 Mar 2020 22:46:51 +0000  
**To:** Lowy, Douglas (NIH/NCI) [E]; Lane, Cliff (NIH/NIAID) [E]; Corbett, Kizzmekia (NIH/VRC) [E]  
**Cc:** Ledgerwood, Julie (NIH/NIAID) [E]; Sharpless, Norman (NIH/NCI) [E]; Pinto, Ligia (NIH/NCI) [C]; Kemp, Troy (NIH/NCI) [C]  
**Subject:** RE: Urgent need for sera for SARS-CoV-2 serology for FDA qualification

Likewise, we are working toward having panels of convalescent sera for diagnostics development and pools of serum for establishing standards. We are still waiting to gain access to these types of samples.

Barney

---

**From:** Lowy, Douglas (NIH/NCI) [E] (b) (6) >  
**Sent:** Thursday, March 26, 2020 5:55 PM  
**To:** Lane, Cliff (NIH/NIAID) [E] (b) (6); Graham, Barney (NIH/VRC) [E] (b) (6); Corbett, Kizzmekia (NIH/VRC) [E] (b) (6) >  
**Cc:** Ledgerwood, Julie (NIH/NIAID) [E] (b) (6); Sharpless, Norman (NIH/NCI) [E] (b) (6) >; Pinto, Ligia (NIH/NCI) [C] (b) (6) >; Kemp, Troy (NIH/NCI) [C] (b) (6) >  
**Subject:** Re: Urgent need for sera for SARS-CoV-2 serology for FDA qualification

Cliff: Thanks for letting us know. Doug

---

**From:** "Lane, Cliff (NIH/NIAID) [E]" (b) (6)  
**Date:** Thursday, March 26, 2020 at 5:54 PM  
**To:** "Lowy, Douglas (NIH/NCI) [E]" (b) (6) >, "Graham, Barney (NIH/VRC) [E]" (b) (6), "Corbett, Kizzmekia (NIH/VRC) [E]" (b) (6) >  
**Cc:** "Ledgerwood, Julie (NIH/NIAID) [E]" (b) (6), "Sharpless, Norman (NIH/NCI) [E]" (b) (6) >, "Pinto, Ligia (NIH/NCI) [C]" (b) (6), "Kemp, Troy (NIH/NCI) [C]" (b) (6) >  
**Subject:** Re: Urgent need for sera for SARS-CoV-2 serology for FDA qualification

Doug,

I am sorry that I do not have characterized sera at this point. In the fairly near future we should be getting serum for potential plasma donors. We will only be testing them for neutralizing antibody at this point.

Cliff

---

**From:** "Lowy, Douglas (NIH/NCI) [E]" (b) (6) >  
**Date:** Thursday, March 26, 2020 at 5:45 PM  
**To:** Barney Graham <(b) (6)>, "Lane, Cliff (NIH/NIAID) [E]"  
(b) (6), "Corbett, Kizzmekia (NIH/VRC) [E]" (b) (6) >  
**Cc:** "Ledgerwood, Julie (NIH/NIAID) [E]" (b) (6), "Sharpless, Norman  
(NIH/NCI) [E]" (b) (6), "Pinto, Ligia (NIH/NCI) [C]" (b) (6)  
"Kemp, Troy (NIH/NCI) [C]" (b) (6) >  
**Subject:** Urgent need for sera for SARS-CoV-2 serology for FDA qualification

Barney, Cliff, and Kizzmekia,

Today Ned and I talked with FDA staff about the NIAID/NCI collaboration with the FNL serology lab. The FDA staff have been tasked with assessing the validity of the various IgM and IgG tests for SARS-CoV-2 that have been sent to them. They have asked the FNL serology lab to qualify/validate the tests that FDA thinks may have reasonable performance characteristics.

*I am hoping that one of you, or someone else in NIAID, will be able to send us sera. Here's the ideal list:*

(b) (5)

As you can imagine, the FDA is under tremendous pressure to make decisions about these tests, so they would like us to evaluate the tests as quickly as possible. Feel free to call me anytime to discuss: (b) (6)

Many thanks,  
Doug

Here's the address of the FNL serology lab:  
Ligia A. Pinto, PhD  
Director, Vaccine, Immunity and Cancer Program  
Applied and Developmental Research Directorate  
Leidos Biomedical Research Inc.  
Frederick National Laboratory for Cancer Research  
Building 469, Room 111  
Frederick MD 21702  
Phone: (b) (6)  
Email (b) (6)

**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Mon, 23 Mar 2020 21:55:29 +0000  
**To:** Mascola, John (NIH/VRC) [E]; Roederer, Mario (NIH/VRC) [E]  
**Cc:** Seder, Robert (NIH/VRC) [E]  
**Subject:** RE: Possible Interest in Collaboration and Letter of Support for Corona-based proposal?

I don't remember doing anything like this?

BG

---

**From:** Mascola, John (NIH/VRC) [E] (b) (6)  
**Sent:** Monday, March 23, 2020 5:50 PM  
**To:** Roederer, Mario (NIH/VRC) [E] (b) (6); Graham, Barney (NIH/VRC) [E]  
(b) (6)  
**Cc:** Seder, Robert (NIH/VRC) [E] <(b) (6)>  
**Subject:** RE: Possible Interest in Collaboration and Letter of Support for Corona-based proposal?

I have not heard anything about this.

John

---

**From:** Roederer, Mario (NIH/VRC) [E] (b) (6)  
**Sent:** Monday, March 23, 2020 12:45 PM  
**To:** Mascola, John (NIH/VRC) [E] (b) (6); Graham, Barney (NIH/VRC) [E]  
(b) (6)  
**Cc:** Seder, Robert (NIH/VRC) [E] (b) (6)  
**Subject:** Fwd: Possible Interest in Collaboration and Letter of Support for Corona-based proposal?

Have you heard of these?

(b) (5)  
.

mr

---

Mario Roederer, Ph.D.  
Senior Investigator, [ImmunoTechnology Section](#)  
Vaccine Research Center, NIAID, NIH  
40 Convent Dr., Room 5509  
Bethesda, MD 20892-3015  
Phone: (b) (6)  
FAX: 301 480-2788

Begin forwarded message:

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

**Subject:** Possible Interest in Collaboration and Letter of Support for Corona-based proposal?

**Date:** March 18, 2020 at 2:25:30 PM EDT

**To:** <(b) (6)>

Dear Dr. Roederer

Our Protein-Engineering Group has been working on (b) (4)

(b) (4)

(b) (4) They have a (b) (4)

(b) (4).

(b) (4)

We are currently planning to (b) (4) for a special COVID-19 call (due in a few days), in which we are planning to to the following

(b) (4)

We would like to ask you whether you might be interested in collaborating, (b) (4)

(b) (4)

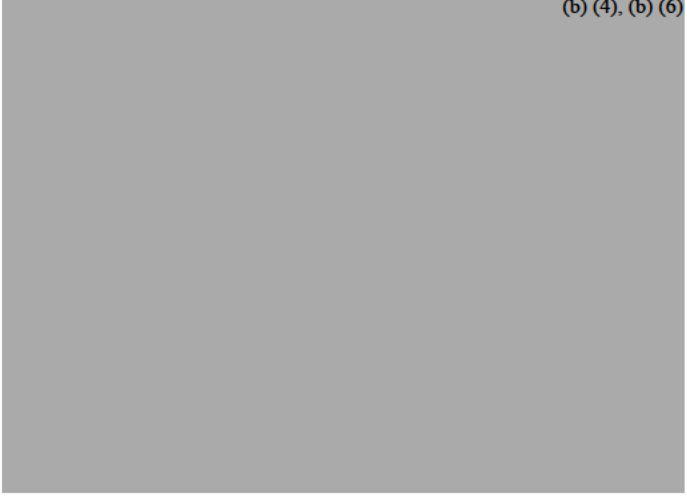
If you could imagine such a collaboration, we could have a skype call any time to discuss this and whether you could imagine to write a letter of support for this proposal (if you think it is reasonable).

Many thanks for your consideration.

Best regards

(b) (4)

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





**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Fri, 24 Apr 2020 12:37:04 +0000  
**To:** Corbett, Kizzmekia (NIH/VRC) [E]  
**Subject:** Re: Letter for [REDACTED] (b) (4)

Hi Kizzy.

Is this the letter for Sallie Permar?

I would need to review and sign and have John's office also sign off.

TTIPO doesn't review or sign this. And typically Judy doesn't see these either.

BG

Sent from my iPhone

On Apr 24, 2020, at 8:32 AM, Corbett, Kizzmekia (NIH/VRC) [E]  
[REDACTED] (b) (6) wrote:

Good morning De Paris, Sure we will send the letter, which I believe is being reviewed by TTIPO. Judy Stein 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

Building 40 Room 2608  
40 Convent Drive  
Bethesda MD 20892

Laboratory: [REDACTED] (b) (6)

Personal: [REDACTED] (b) (6)

Fax: (301) 480-2771

---

**From:** Kristina Abel [REDACTED] (b) (6)  
**Date:** Friday, April 24, 2020 at 8:27 AM

**To:** Kizzmekia Corbett [REDACTED] (b) (6) >

**Subject:** Letter for [REDACTED] (b) (4)

Dear Kizzy,

We have all document ready to go for our SARS-CoV2 [REDACTED] (b) (4) - please could you sign the letter of support and return to us? I attached a draft letter, but feel free to edit it.

Thanks so much!

Best,- Kristina

**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Fri, 6 Mar 2020 20:35:12 +0000  
**To:** Schuster, Henry  
**Cc:** Neil King;David Baker;Leila R Gray;Lance Stewart;Ian C Haydon;Routh, Jennifer (NIH/NIAID) [E];Turcotte, Sarah  
**Subject:** RE: IPD

Sorry, but I am not going to be able to make this call. Just finished another VIP visit and too much going on at the moment.

Barney

---

**From:** Schuster, Henry <MHS@cbsnews.com>  
**Sent:** Friday, March 6, 2020 1:22 PM  
**To:** Graham, Barney (NIH/VRC) [E] (b) (6) >  
**Cc:** Neil King (b) (6) >; David Baker (b) (6) >; Leila R Gray (b) (6) >; Lance Stewart (b) (6) >; Ian C Haydon (b) (6) >; Turcotte, Sarah <TurcotteS@cbsnews.com>  
**Subject:** Re: IPD

We'll start reading

Henry Schuster  
(b) (6)

Sent from my iPhone

On Mar 6, 2020, at 1:14 PM, Graham, Barney (NIH/VRC) [E] (b) (6) > wrote:

**External Email**

These are a few papers that give you a sense for how we think about viruses, vaccine development, and pandemic preparedness.

Barney

---

**From:** Schuster, Henry <[MHS@cbsnews.com](mailto:MHS@cbsnews.com)>

**Sent:** Friday, March 6, 2020 1:01 PM

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

**Cc:** David Baker (b) (6); Leila R Gray (b) (6); Lance Stewart (b) (6); Ian C Haydon (b) (6); Turcotte, Sarah <[TurcotteS@cbsnews.com](mailto:TurcotteS@cbsnews.com)>

**Subject:** RE: IPD

David gave me a great overview of protein design and some about coronavirus, but he suggested the two of you would be best suited to give us more detail about vaccines, proteins and coronavirus, so that's where we would like to focus. But we don't know what we don't know so we appreciate any information that puts this in the proper context.

**Henry Schuster**

<image001.png>

**60 Minutes Producer**

**mobile:** (b) (6)

---

**From:** Neil King (b) (6)

**Sent:** Friday, March 6, 2020 12:49 PM

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

**Cc:** Schuster, Henry <[MHS@cbsnews.com](mailto:MHS@cbsnews.com)>; David Baker (b) (6); Leila R Gray (b) (6); Lance Stewart (b) (6); Ian C Haydon (b) (6); Turcotte, Sarah <[TurcotteS@cbsnews.com](mailto:TurcotteS@cbsnews.com)>

**Subject:** Re: IPD

**External Email**

Or protein design generally?

On Fri, Mar 6, 2020 at 9:47 AM Graham, Barney (NIH/VRC) [E] (b) (6)> wrote:

I will try to be on the 4 pm call.

Are we talking about RSV, influenza or coronaviruses?

Barney

---

**From:** Schuster, Henry <[MHS@cbsnews.com](mailto:MHS@cbsnews.com)>

**Sent:** Friday, March 6, 2020 9:18 AM

**To:** David Baker <(b) (6)>; Graham, Barney (NIH/VRC) [E] (b) (6); Leila R Gray (b) (6); Lance Stewart <(b) (6)>; Ian C Haydon (b) (6); Neil King (b) (6)>

Cc: Turcotte, Sarah <[TurcotteS@cbsnews.com](mailto:TurcotteS@cbsnews.com)>

Subject: RE: IPD

Neal and Barney,

I wonder if each of you might have time for a phone call. We're producers for 60 MINUTES and we reached out to David at the suggestion of George Church, who pointed us toward the work going on at the IPD.

At the moment, we're just looking at a variety of angles and trying to get ourselves up to speed so we can help 60 MINUTES offer intelligent and forward-leaning coverage.

A call with us would be only for research purposes.

If you have any time in your schedule, we would greatly appreciate it. And in advance of any call, if there is anything you think we should read, please let us know.

Regards,

Henry

**Henry Schuster**

<image001.png>

**60 Minutes Producer**

mobile: (b) (6)

---

**From:** David Baker <(b) (6)>

**Sent:** Thursday, March 5, 2020 5:48 PM

**To:** Schuster, Henry <[MHS@cbsnews.com](mailto:MHS@cbsnews.com)>; Barney Graham (b) (6); Leila R Gray (b) (6); Lance Stewart <(b) (6)>; Ian C Haydon (b) (6); Neil King (b) (6)

**Cc:** Turcotte, Sarah <[TurcotteS@cbsnews.com](mailto:TurcotteS@cbsnews.com)>

**Subject:** Re: IPD

**External Email**

Hi Henry,

Neil cc'd above is leading up vaccine efforts at the IPD and Barney is our lead collaborator at the NIH VRC. Let us know if you decide to visit!

David

On Mar 5, 2020, at 2:24 PM, Schuster, Henry <[MHS@cbsnews.com](mailto:MHS@cbsnews.com)> wrote:

David,

Thank you again for your insights yesterday. Our plans are of course dynamic so I don't know if/when we will get out there. But if you don't mind putting me in touch with your vaccine colleagues at IPD and also NIH, I would be grateful.

Sarah, also on this email, is my colleague and I have shared with her the notes from our call yesterday.

Regards,

Henry

**Henry Schuster** <image001.png> **60 Minutes Producer**

**mobile:** (b) (6)

---

**From:** David Baker (b) (6)

**Sent:** Tuesday, March 3, 2020 1:06 AM

**To:** Lance Stewart (b) (6); ipdadmin (b) (6) >

**Cc:** Schuster, Henry <[MHS@cbsnews.com](mailto:MHS@cbsnews.com)>

**Subject:** Re: IPD

**External Email>**

I'll be back tomorrow afternoon. Leslie can schedule a time to talk, perhaps Wednesday?

On Mar 2, 2020, at 12:21 PM, Lance Stewart (b) (6) wrote:

Hi Jay, thanks for the introduction (moving you to bcc to avoid spam).

Henry. David traveling the next couple of days. Let me know if I can be of assistance.

Best wishes.

Lance.

Lance Stewart, Ph.D. MBA  
Chief Strategy and Operations Officer  
Institute for Protein Design

Cell: (b) (6)

Tel: (b) (6)

Email: (b) (6)

University of Washington  
Molecular Engineering and Sciences Building  
3946 W Stevens Way NE  
Seattle, WA 98195-1655

On Mar 2, 2020, at 7:35 AM, Schuster, Henry <[MHS@cbsnews.com](mailto:MHS@cbsnews.com)> wrote:



Thanks. Is there a good time to talk in the next couple of days? And would you recommend any reading material in advance from your site or elsewhere?

Regards,

Sent from my iPad

On Mar 2, 2020, at 10:33 AM, Jay Shendure (b) (6) > wrote:

External Email->

Hi Henry,

You absolutely should and that would be David Baker and/or Lance Stewart. I am taking the liberty of adding them here.

Lance/David -- Henry is a producer at 60 Minutes (and led the recent feature on George Church)

Henry -- David is Scientific Director and Lance is Chief Strategy and Operations Officer of the IPD, which I can support George in saying is leading the way to the future on many fronts, including but not limited to vaccines and drugs.

Best,

Jay

---

Jay Shendure, MD, PhD  
Investigator, Howard Hughes Medical Institute  
Director, Allen Discovery Center for Lineage Tracing  
Director, Brotman Baty Institute for Precision Medicine  
Professor, Genome Sciences, University of Washington

(b) (6) | (b) (6)

---

On Mon, Mar 2, 2020 at 7:20 AM Schuster, Henry <[MHS@cbsnews.com](mailto:MHS@cbsnews.com)> wrote:  
George suggests we should learn more about how IPD is leading the way on research for vaccines and drugs.

Who is the best person to speak with?

Henry Schuster

(b) (6)

Sent from my iPhone

<EID vaccine development Nat Immunol 2017.pdf>

<Structure=Based Vaccine Design 2019.pdf>

<JAMA Vaccine Platform Technologies 2018.pdf>

<nCoV spike structure Science 2020.pdf>

**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Tue, 21 Apr 2020 22:29:38 +0000  
**To:** Edwards, Kathryn  
**Subject:** Re: Few things

I told Stanley that I would do Zika and Kaitlyn Morabito who is going from our group to head the flavivirus section in DMID will help, and Ted Pierson will probably also help.

We are making progress.

Take care,

Barney

Sent from my iPhone

On Apr 21, 2020, at 5:27 PM, Edwards, Kathryn <(b) (6)> wrote:

First of all I think about you every day and hope that you are hanging in there. I lectured about covid 19 vaccines today to the medical students and bragged about you.

Regarding chapters for the Plotkin Vaccine Textbook, for the new Coronavirus chapter, I got Stan and Mark to commit to writing the chapter with you. So they will do the heavy lifting.

You wrote the Zika chapter last edition, do you want to do that again? Do you want to ask one of your young people to write this with you? They could do the heavy lifting. But fine to say no to this. I just need to get the official list to the publisher. thanks so much.

**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Tue, 31 Mar 2020 22:58:14 +0000  
**To:** Corbett, Kizzmekia (NIH/VRC) [E]  
**Subject:** Figures\_BG  
**Attachments:** Figures\_BG.docx

Edited figure legends.

BG

**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Sun, 9 Feb 2020 03:03:14 +0000  
**To:** Daniel P. Wrapp  
**Cc:** Jason  
McLellan; [REDACTED] (b) (6)  
**Subject:** Re: Manuscript v3  
**Attachments:** image001.png

Since I can't get to the shared drive can you try sending the updated figures?

Barney

Sent from my iPhone

On Feb 8, 2020, at 9:57 PM, Daniel P. Wrapp [REDACTED] (b) (6) wrote:

Hello all,

I've incorporated the edits from Barney and myself into a revised manuscript (v5) and attached the clean version here. I've also added color coding to SFig 5 (the Spike sequence alignment) and put the updated Figures PPT file on the drive as "WuCoV S Figures v5.pptx". Safe travels Jason, we're looking forward to having you back!

Daniel

**From:** Daniel P. Wrapp [REDACTED] (b) (6) >  
**Sent:** Saturday, February 8, 2020 6:28 PM  
**To:** Graham, Barney (NIH/VRC) [E] [REDACTED] (b) (6) >; Jason McLellan  
[REDACTED] (b) (6)  
[REDACTED] (b) (6)  
[REDACTED] (b) (6)  
**Subject:** Re: Re: Manuscript v3

Thanks very much Barney. I'll incorporate these edits and mock-up a color-code for the sequence alignment supplementary figure.

Daniel

**From:** Graham, Barney (NIH/VRC) [E] <[REDACTED] (b) (6)>  
**Sent:** Saturday, February 8, 2020 6:23 PM  
**To:** Jason McLellan [REDACTED] (b) (6)  
[REDACTED] (b) (6)  
[REDACTED] (b) (6) >; Daniel P. Wrapp  
[REDACTED] (b) (6)  
**Subject:** RE: Re: Manuscript v3

Here are a few more edits and comments, especially around the cleavage site discussion and the last paragraph, but also in a few other places.

Also supplementary figure 5 could use a color coding chart. It is not easy to go back and forth between Figure 1 and Fig S5 to interpret.

Looking good. I can probably make one more pass through tomorrow evening.

Barney

---

**From:** Jason McLellan (b) (6)  
**Sent:** Saturday, February 8, 2020 4:59 PM  
**To:** (b) (6)  
(b) (6); Daniel P. Wrapp (b) (6)  
**Cc:** Graham, Barney (NIH/VRC) [E] (b) (6)  
**Subject:** Re: Re: Manuscript v3

Ok, thanks.

- sent from my phone

---

**From:** Daniel P. Wrapp <(b) (6)>  
**Sent:** Saturday, February 8, 2020 10:58:00 PM  
**To:** Jason McLellan (b) (6)  
(b) (6)  
(b) (6)>  
**Cc:** Graham, Barney (NIH/VRC) [E] (b) (6)>  
**Subject:** Re: Re: Manuscript v3

Missed your three Figure legend comments from v3-JSM2. I'll incorporate the appropriate edits into v5.

Daniel

---

**From:** Jason McLellan <(b) (6)>  
**Sent:** Saturday, February 8, 2020 2:54 PM  
**To:** Daniel P. Wrapp (b) (6)  
(b) (6)  
(b) (6)  
**Cc:** Graham, Barney (NIH/VRC) [E] (b) (6)  
**Subject:** RE: Re: Manuscript v3

Hi Everyone,



Attached are my edits/comments, this time with tracked changes. Mostly minor stuff and edits to improve clarity/accuracy.

Daniel, did you get a chance to go through the figure legends and make corrections? It seemed like some of my comments from the previous iteration weren't addressed or responded to.

Ok, I'm off to bed, and will head to the airport in 5 hours. Try to get me one more version within the next 8-12 hours if possible.

We're on track for a Monday submission!

Cheers,  
Jason

---

**From:** Daniel P. Wrapp (b) (6)  
**Sent:** Saturday, February 8, 2020 2:12 PM  
**To:** Jason McLellan (b) (6);  
(b) (6);>  
(b) (6)>  
**Cc:** Graham, Barney (NIH/VRC) [E] (b) (6)>  
**Subject:** Re: Re: Manuscript v3

Hello all,

I've incorporated edits from Nianshuang, Barney and myself into a new version of the manuscript, which is attached here as v4. I've attached the clean version, but if anybody wants to go back and see the tracked changes, that version is also available on the drive.

Daniel

---

**From:** Jason McLellan (b) (6)  
**Sent:** Saturday, February 8, 2020 1:02 PM  
**To:** (b) (6)>; Daniel P. Wrapp  
(b) (6)  
(b) (6)  
(b) (6)>  
**Cc:** Graham, Barney (NIH/VRC) [E] (b) (6)  
**Subject:** RE: Re: Manuscript v3

Thanks Nianshuang for the many good citations and pointing out the recent Nature paper where they demonstrate nCoV can use ACE2. Looks like they didn't determine the binding affinity though, so that is still novel for us.

Thanks also for the (b) (4). Seems a bit complicated, so we can reword our sentence to make it (b) (4)

---

**From:** Nianshuang [REDACTED] (b) (6)  
**Sent:** Saturday, February 8, 2020 1:10 PM  
**To:** Daniel P. Wrapp [REDACTED] (b) (6) Jason McLellan  
[REDACTED] (b) (6);  
[REDACTED] (b) (6)  
<[REDACTED] (b) (6)>  
**Cc:** Graham, Barney (NIH/VRC) [E] [REDACTED] (b) (6)  
**Subject:** RE: Re: Manuscript v3

I read through the main text. I added and changed some citations, mostly in the introduction. I also made two major edits about [REDACTED] (b) (4)

Nianshuang

---

Nianshuang Wang, Ph.D.  
Research Fellow, McLellan Lab  
Department of Molecular Biosciences  
The University of Texas at Austin  
4.320 Norman Hackerman Building  
100 E 24<sup>th</sup> St., Austin, TX 78712  
Tel. [REDACTED] (b) (6)

---

**From:** [Daniel P. Wrapp](#)  
**Sent:** Saturday, February 8, 2020 12:54 PM  
**To:** [Jason McLellan](#); [REDACTED] (b) (6)  
**Cc:** [Graham, Barney \(NIH/VRC\) \[E\]](#)  
**Subject:** Re: Manuscript v3

New figures are on the drive as v3. I'm going to turn my attention back to the text, but let me know if there's anything else you want tweaked.

DWrapp  
<image001.png>

---

**From:** Jason McLellan [REDACTED] (b) (6) >  
**Sent:** Saturday, February 8, 2020 10:49 AM  
**To:** Daniel P. Wrapp [REDACTED] (b) (6)  
[REDACTED] (b) (6)  
[REDACTED] (b) (6) >  
**Cc:** Graham, Barney (NIH/VRC) [E] [REDACTED] (b) (6)  
**Subject:** RE: Manuscript v3

Updated figures look good. About half require no additional changes. Attached are my edits/comments.

Daniel, let me know if you have any questions.

Keep up the good work!

Jason

---

**From:** Daniel P. Wrapp (b) (6)  
**Sent:** Saturday, February 8, 2020 6:09 PM  
**To:** Jason McLellan (b) (6)  
(b) (6)  
<(b) (6)>  
**Cc:** Graham, Barney (NIH/VRC) [E] (b) (6)  
**Subject:** Re: Manuscript v3

All figure edits have been made and the powerpoint has been updated (including the new SARS RBD + ACE2 SPR which is the new SFig 7). It is now "WuCoV S Figures v2" in the same directory. I'll start going through the text now and then I'll take a stab at the movies.

DWrapp  
<image001.png>

**From:** Daniel P. Wrapp (b) (6)>  
**Sent:** Saturday, February 8, 2020 7:32 AM  
**To:** Jason McLellan (b) (6);  
(b) (6)  
(b) (6)  
**Cc:** Graham, Barney (NIH/VRC) [E] (b) (6)>  
**Subject:** Re: Manuscript v3

Also, I have some movie editing software that came free with my Mac, I'll trim those videos down and put the new versions in the same directory on the drive.

<image001.png>

**From:** Daniel P. Wrapp (b) (6)>  
**Sent:** Saturday, February 8, 2020 7:27 AM  
**To:** Jason McLellan (b) (6);  
(b) (6)  
(b) (6)>  
**Cc:** Graham, Barney (NIH/VRC) [E] (b) (6)  
**Subject:** Re: Manuscript v3

Thanks very much Jason, I'll get to work. I'm going to be in lab all day so if anything comes up, please feel free to Whatsapp or email me.

Daniel  
<image001.png>

**From:** Jason McLellan (b) (6)>  
**Sent:** Saturday, February 8, 2020 2:42 AM  
**To:** Daniel P. Wrapp (b) (6)  
(b) (6)

(b) (6) >

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

**Subject:** RE: Manuscript v3

Attached are my edits/comments on the figures. Many are just labeling, but some will take more time. Please let me know if you have any questions.

Also, has anyone trimmed the two videos I made showing the particle motion? The beginning and ends need to be cropped off because the spike is just sitting there.

(b) (6), but try to get me an updated version of the text and figures by 10 PM (b) (6) time if possible (3 pm Central). I could return comments by midnight (5 pm your time), and then maybe you could get me another version 7 hours after that so that I can work on it while flying home.

Thanks, good luck, and keep polishing!  
Jason

---

**From:** Daniel P. Wrapp (b) (6)

**Sent:** Friday, February 7, 2020 1:27 PM

**To:** Jason McLellan <(b) (6)>;

(b) (6)

(b) (6) >

**Subject:** Manuscript v3

Hey everybody,

Thank you all for your comments on the initial draft! I've made some changes and tried to incorporate your edits/comments so there's a new version of the manuscript (attached here) and a new version of the figures that I would love to get some eyes on:

(b) (4)

When you make your next round of edits, please add your initials to the end of the updated document name or just email me the new version directly.

Cheers,

DWrapp

<WuCoV main\_text\_v5\_clean.docx>

---

**From:** (b) (6)  
**Sent:** Wed, 22 Jan 2020 08:53:49 -0500  
**To:** Morabito, Kaitlyn (NIH/VRC) [E]  
**Cc:** Corbett, Kizzmekia (NIH/VRC) [E]; Bok, Karin (NIH/VRC) [E]  
**Subject:** Re: Coronavirus studies in mice

I think it is (b) (5). As  
far as I know (b) (5).  
(b) (5).

BG

Sent from my iPhone

On Jan 22, 2020, at 8:38 AM, Morabito, Kaitlyn (NIH/VRC) [E] (b) (6).  
wrote:

I feel like (b) (5).  
(b) (5).

I think (b) (5).  
(b) (5).

---

**From:** Kizzmekia Corbett (b) (6)  
**Date:** Wednesday, January 22, 2020 at 8:16 AM  
**To:** Barney Graham (b) (6)>  
**Cc:** Karin Bok (b) (6)>, "Morabito, Kaitlyn (NIH/VRC) [E]"  
(b) (6)  
**Subject:** Re: Coronavirus studies in mice

I could hold an entire seminar on enhancement so let me know when haha.

**Kizzmekia S. Corbett, PhD**

**Senior Research Fellow**

National Institutes of Health

National Institutes of Allergy and Infectious Diseases

Vaccine Research Center

Viral Pathogenesis Laboratory

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, January 22, 2020 at 7:32 AM

**To:** Kizzmekia Corbett (b) (6)

**Cc:** "Bok, Karin (NIH/VRC) [E]" (b) (6) "Morabito, Kaitlyn (NIH/VRC) [E]" (b) (6)

**Subject:** Re: Coronavirus studies in mice

A lot to say on this. Probably needs a conversation. Not likely to convince the skeptics.

BG

Sent from my iPhone

On Jan 21, 2020, at 8:37 PM, Corbett, Kizzmekia (NIH/VRC) [E] <(b) (6)> wrote:

Hi Karen,

There are manuscripts that describe vaccine-induced "enhancement" by SARS vaccine candidates, and I believe that this small body of literature is that most people who rally behind RBD-only antigen design typically cite. The idea (similar to dengue enhancement theory) is that induction of non-neutralizing or sub-neutralizing binding antibodies could lead to enhanced infection (and disease).

Here are my thoughts. It is worth noting that I tend to (b) (5)  
(b) (5)

- (b) (4), we have not (b) (4)  
(b) (4) Because the (b) (4) we'd expect (b) (4)  
(b) (4).
- (b) (4), we show that (b) (4)  
(b) (4) This is shown by  
(b) (4)

Let me know if you need more than this.



--  
**Kizzmekia S. Corbett, PhD**

**Senior Research Fellow**

National Institutes of Health

National Institutes of Allergy and Infectious Diseases

Vaccine Research Center

Viral Pathogenesis Laboratory

Building 40 Room 2608

40 Convent Drive

Bethesda MD 20892

Laboratory: (b) (6)

Personal: (b) (6)

Fax: (301) 480-2771

---

**From:** "Bok, Karin (NIH/VRC) [E]" (b) (6)

**Date:** Tuesday, January 21, 2020 at 5:48 PM

**To:** Kizzmekia Corbett (b) (6) >

**Cc:** Barney Graham (b) (6) >, Kaitlyn Morabito <(b) (6)>

**Subject:** Coronavirus studies in mice

Hi Kizzie,

I just heard from DAIT, and they were wondering about the coronavirus studies you had performed in mice.

Specifically, did you ever observe or do you have any information about immune dependent enhancement?

What is your opinion on this topic?

Thanks, let me know,

Karin.

Karin Bok, MS, PhD

Senior Advisor, Vaccine Development

Office of the Director, Vaccine Research Center

National Institute of Allergy and Infectious Diseases

National Institutes of Health

phone: (b) (6) mobile: (b) (6) | email: (b) (6)

<https://www.niaid.nih.gov/about/vrc>

Page appears blank in original

**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Wed, 26 Feb 2020 05:45:57 +0000  
**To:** Jason McLellan  
**Cc:** Valda Vinson; Iris.Montesa (b) (6); Suzanne White  
**Subject:** Re: Galley proofs of paper Wrapp (abb2507) from Science are available for download

I like the Chinese suggestion of HCoV-19 a lot more than the current taxonomy name which I still haven't said or written.

Barney

Sent from my iPhone

On Feb 26, 2020, at 12:00 AM, Jason McLellan (b) (6) wrote:

You're welcome, Valda.

I am still hesitant to change the name of the virus to SARS-CoV-2, and I believe Barney feels the same way. There was also a recent piece in the Lancet calling for a new name:

[https://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(20\)30419-0/fulltext](https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(20)30419-0/fulltext)

Best regards,  
Jason

---

**From:** Valda Vinson <vvinson@aaas.org>  
**Sent:** Tuesday, February 25, 2020 10:48 PM  
**To:** Jason McLellan (b) (6) >  
**Cc:** Iris.Montesa <Iris.Montesa@spi-global.com>; (b) (6) Suzanne White <swhite@aaas.org>; Graham, Barney (NIH/VRC) [E] (b) (6) >  
**Subject:** Re: Galley proofs of paper Wrapp (abb2507) from Science are available for download

Jason,

Thanks for including me - we'll be sure this is fixed. Suzanne, I'm sure it's a simple error but please update me on the fix. Separately, it looks like names of the virus are solidifying, can we update the paper to reflect current usage? I'll check in tomorrow.

Valda

Sent from my iPhone

On Feb 25, 2020, at 11:32 PM, Jason McLellan (b) (6) > wrote:

Dear Iris, Suzanne, and Valda,

The proofs that were sent for our article (attached) are completely wrong. They have our figures and someone else's text and captions.

Please send us corrected proofs as soon as possible.

Many thanks

Jason

---

**From:** Iris Montesa <[Iris.Montesa@spi-global.com](mailto:Iris.Montesa@spi-global.com)>

**Sent:** Tuesday, February 25, 2020 8:34 PM

**To:** Jason McLellan (b) (6)

**Cc:** [swhite@aaas.org](mailto:swhite@aaas.org)

**Subject:** Galley proofs of paper Wrapp (abb2507) from Science are available for download

Good day!

Galley proofs for your article to be published in *Science* are now available. Please download your proofs immediately and return corrections directly to Suzanne White ([swhite@aaas.org](mailto:swhite@aaas.org)) within 48 hours.

Download galleys here:

<https://authorproofing.spi-global.com/APSLogin.aspx?URLAPWLOGIN=2262020103328AME3LG6>

Login: (b) (6)

Password: (b) (6)

It is often easiest to copy the password from this message and paste it into the box on the download form.

You will find 1 PDF file that contains:

- 1) Information about color charges and reprint orders
- 2) Instructions for annotating the proofs
- 3) The galley proofs of your manuscript

You will need to have Adobe Acrobat Reader v. 7.0 or higher to read and annotate this file. This is free software and is available for user downloading at <http://www.adobe.com/products/acrobat/readstep.html>

If you have any problems or questions in regard to accessing your files, please contact me and please include your manuscript number with all correspondence. If you have questions about the copyediting or making corrections on your galley proof, please contact Suzanne White directly.

Sincerely,  
Iris Montesa  
SPI Publisher Services  
Tel: (b) (6)  
E-mail: [iris.montesa@spi-global.com](mailto:iris.montesa@spi-global.com)

This message is from an external sender. [Learn more about why this matters.](#)

<Wrapp\_Wang\_galley.pdf>

**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Fri, 24 Jan 2020 19:38:43 +0000  
**To:** Bushar, Nicholas (NIH/NIAID) [E]  
**Subject:** Accepted: Coronavirus SWAT Meeting 3



**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Sat, 14 Mar 2020 15:15:21 +0000  
**To:** Connors, Mark (NIH/NIAID) [E]  
**Subject:** Re: corona

Will try around 1pm.

BG

Sent from my iPhone

On Mar 14, 2020, at 8:41 AM, Connors, Mark (NIH/NIAID) [E] <(b) (6)> wrote:

(b) (6) is my cell.

---

**From:** "Graham, Barney (NIH/VRC) [E]" <(b) (6)>  
**Date:** Saturday, March 14, 2020 at 8:22 AM  
**To:** "Connors, Mark (NIH/NIAID) [E]" <(b) (6)>  
**Subject:** RE: corona

Hi Mark,

I'm not keeping up very well. I could talk today sometime if you are available.

Barney

---

**From:** Connors, Mark (NIH/NIAID) [E] <(b) (6)>  
**Sent:** Friday, March 13, 2020 3:06 PM  
**To:** Graham, Barney (NIH/VRC) [E] <(b) (6)>  
**Subject:** corona

Hi Barney,

Would you have a few minutes to speak? I just wanted to touch base about whether you are interested in having us use any technologies for mab isolation or vaccination for covid. I'm sure you are extremely busy. It would only take a few minutes.

Best

Mark

--

**Mark Connors, M.D.**  
**Chief, HIV-Specific Immunity Section**  
**NIAID/LIR**  
**Building 10, Room 11B-07C**  
**10 Center Drive**  
**Bethesda, MD 20892**  
**(b) (6)**  
**fax (301) 480-9978**

**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Mon, 6 Apr 2020 13:13:10 +0000  
**To:** Mascola, John (NIH/VRC) [E]  
**Subject:** Re: Washington Post

Agree.

BG

Sent from my iPhone

On Apr 6, 2020, at 9:10 AM, Mascola, John (NIH/VRC) [E] <(b) (6)> wrote:

The problem is that (b) (5) . . . .

---

**From:** Graham, Barney (NIH/VRC) [E] (b) (6)  
**Sent:** Monday, April 6, 2020 9:05 AM  
**To:** Hiatt, Nissa (NIH/VRC) [C] (b) (6)  
**Cc:** Routh, Jennifer (NIH/NIAID) [E] (b) (6)>; Oplinger, Anne (NIH/NIAID) [E] (b) (6)>; Mascola, John (NIH/VRC) [E] (b) (6)>  
**Subject:** Fwd: Washington Post

FYI. You all and Dr. Fauci should decide (b) (5)

BG

Sent from my iPhone

Begin forwarded message:

**From:** "Johnson, Carolyn" <[Carolyn.Johnson@washpost.com](mailto:Carolyn.Johnson@washpost.com)>  
**Date:** April 6, 2020 at 8:58:49 AM EDT  
**To:** "Graham, Barney (NIH/VRC) [E]" <(b) (6)>  
**Cc:** "Deatrick, Elizabeth (NIH/NIAID) [C]" (b) (6)  
**Subject:** Washington Post

Dear Dr. Graham,

We spoke about vaccine development almost a month ago. I wonder if you'd have some time to talk about progress since then, with the human safety trials already underway – and if the science to get to this point has taught you anything new about the novel coronavirus. We also are interested, to the extent possible, to write about the process of developing this vaccine in real time and wonder if there are any internal deliberations/milestones/discussions/data reports we could be a fly-on-the-wall to, in order to see how quickly and urgently this process is moving.

Thanks,  
Carolyn

Carolyn Johnson  
Washington Post  
202-334-6248 (desk)  
(b) (6) (cell)

**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Wed, 5 Feb 2020 17:41:33 +0000  
**To:** Mascola, John (NIH/VRC) [E]; Gall, Jason (NIH/VRC) [C]  
**Subject:** FW: AstraZeneca: Mene Pangalos awarded knighthood in the New Year 2020 Honours List  
**Attachments:** AstraZeneca's Mene Pangalos awarded knighthood in the New Year 2020 Honours Lis.pdf

FYI. This is who we were on the video conference with yesterday at AstraZeneca.

BG

---

**From:** Esser, Mark <(b) (6)>  
**Sent:** Wednesday, February 5, 2020 12:35 PM  
**To:** Graham, Barney (NIH/VRC) [E] (b) (6)  
**Subject:** AstraZeneca: Mene Pangalos awarded knighthood in the New Year 2020 Honours List

Hi Barney,  
Thank you again for making time to visit us yesterday and we are excited to work with you on Coronavirus and Influenza.  
Attached, please find a pdf with an article on Mene being knighted.  
He is an exceptional scientist and strong leader of BioPharma R&D here at AstraZeneca.  
I am glad you were able to meet him.

Regards,  
Mark E

**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Tue, 10 Mar 2020 21:01:31 +0000  
**To:** Kanekiyo, Masaru (NIH/VRC) [E]  
**Subject:** FW: Any update on the process?

Let's discuss tomorrow.

BG

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

From: (b) (6) >  
Sent: Tuesday, March 10, 2020 3:06 PM  
To: Graham, Barney (NIH/VRC) [E] (b) (6) >; Kanekiyo, Masaru (NIH/VRC) [E]  
(b) (6)  
Subject: Re: Any update on the process?

Dear Dr. Graham, Dr. Kanekiyo,

Hope this e-mail finds you well.

I was wondering whether there is any progress regarding my start date. I can imagine how busy you must be during this Coronavirus outbreak. I am just worried that the background check takes a few months (a friend of mine waited 2 months, while another waited 3 months until their background checks were completed so that they could start working at NIH).

If it were possible to start the hiring process soon, we could ensure that the background check would be completed in the summer and I could start working afterwards.

Please advise me regarding how to proceed. Thank you.

Looking forward to hearing from you,  
(b) (6)

> On Jan 21, 2020, at 12:19 AM, (b) (6) wrote:

>

> Dear Dr. Graham and Dr. Kanekiyo,

>

> We finally moved to the area! May I ask for a brief update on the process? I would like to start arranging (b) (6) based on the timeline.

>

> I am so excited to join Dr. Kanekiyo's group, collaborate with all the amazing people I met during my interview and contribute to the cutting-edge vaccine research & development efforts!

>

> Thank you and looking forward to hearing from you, (b) (6)



**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Fri, 28 Feb 2020 23:09:23 +0000  
**To:** Mascola, John (NIH/VRC) [E]; Haskins, Melinda (NIH/NIAID) [E]  
**Cc:** NIAID VRC-OPA; Conrad, Patricia (NIH/NIAID) [E]; Billet, Courtney (NIH/NIAID) [E]; NIAID OCGR Leg; Suhana, Tina (NIH/VRC) [E]; Austin, Sarah (NIH/NIAID) [E]  
**Subject:** RE: Please advise: Sen. Chris Van Hollen (D-MD) Request for Tour on Coronavirus

I could also be available that day if needed.

Barney

---

**From:** Mascola, John (NIH/VRC) [E] (b) (6)>  
**Sent:** Friday, February 28, 2020 6:00 PM  
**To:** Haskins, Melinda (NIH/NIAID) [E] <(b) (6)>  
**Cc:** Graham, Barney (NIH/VRC) [E] (b) (6); NIAID VRC-OPA <NIAIDVRC-OPA@niaid.nih.gov>; Conrad, Patricia (NIH/NIAID) [E] (b) (6); Billet, Courtney (NIH/NIAID) [E] (b) (6); NIAID OCGR Leg <NIAIDOCGRLeg@mail.nih.gov>; Suhana, Tina (NIH/VRC) [E] (b) (6); Austin, Sarah (NIH/NIAID) [E] (b) (6)>  
**Subject:** RE: Please advise: Sen. Chris Van Hollen (D-MD) Request for Tour on Coronavirus

Hi Melinda,

I'm available.

John

---

**From:** Haskins, Melinda (NIH/NIAID) [E] (b) (6)  
**Sent:** Friday, February 28, 2020 4:17 PM  
**To:** Mascola, John (NIH/VRC) [E] (b) (6)  
**Cc:** Graham, Barney (NIH/VRC) [E] (b) (6); NIAID VRC-OPA <[NIAIDVRC-OPA@niaid.nih.gov](mailto:NIAIDVRC-OPA@niaid.nih.gov)>; Conrad, Patricia (NIH/NIAID) [E] (b) (6); Billet, Courtney (NIH/NIAID) [E] <(b) (6)>; NIAID OCGR Leg <[NIAIDOCGRLeg@mail.nih.gov](mailto:NIAIDOCGRLeg@mail.nih.gov)>; Suhana, Tina (NIH/VRC) [E] (b) (6)  
**Subject:** Please advise: Sen. Chris Van Hollen (D-MD) Request for Tour on Coronavirus

John,

Senator Chris Van Hollen (D-MD and Member, Senate Appropriations Committee) has asked to meet with Dr. Fauci on Friday, March 6<sup>th</sup>, to discuss NIH research on coronavirus and tour a lab. Dr. Fauci is available to meet with the Senator at the VRC from 2 to 3 p.m. Would you and Barney be available to participate?

Please let me know as soon as possible today.

Thanks,  
Melinda

Chief, Legislative Affairs and Correspondence Management Branch  
Office of Communications and Government Relations  
National Institute of Allergy and Infectious Diseases  
National Institutes of Health  
Department of Health and Human Services  
Telephone: (b) (6) 8

**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Sun, 12 Apr 2020 15:29:10 +0000  
**To:** Corbett, Kizzmekia (NIH/VRC) [E]  
**Subject:** RE: mRNA-1273 Data Compiled - FOR SENDING TO MODERNA

Thanks.

BG

---

**From:** Corbett, Kizzmekia (NIH/VRC) [E] <(b) (6)>  
**Sent:** Sunday, April 12, 2020 9:54 AM  
**To:** Graham, Barney (NIH/VRC) [E] (b) (6)>  
**Subject:** Re: mRNA-1273 Data Compiled - FOR SENDING TO MODERNA

Here are the two documents for distribution to Moderna.

--

**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:** Saturday, April 11, 2020 at 1:25 PM  
**To:** Kizzmekia Corbett (b) (6)>  
**Subject:** RE: mRNA-1273 Data Compiled - FOR YOUR REVIEW

Hi Kizzy,

I've edited the figure legends.

The graphs are pasted images so I can't edit.

Comments

- 1) [REDACTED] (b) (5)
- 2) [REDACTED]
- 3) [REDACTED]
- 4) [REDACTED]
- 5) [REDACTED]

Let me know if there are questions. If you send me back two separate files, one with this [REDACTED] (b) (5) I will review again and send to Andrea.

The only thing I have for the Rat tox the excel file. Is that right?

BG

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**From:** Corbett, Kizzmekia (NIH/VRC) [E] [REDACTED] (b) (6)  
**Sent:** Thursday, April 9, 2020 9:23 PM  
**To:** Graham, Barney (NIH/VRC) [E] [REDACTED] (b) (6)  
**Subject:** mRNA-1273 Data Compiled - FOR YOUR REVIEW

Dr. Graham,  
Attached are the data. The figure captions are at the end of the word document. Can you track your changes so I can see how you would do it, please?

Thanks,

--

**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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Personal: [REDACTED] (b) (6)

Fax: (301) 480-2771

**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Mon, 9 Mar 2020 18:37:13 +0000  
**To:** Young, Monique (NIH/VRC) [E]  
**Subject:** FW: World Vaccine Congress Washington 2020 is open!

Hi Monique,

I will only be at this meeting on April 8<sup>th</sup>. A talk on COVID-19 at 9:10-9:40 and on Universal flu and RSV at 3:10-3:40.

You can unblock the 6<sup>th</sup>, 7<sup>th</sup>, and 9<sup>th</sup>.

Barney

**From:** World Vaccine Congress Washington 2020 <layla.lawson@terrapinn.com>  
**Sent:** Wednesday, March 4, 2020 4:38 AM  
**To:** Graham, Barney (NIH/VRC) [E] (b) (6)>  
**Subject:** World Vaccine Congress Washington 2020 is open!



The banner features the text "WORLD VACCINE" in large, bold, pink letters, with "CONGRESS WASHINGTON" in smaller, white letters below it. A pink line graph is positioned to the left of "CONGRESS WASHINGTON". To the right, it says "Networking App Sponsored by" followed by the "NEO GENOMICS" logo. Below this, it states "Walter E. Washington Convention Center" and "Main Congress April 7-9 | Workshops April 6".

Dear Barney Graham,

As a registered attendee of World Vaccine Congress Washington 2020, you have access to our online networking and communications universe, World Vaccine Congress Washington 2020. We encourage all attendees to log into the system and update their information accordingly. If you have not logged into the system as of this time, we ask that you do so in order to increase your chances of receiving meeting requests, and allow you to network with other participants before, during and after the event.



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Should you have any questions, please contact us at [layla.lawson@terrapinn.com](mailto:layla.lawson@terrapinn.com).

Kind regards,  
World Vaccine Congress Washington 2020 Team

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please [contact the conference administrator.](#)

**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Mon, 20 Apr 2020 21:18:29 +0000  
**To:** Morabito, Kaitlyn (NIH/VRC) [E]  
**Subject:** help with awards


Hi Kaitlyn,

I need to send an email like the following back to Sarah Austin. Could you look through and add other people where indicated?

Thanks,

Barney

(b) (5), (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  
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