

From: Graham, Barney (NIH/VRC) [E]
Sent: Sun, 26 Jan 2020 00:29:41 +0000
To: Corbett, Kizzmekia (NIH/VRC) [E]
Cc: Morabito, Kaitlyn (NIH/VRC) [E]
Subject: Re: [REDACTED] (b) (5)

I think we should [REDACTED] (b) (5)
[REDACTED] (b) (5)

BG

Sent from my iPhone

On Jan 25, 2020, at 7:03 PM, Corbett, Kizzmekia (NIH/VRC) [E] [REDACTED] (b) (6) >
wrote:

... [REDACTED] (b) (5) lol

--

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: "Munster, Vincent (NIH/NIAID) [E]" [REDACTED] (b) (6) >
Date: Friday, January 24, 2020 at 7:25 AM
To: Kizzmekia Corbett [REDACTED] (b) (6) >
Cc: Barney Graham [REDACTED] (b) (6)
Subject: Re: First Wuhan Coronavirus Patient Identified in the United States

Hey Barney and Kizzmekia,

We should discuss

(b) (5)

(b) (5)

Cheers,

Vincent

On Jan 23, 2020, at 19:33, Corbett, Kizzmekia (NIH/VRC) [E] < (b) (6) > wrote:

Thanks Ralph & Vincent. Good luck!!! If Boyd's on the virus cloning, I'm very confident.

Have a good night.

Sent from the mobile device of:

Kizzmekia S. Corbett, PhD

Senior Research Fellow

NIH | NIAID | VRC

(b) (6)

From: "Baric, Ralph S" (b) (6)

Date: Thursday, January 23, 2020 at 9:14:30 PM

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

Subject: RE: First Wuhan Coronavirus Patient Identified in the United States

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

From: Corbett, Kizzmekia (NIH/VRC) [E] (b) (6)
Sent: Thursday, January 23, 2020 9:02 PM
To: Munster, Vincent (NIH/NIAID) [E] (b) (6)>
Cc: Baric, Ralph S (b) (6)>
Subject: Re: First Wuhan Coronavirus Patient Identified in the United States

Hi Vincent,
Following up on your comment below, (b) (4), (b) (5)
(b) (4), (b) (5)
(b) (4), (b) (5) Ralph, you are cc'ed here because I'm gossiping about you
and you can also answer this.

Cheers,
Kizzy

--

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: "Munster, Vincent (NIH/NIAID) [E]" (b) (6)>
Date: Tuesday, January 21, 2020 at 3:46 PM
To: "Marston, Hilary (NIH/NIAID) [E]" (b) (6)>, NIAID Coronavirus Response
SWAT 2020 <NIAIDCoronavirusResponseSWAT2020@mail.nih.gov>
Subject: Re: First Wuhan Coronavirus Patient Identified in the United States

Quick update:

Talked to Ralph, (b) (5)

(b) (5)

Talked to Kent (UTMB), (b) (5)

Talked to CDC, (b) (5)

Talked to Korea (Korea CDC), (b) (5)

Barney: we should probably sit down and (b) (5)

(b) (5)

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

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

Date: Tuesday, January 21, 2020 at 11:40 AM

To: NIAID Coronavirus Response SWAT 2020

[<NIAIDCoronavirusResponseSWAT2020@mail.nih.gov>](mailto:NIAIDCoronavirusResponseSWAT2020@mail.nih.gov)

Subject: FW: NYT: First Wuhan Coronavirus Patient Identified in the United States

From: Folkers, Greg (NIH/NIAID) [E] (b) (6)

Sent: Tuesday, January 21, 2020 1:38 PM

Subject: NYT: First Wuhan Coronavirus Patient Identified in the United States

First Wuhan Coronavirus Patient Identified in the United States

A person in Washington State is infected with a new respiratory virus. The outbreak began at a market in China and now has spread to at least four other countries.

[!\[\]\(83bbbd261710c59db0214aa27b2edc0d_img.jpg\)](#)

The outbreak, which has infected nearly 300 people in mainland China, began in a seafood and poultry market in Wuhan, central China. Credit...EPA, via Shutterstock

[!\[\]\(291e070cef6c4d5e78fefe4696ef53be_img.jpg\)](#)

By [Roni Caryn Rabin](#)

- • A person in Washington State is infected with the Wuhan coronavirus, the first confirmed case in the United States of a mysterious respiratory infection that has killed at least six people and sickened hundreds more in Asia.

The patient, who was hospitalized with pneumonia last week, recently had traveled to Wuhan, China, where the outbreak appears to have originated, federal officials have found.

Investigators tested samples from the patient for the presence of the virus; positive results were received over the weekend. Officials declined to identify the patient, who was said to be quite ill. News of the first case in the United States comes amid growing evidence that the virus spreads from person to person, although it is not clear how easily.

The outbreak, which began in a seafood and poultry market in Wuhan, a city of 11 million, is spreading: Patients have been identified in Beijing, Shanghai and Shenzhen, as well as Taiwan, Japan, Thailand and South Korea.

On Tuesday, Chinese authorities confirmed that six people have died of the infection in Wuhan. Nearly 300 cases have been reported to date in China. Many of the patients lived in or traveled to Wuhan. The World Health Organization will meet tomorrow to decide whether to declare the outbreak an international public health emergency. But information about the new virus is still thin, and it's not clear whether or how many Americans are at risk.

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"There are still more questions that we don't know the answers to than things we do know," said Dr. William Schaffner, a professor of preventive medicine and infectious diseases at Vanderbilt University Medical Center in Nashville.

"For example, what is the source? We don't know exactly. The location likely was the live animal market, but we don't know the particular animal."

The more pressing and urgent question, he said: "How frequent is human to human transmission?" In one instance a patient appears to have infected 14 health care workers in a medical facility, but that individual may have been a "super-spreader," he said. "Could people with mild infections transmit this virus from person to person? That all remains still under investigation."

On Monday, Vanderbilt University Medical Center in Nashville changed its electronic prompts so that any patients coming in to its hospital, emergency room or clinics with a fever or respiratory symptoms will be asked whether they have been to China recently or have had contact with anyone who has recently traveled to China.

Hospitals around the country are likely taking similar steps, Dr. Schaffner said, in an effort to quickly identify infected patients and place them in isolation so they can be cared for safely by hospital workers, and so specimens can be collected for testing.

Dr. Schaffner cautioned anyone traveling to China to avoid visiting live animal markets and to keep a distance from all live animals, including domesticated farm animals. Travelers to China should practice [lots of good hand hygiene](#), he added, and do their best to avoid anyone who is coughing or sneezing.

The Wuhan Coronavirus Outbreak

[The Test a Deadly Coronavirus Outbreak Poses to China's Leadership](#)
[Jan. 21, 2020](#)

[China Confirms New Coronavirus Spreads From Humans to Humans](#)
[Jan. 20, 2020](#)

- [Deadly Mystery Virus Reported in 2 New Chinese Cities and South Korea](#)
[Jan. 18, 2020](#)

- [Three U.S. Airports to Check Passengers for a Deadly Chinese Coronavirus](#)
[Jan. 17, 2020](#)

- [Japan and Thailand Confirm New Cases of Chinese Coronavirus](#)

Jan. 15, 2020

-

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From: Graham, Barney (NIH/VRC) [E]
Sent: Fri, 24 Apr 2020 20:02:22 +0000
To: (b) (6)
Subject: RE: An immunologist in isolation

Thank you for reaching out. I can imagine your frustration. Unfortunately, we are working at about 10% capacity at the moment because of physical distancing in the labs. We do not have room for additional people.

Best wishes in your future work.

Barney

From: (b) (6) (b) (6)
Sent: Thursday, April 23, 2020 1:23 PM
To: Graham, Barney (NIH/VRC) [E] (b) (6) >
Subject: An immunologist in isolation

Dear Dr. Graham,

I enjoyed your talk on COVID-19 vaccine strategies yesterday.
Congratulations for an excellent talk and for your work on scientific
preparedness for the current and any other potential viral pandemics.

(b) (6)

(b) (6)



From: Graham, Barney (NIH/VRC) [E]
Sent: Fri, 6 Mar 2020 13:37:34 +0000
To: Baden, Lindsey Robert,M.D.
Subject: Re: Small Molecules

Hi Lindsey.

(b) (4)

(b) (4)

Best wishes,

Barney

Sent from my iPhone

On Mar 6, 2020, at 7:09 AM, Baden, Lindsey Robert,M.D. <
wrote:

(b) (6)

Barney,

(b) (4)

Lindsey

The information in this e-mail is intended only for the person to whom it is addressed. If you believe this e-mail was sent to you in error and the e-mail contains patient information, please contact the Partners Compliance HelpLine at <http://www.partners.org/complianceline> . If the e-mail was sent to you in error but does not contain patient information, please contact the sender and properly dispose of the e-mail.

From: Graham, Barney (NIH/VRC) [E]
Sent: Tue, 4 Feb 2020 20:00:24 +0000
To: Morabito, Kaitlyn (NIH/VRC) [E]
Subject: ASM Biothreats-Coronaviruses- 1-29-2020- FINAL FINAL 2-up.pdf
Attachments: ASM Biothreats-Coronaviruses- 1-29-2020- FINAL FINAL 2-up.pdf, Updated CoV for ASF 27Jan2020.pptx, VRC CoV vaccine project .pptx

FYI. Some ideas as a start.

BG

From: Graham, Barney (NIH/VRC) [E]
Sent: Sun, 8 Mar 2020 23:28:40 +0000
To: SATHIYAMOORTHY, Vaseeharan
Cc: HENAO RESTREPO, Ana Maria; Stemmy, Erik (NIH/NIAID) [E]; PREZIOSI, Marie-pierre; Embry, Alan (NIH/NIAID) [E]
Subject: RE: Animal model work on candidate therapeutics for COVID-19/SARS-CoV2

Hi Vasee,

We are only working on

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

Best wishes,

Barney

From: SATHIYAMOORTHY, Vaseeharan (b) (6) >
Sent: Sunday, March 8, 2020 6:47 PM
To: Graham, Barney (NIH/VRC) [E] (b) (6) >
Cc: HENAO RESTREPO, Ana Maria (b) (6); PREZIOSI, Marie-pierre (b) (6)
Subject: Animal model work on candidate therapeutics for COVID-19/SARS-CoV2

Hi Barney
I hope you're well
Would you have a summary of recent animal model work on candidate therapeutics that you could share?
With best wishes
Vasee

From: Graham, Barney (NIH/VRC) [E]
Sent: Mon, 6 Apr 2020 21:14:05 +0000
To: Widge, Alicia (NIH/NIAID) [E]
Cc: McDermott, Adrian (NIH/VRC) [E]; Ledgerwood, Julie (NIH/NIAID) [E]; Koup, Richard (NIH/VRC) [E]; Flach, Britta (NIH/VRC) [C]; Andrews, Charla (NIH/NIAID) [C]; Corbett, Kizzmekia (NIH/VRC) [E]; Morabito, Kaitlyn (NIH/VRC) [E]; Bok, Karin (NIH/VRC) [E]; Alvarado, Gabriela (NIH/VRC) [C]
Subject: Re: Sera for assay controls

Thanks Alicia. We will also need an [REDACTED] (b) (5), (b) (4)

Barney

Sent from my iPhone

On Apr 6, 2020, at 5:09 PM, Widge, Alicia (NIH/NIAID) [E] [REDACTED] (b) (6) wrote:

Hi Adrian,

[REDACTED] (b) (5)

Alicia

From: "Graham, Barney (NIH/VRC) [E]" [REDACTED] (b) (6) >
Date: Monday, April 6, 2020 at 3:30 PM
To: "McDermott, Adrian (NIH/VRC) [E]" [REDACTED] (b) (6) >, "Ledgerwood, Julie (NIH/NIAID) [E]" [REDACTED] (b) (6) >, "Widge, Alicia (NIH/NIAID) [E]" [REDACTED] (b) (6) >
Cc: "Koup, Richard (NIH/VRC) [E]" [REDACTED] (b) (6) >
Subject: RE: Sera for assay controls

DMID and Mike Busch are organizing a systematic approach to providing samples for assays standardization and controls. I think it would be best to coordinate with that process. I'm sure we can find a few local samples in the meantime to bridge.

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

BG

From: McDermott, Adrian (NIH/VRC) [E] (b) (6) >
Sent: Monday, April 6, 2020 3:27 PM
To: Graham, Barney (NIH/VRC) [E] (b) (6) >; Ledgerwood, Julie (NIH/NIAID) [E] (b) (6); Widge, Alicia (NIH/NIAID) [E] (b) (6) >
Cc: Koup, Richard (NIH/VRC) [E] (b) (6) >
Subject: Re: Sera for assay controls

Barney,

Am already in contact with Mike Busch on this – thanks for the suggestion. Anyone in the area you may have contacts with? (b) (5)

Thanks

Adrian

From: Barney Graham (b) (6) >
Date: Monday, April 6, 2020 at 3:24 PM
To: "Ledgerwood, Julie (NIH/NIAID) [E]" (b) (6) >, "McDermott, Adrian (NIH/VRC) [E]" (b) (6) >, "Widge, Alicia (NIH/NIAID) [E]" (b) (6)
Cc: Richard Koup (b) (6)
Subject: RE: Sera for assay controls

We may be able to get a panel through Mike Busch and DMID. (b) (5)
Working on it.

Julie may have other options.

Barney

From: Ledgerwood, Julie (NIH/NIAID) [E] (b) (6)
Sent: Monday, April 6, 2020 2:44 PM
To: McDermott, Adrian (NIH/VRC) [E] (b) (6) >; Graham, Barney (NIH/VRC) [E] (b) (6) >; Widge, Alicia (NIH/NIAID) [E] (b) (6) >
Cc: Koup, Richard (NIH/VRC) [E] <(b) (6)>
Subject: RE: Sera for assay controls

Hi Adrian

(b) (5)

Alicia---I know we are meeting later today on this --but how is it looking this week?

(b) (5)

JL

From: McDermott, Adrian (NIH/VRC) [E] (b) (6) >

Sent: Monday, April 6, 2020 2:39 PM

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

(b) (6)

Cc: Koup, Richard (NIH/VRC) [E] (b) (6)

Subject: Sera for assay controls

Dear All,

(b) (5)

Any help would be appreciated

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): (b) (6)

Phone (Cell): (b) (6)

From: Graham, Barney (NIH/VRC) [E]
Sent: Mon, 30 Mar 2020 13:08:17 +0000
To: Embry, Alan (NIH/NIAID) [E]; Stemmy, Erik (NIH/NIAID) [E]
Subject: Fwd: COVID-19 Vaccine: Proposal & Inquiry
Attachments: COVID19 Vaccine 20200326.pdf, ATT00001.htm

FYI.

BG

Sent from my iPhone

Begin forwarded message:

From: Chad Moles <(b) (6)>
Date: March 26, 2020 at 4:40:14 PM EDT
To: "Graham, Barney (NIH/VRC) [E]" <(b) (6)>
Subject: **COVID-19 Vaccine: Proposal & Inquiry**

Hi Dr. Graham

My name is Chad Moles, and I'm the CSO of [Humane Genomics](#) a biotech company focused on developing synthetic viruses as personalized therapeutics. You may not recall, but we met briefly at ASV 2018 at the University of Maryland. I enjoyed your discussion and thoughts on synthetic vaccinology.

Related to this, my company and I came up with a **proposal for a COVID-19 vaccine**. We aim to develop vesicular stomatitis virus (VSV) engineered with the spike glycoprotein of SARS-CoV-2. You can read more about it in the attached slide deck, or on our blog [here](#) and [here](#). Of note, we received SARS-CoV-2 gene fragments today and plan to complete whole-genome assembly by Friday, bringing the design and build of vaccine candidates to 10 days.

I know you are currently collaborating with Moderna on their mRNA vaccine, but I would love to get your feedback on our vaccine proposal and learn more about how we can collaborate with government or advance our testing capabilities.

It would be great if we could setup a brief call to discuss.

Best regards,

Chad

--

Chad Moles, CSO @ Humane Genomics
(M) (b) (6), (W) humanegenomics.com

From: (b) (6)
Sent: Sat, 9 Nov 2019 04:41:45 +0900
To: Garcia-Martinez, J Victor
Cc: Wahl, Angela R; Corbett, Kizzmekia (NIH/VRC) [E]; Morabito, Kaitlyn (NIH/VRC) [E]
Subject: Re: J. Mascola suggestion RE: in vivo analysis of human immune responses to RSV

Hi Victor,

Yes, I think we would like to try one of the coronaviruses that is very hard to grow in cell culture, (b) (4) I've copied Dr. Corbett here who may want to chime in.

Barney

Sent from my iPhone

On Nov 9, 2019, at 3:03 AM, Garcia-Martinez, J Victor (b) (6) wrote:

Hi Barney,

It was very nice to speak with you a couple of weeks ago about our mutual interest on RSV and other viruses for which our new model might be useful.

Let us know if you would like to pursue this any further.

Sincerely,

J. Victor

From: "Graham, Barney (NIH/VRC) [E]" (b) (6)
Date: Friday, October 25, 2019 at 1:13 PM
To: Jose Victor Garcia Martinez (b) (6)
Subject: Re: J. Mascola suggestion RE: in vivo analysis of human immune responses to RSV

I'm working at home this afternoon and am relatively free except for 4-5pm. Feel free to call my cell phone.

(b) (6)

We can then decide if it would be worth meeting at a group level.

Barney

Sent from my iPhone

On Oct 25, 2019, at 1:06 PM, Garcia-Martinez, J Victor (b) (6) > wrote:

Thanks Barney.

Yes, it has been a while. Glad to reconnect in a meaningful manner.

I would very much like the opportunity to talk with you about this.
Just let me know when you might be available and we can coordinate.

Sincerely,

J. Victor

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

Date: Friday, October 25, 2019 at 1:02 PM

To: Jose Victor Garcia Martinez (b) (6)

Subject: RE: J. Mascola suggestion RE: in vivo analysis of human immune responses to RSV

Hi Victor,

Nice to hear from you and thank you for sharing your paper. I think it has been 20 years since I was at Vanderbilt and you were at Memphis that we last spoke, although I have been following your work.

(b) (4)

(b) (4) Let me know if you would like to talk
and I will set up a time.

Best wishes,

Barney

From: Garcia-Martinez, J Victor (b) (6)
Sent: Friday, October 25, 2019 12:38 PM
To: Graham, Barney (NIH/VRC) [E] (b) (6)
Subject: J. Mascola suggestion RE: in vivo analysis of human immune responses to RSV

Dear Barney,

Hope you are doing well.

John Mascola visited UNC and we had the opportunity to share with him the development of a new in vivo model for the study of human respiratory pathogens. He saw our work on CMV and a little of our work on RSV. Here is the link to the paper we recently published on this:

<https://www.nature.com/articles/s41587-019-0225-9>

(b) (4)

Sincerely,

J. Victor
J. Victor Garcia-Martinez, Ph. D.
Director, International Center for the Advancement of Translational Science
Oliver Smithies Investigator
Professor of Medicine, Microbiology and immunology
University of North Carolina at Chapel Hill
2043 Genetic Medicine Building
120 Mason Farm Rd. CB 7042
Chapel Hill, NC 27599-7042

Phone (b) (6)
Fax (919) 843-9976

page appears blank in original

From: Graham, Barney (NIH/VRC) [E]
Sent: Fri, 13 Mar 2020 15:55:57 +0000
To: Mascola, John (NIH/VRC) [E]; Gall, Jason (NIH/VRC) [C]; Morabito, Kaitlyn (NIH/VRC) [E]; Stein, Judy (NIH/VRC) [C]; Petrik, Amy (NIH/NIAID) [E]
Cc: Corbett, Kizzmekia (NIH/VRC) [E]; Ledgerwood, Julie (NIH/NIAID) [E]; Koup, Richard (NIH/VRC) [E]; Bok, Karin (NIH/VRC) [E]
Subject: RE: collaboration update

Just a reminder.

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

Barney

From: Mascola, John (NIH/VRC) [E] (b) (6)
Sent: Friday, March 13, 2020 11:54 AM
To: Graham, Barney (NIH/VRC) [E] (b) (6); Gall, Jason (NIH/VRC) [C] (b) (6); Morabito, Kaitlyn (NIH/VRC) [E] (b) (6); Stein, Judy (NIH/VRC) [C] (b) (6); Petrik, Amy (NIH/NIAID) [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); Bok, Karin (NIH/VRC) [E] (b) (6)
Subject: collaboration update

(b) (4)

Thanks to all – I know we have much going on in parallel.

John

From: (b) (6)
Sent: Fri, 14 Feb 2020 08:08:07 -0500
To: Wing-Yun Cheung
Subject: Re: 2019-nCoV

Hi Wing-Yun,

Can we use the title: "COVID-19: A Prototype Pathogen Demonstration Project for Pandemic Preparedness"

Barney

Sent from my iPhone

On Feb 14, 2020, at 5:50 AM, Wing-Yun Cheung (b) (6) wrote:

amended?

April 8th, opening talk of the emerging disease sessions

9:10 – 9:40 NIH: COVID-19 Response and preparedness



SCIENCE MEETS LIFE



SCIENCE MEETS LIFE

From: Graham, Barney (NIH/VRC) [E]
Sent: Mon, 13 Jan 2020 17:13:18 +0000
To: Xavier Saelens
Cc: Jason McLellan; Bert Schepens; Daniel P. Wrapp; Corbett, Kizzmekia (NIH/VRC) [E]; Morabito, Kaitlyn (NIH/VRC) [E]; Bok, Karin (NIH/VRC) [E]
Subject: Re: Brief Skype Coronavirus
Attachments: image001.jpg, CMB_Signature_Banner.jpg

Hi Xavier,

We don't necessarily need a call. We will be making the [REDACTED] (b) (4)
[REDACTED] so just let us know what you prefer.

Best wishes,

Barney

Sent from my iPhone

On Jan 13, 2020, at 12:01 PM, Xavier Saelens [REDACTED] (b) (6) wrote:

Hi Jason,

Thanks a lot for that clear advice!

All the best,
Xavier

Prof. Dr. Xavier Saelens - Principal Investigator

VIB-UGent Center for Medical Biotechnology

Technologiepark-Zwijnaarde 71 - 9052 Gent - Belgium

Tel: (b) (6)

mbc.vib-ugent.be

<CMB_Signature_Banner.jpg>

From: "Jason McLellan" (b) (6)
To: "Xavier Saelens" (b) (6), "bgraham" (b) (6) >
Cc: "Bert Schepens" (b) (6) >, "Daniel P. Wrapp" (b) (6)
Sent: Monday, January 13, 2020 5:54:03 PM
Subject: RE: Brief Skype Coronavirus

Hi Xavier,

(b) (4)

Best regards,
Jason

From: Xavier Saelens (b) (6) >
Sent: Monday, January 13, 2020 10:11 AM
To: bgraham (b) (6) >
Cc: Bert Schepens <(b) (6)>; Jason McLellan (b) (6)
Subject: Re: Brief Skype Coronavirus

Dear Barney,

Are you still available today at 1 pm? Not sure if we need a Skype for now and maybe better cancel it.

(b) (4)

Jason,

Best regards,
Xavier

-

Prof. Dr. Xavier Saelens - Principal Investigator

VIB-Ugent Center for Medical Biotechnology

Technologiepark-Zwijnaarde 71 - 9052 Gent - Belgium

Tel: (b) (6)

mbc.vib-ugent.be

<image001.jpg>

From: "Jason McLellan" (b) (6)
To: "Xavier Saelens" (b) (6), "bgraham" (b) (6)
(b) (6) >
Cc: "Bert Schepens" (b) (6) >
Sent: Monday, January 13, 2020 4:11:42 PM
Subject: RE: Brief Skype Coronavirus

I have a scheduling conflict at that time, but you two can go ahead and Skype and then fill me in later. In addition to (b) (4)
(b) (4)

-Jason

From: Xavier Saelens (b) (6) >
Sent: Monday, January 13, 2020 5:58 AM
To: bgraham (b) (6)
Cc: Jason McLellan (b) (6); Bert Schepens <(b) (6)>
Subject: Re: Brief Skype Coronavirus

Hi Barney,

1 pm (7pm here) is fine with me. Tomorrow early morning does not work for me, maybe for Bert.

Best regards,

Xavier

-

Prof. Dr. Xavier Saelens - Principal Investigator

VIB-Ugent Center for Medical Biotechnology

Technologiepark-Zwijnaarde 71 - 9052 Gent - Belgium

Tel: (b) (6)

mbc.vib-ugent.be

<image001.jpg>

From: "bgraham" (b) (6)
To: "Xavier Saelens" (b) (6) >
Cc: "Jason McLellan" (b) (6) >, "Bert Schepens"
(b) (6)
Sent: Monday, January 13, 2020 12:17:07 PM
Subject: Re: Brief Skype Coronavirus

Hi Xavier,

We will be making the (b) (4)
I could potentially get on a call around 1pm my time today
or early tomorrow morning.

Best wishes,

Barney

Sent from my iPhone

On Jan 13, 2020, at 5:30 AM, Xavier Saelens (b) (6) wrote:

Dear Jason and Barney,

A sequence of the Wuhan CoV is now out. (b) (4)

Would you have some time later today (Jan 13) or tomorrow at 17.00h (NIH time 11.00h, Tex time 10.00h) for a brief Skype to discuss the possible options for prioritizing experiments that may or may not be included in the draft manuscript that Daniel and Dorien have been working on?

Thanks and kind regards,
Xavier

Prof. Dr. Xavier Saelens - Principal Investigator

VIB-UGent Center for Medical Biotechnology

Technologiepark-Zwijnaarde 71 - 9052 Gent - Belgium

Tel: (b) (6)

mbc.vib-ugent.be

<CMB_Signature_Banner.jpg>

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From: Graham, Barney (NIH/VRC) [E]
Sent: Fri, 17 Jan 2020 02:29:04 +0000
To: Ledgerwood, Julie (NIH/NIAID) [E]
Subject: Re: [REDACTED] (b) (5) for Wuhan coronavirus vaccine study

So would we still be able to do [REDACTED] (b) (5)

[REDACTED] (b) (5)
[REDACTED] Will that be done through you, Grace or Sandra?

BG

Sent from my iPhone

On Jan 16, 2020, at 5:43 PM, Ledgerwood, Julie (NIH/NIAID) [E] [REDACTED] (b) (6) wrote:

Sounds like a maybe on that issue —but would be a great opportunity for them.

Julie

On Jan 16, 2020, at 7:46 PM, Graham, Barney (NIH/VRC) [E] [REDACTED] (b) (6) wrote:

Great. [REDACTED] (b) (5)
BG

Sent from my iPhone

On Jan 16, 2020, at 4:15 PM, Ledgerwood, Julie (NIH/NIAID) [E] <[REDACTED] (b) (6)> wrote:

Just forwarding for awareness.
DMID has agreed to hold IND.
Julie

Begin forwarded message:

From: "Beigel, John (NIH) [E]" [REDACTED] (b) (6)
Date: January 16, 2020 at 6:28:33 PM EST

To: "Ledgerwood, Julie (NIH/NIAID) [E]" (b) (6) >, "Marston, Hilary (NIH/NIAID) [E]" (b) (6) >, "Cassetti, Cristina (NIH/NIAID) [E]" (b) (6) >, "Graham, Barney (NIH/VRC) [E]" (b) (6) >
Cc: "Bok, Karin (NIH/VRC) [E]" (b) (6) >, "Chen, Grace (NIH/NIAID) [E]" (b) (6) >
Subject: Re: (b) (5) Wuhan coronavirus vaccine study

Ok. We will discuss with the IDCRC / VTEU leadership on Tuesday. It will be a good trial by fire.

--
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: Julie Ledgerwood (b) (6)
Date: Thursday, January 16, 2020 at 5:05 PM
To: "Marston, Hilary (NIH/NIAID) [E]" (b) (6) >, "Cassetti, Cristina (NIH/NIAID) [E]" (b) (6) >, "Graham, Barney (NIH/VRC) [E]" (b) (6) >
Cc: John Beigel (b) (6) >, "Bok, Karin (NIH/VRC) [E]" (b) (6) >, "Chen, Grace (NIH/NIAID) [E]" (b) (6) >
Subject: RE: (b) (5) Wuhan coronavirus vaccine study

Hi all

Great to hear about (b) (5) As Barney and Hilary know, (b) (5)
(b) (5)

Julie

From: Marston, Hilary (NIH/NIAID) [E] (b) (6) >
Sent: Thursday, January 16, 2020 4:51 PM
To: Cassetti, Cristina (NIH/NIAID) [E] (b) (6) >; Graham, Barney (NIH/VRC) [E] (b) (6) >
Cc: Beigel, John (NIH) [E] (b) (6) >; Ledgerwood, Julie (NIH/NIAID) [E] (b) (6) >; Bok, Karin (NIH/VRC) [E] (b) (6) >
Subject: RE: (b) (5) coronavirus vaccine study

Thanks so much for the prompt follow up. I'm looping in Julie who will be able to comment further. (+Karin as an FYI)

From: Cassetti, Cristina (NIH/NIAID) [E] (b) (6)
Sent: Thursday, January 16, 2020 1:25 PM
To: Marston, Hilary (NIH/NIAID) [E] (b) (6)>; Graham, Barney (NIH/VRC) [E]
(b) (6)>
Cc: Beigel, John (NIH) [E] (b) (6)
Subject: (b) (5) Wuhan coronavirus vaccine study

Hi Barney and Hilary,

(b) (5)
I copied John Beigel, our associate director of clinical research. Do you have a sense of the timeline for initiating such trial?

As I mentioned, (b) (5)
(b) (5)
(b) (5) The kickoff meeting for this network is this coming Tuesday. If you are interested to learn about it, feel free to attend the meeting- see attached the agenda and list of investigators attending.

Cheers,
Cristina

From: Graham, Barney (NIH/VRC) [E]
Sent: Fri, 7 Feb 2020 17:34:38 +0000
To: Ledgerwood, Julie (NIH/NIAID) [E]
Subject: FW: Chicago Couple With Coronavirus Discharged From Hospital, Release Statement

FYI. Do we have any leads on these people?

BG

From: Mascola, John (NIH/VRC) [E] (b) (6) >
Sent: Friday, February 7, 2020 12:33 PM
To: Marston, Hilary (NIH/NIAID) [E] (b) (6)
Cc: Graham, Barney (NIH/VRC) [E] <(b) (6)>
Subject: FW: Chicago Couple With Coronavirus Discharged From Hospital, Release Statement

I'm guessing you are aware?

From: Folkers, Greg (NIH/NIAID) [E] (b) (6) >
Sent: Friday, February 7, 2020 11:30 AM
Subject: Chicago Couple With Coronavirus Discharged From Hospital, Release Statement

Chicago Couple With Coronavirus Discharged From Hospital, Release Statement

Published 44 mins ago • Updated 43 mins ago

NBCUniversal, Inc.

A husband whose wife is being treated for coronavirus is now facing the same illness at a Hoffman Estates hospital. NBC 5's Lexi Sutter has the story.

The Chicago couple diagnosed with the coronavirus last month have been discharged from the hospital and made their first public comments on the ordeal, health officials said Friday.

The two patients - a husband and wife, both in their 60s - were released to their home "under the guidance of the Centers for Disease Control and Prevention and the Illinois Department of Public Health," a spokesman for AMITA Health said in a statement.

The patients were previously being treated at AMITA Health's St. Alexius Medical Center in Hoffman Estates. The pair also released their first statement on the ordeal Friday.

"With it being an uncomfortable situation, the care and the services we've received have been great," the couple said in a joint statement released by AMITA Health. "Everyone's been very kind and very respectful. This has been the best healthcare experience we've ever had, but we're definitely looking forward to getting home and getting life back to normal."

The couple requested privacy in their transition to home isolation, health officials said.

The woman was the second person diagnosed with the virus in the U.S., health officials announced on Jan. 24. She returned from Wuhan, China - the epicenter of a recent outbreak - on Jan. 13 and was later hospitalized, a state epidemiologist with the Illinois Department of Public Health said in announcing the diagnosis last month.

On Jan. 30, the CDC announced that her husband tested positive for the virus, marking the first instance of person-to-person spread in the U.S.

He had "close contact" with his wife and reported symptoms, health officials said. He was admitted to an area hospital on Jan. 28, the IDPH said, where his condition was stabilized.

"This may be concerning, but based on what we know now, our assessment remains that the immediate risk to the American public is low," Robert Redfield of the CDC said after the man was diagnosed.

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From: (b) (6)
Sent: Fri, 17 Apr 2020 19:03:33 -0400
To: Corbett, Kizzmekia (NIH/VRC) [E]; Ruckwardt, Tracy (NIH/VRC) [E]; Kanekiyo, Masaru (NIH/VRC) [E]
Cc: Young, Monique (NIH/VRC) [E]
Subject: FW: Graham - APPROVED: Continuing Research Exemption Request for "Work exemptions for members of VPL at NIAID VRC"
Attachments: 0337 Continuing Research Exemption-Graham_VPL.pdf, ATT00001.htm

I mentioned this but I see I never sent it. This is a list of exempted people who have permission to work within the limitations on space.

Barney

From: Schmidt, Beth (NIH/NIAID) [E] <(b) (6)>
Sent: Thursday, April 16, 2020 10:26 PM
To: Graham, Barney (NIH/VRC) [E] (b) (6)
Cc: Holland, Steven (NIH/NIAID) [E] (b) (6)>; Gladman, Jordan (NIH/OD) [E] (b) (6)>; Mascola, John (NIH/VRC) [E] (b) (6)>; Austin, Sarah (NIH/NIAID) [E] (b) (6); Daucher, Marybeth (NIH/NIAID) [E] (b) (6)
Subject: Graham - APPROVED: Continuing Research Exemption Request for "Work exemptions for members of VPL at NIAID VRC"

Dear Dr. Graham:

The Lab Maintenance Subcommittee of the COVID-19 Response Committee has **approved** your exemption request titled **"Work exemptions for members of VPL at NIAID VRC"**.

Your request is attached for reference.

Regards,
Beth

Beth Schmidt
Assistant to Dr. Steven Holland, Director, Division of Intramural Research
National Institute of Allergy and Infectious Diseases, NIH, DHHS
10 Center Drive, Rm 11N248
Bethesda, MD 20892
Phone: (b) (6)

Disclaimer:

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From: Graham, Barney (NIH/VRC) [E]
Sent: Fri, 20 Mar 2020 01:09:36 +0000
To: Hiatt, Nissa (NIH/VRC) [C]
Cc: Corbett, Kizzmekia (NIH/VRC) [E]; Prince, Tasheema (NIH/VRC) [C]
Subject: Re: 2/19 Interview Request: WSJ
Attachments: image001.png

I can do it if Kizzy doesn't want to. She should be first choice.

Barney

Sent from my iPhone

On Mar 19, 2020, at 2:54 PM, Hiatt, Nissa (NIH/VRC) [C] (b) (6) wrote:

Hi Barney and Kizzmekia,

Peter Loftus from the WSJ spoke to Dr. Fauci last month on campus and was not able to connect with the two of you because you were both offsite that day. He has circled back around and would like to speak to one of you for a print story and cover the following:
how mRNA-1273 works and how it was designed

Would one of you be able to help? Peter would like to interview on the phone before COB Monday and he is available over the weekend. It was offered to Dr. Fauci and he deferred to VRC. Three related WSJ stories are attached as background.

Best,
Nissa

Nissa Hiatt
Communications
Vaccine Research Center, NIAID, NIH
40 Convent Drive, Bldg 40, Room 1100
Bethesda, MD 20892
Cell: (b) (6)
Office: (b) (6)
(b) (6)

<image001.png>

From: Hiatt, Nissa (NIH/VRC) [C]
Sent: Tuesday, February 18, 2020 12:27 PM
To: Graham, Barney (NIH/VRC) [E] (b) (6)
Cc: (b) (6)>; Young, Monique (NIH/VRC) [E] (b) (6)
Prince, Tasheema (NIH/VRC) [C] (b) (6)>; Harris, Christina (NIH/NIAID) [E]
(b) (6)>
Subject: Re: 2/19 Interview Request: WSJ

Hi Barney,

Closing the loop on this podcast request. Dr. Fauci will do the Wednesday interview and the podcaster will not visit building 40. Thanks for sharing your availability. Should he have follow up questions I'll let this group know.

Hope you have a good conference at Fisher's Lane.

Best,
Nissa

On Feb 15, 2020, at 4:17 PM, Graham, Barney (NIH/VRC) [E] (b) (6)> wrote:

I'll be at Fishers Lane on Wednesday for the EV-D68 workshop that we set up. It is a two day meeting. There might be time at the lunch break, but I'm not sure I would have time to drive back and forth.

Barney

Sent from my iPhone

On Feb 14, 2020, at 7:19 PM, Hiatt, Nissa (NIH/VRC) [C] <(b) (6)> wrote:

Hi Barney,

Peter Loftus with the Wall Street Journal will interview Dr. Fauci on Wednesday, Feb. 19 at NIH. He'd also like to speak to you about coronavirus vaccine research while he's oncampus.

If you are interested in this request, do you have time on Wednesday either before or after Dr. Fauci's 1:30-2 PM interview? Peter would walk over to Building 40 from 31 or vice versa depending on timing so he should probably wrap up at Building 40 by 1 or arrive at Building 40 at 230 on the earliest side of that window.

Thank you and hope you are doing well!

Best,
Nissa

Nissa Hiatt

Communications

Vaccine Research Center, NIAID, NIH

40 Convent Drive, Bldg 40, Room 1100

Bethesda, MD 20892

(b) (6)

(b) (6)

<image001.png>

<mime-attachment>

<mime-attachment>

<mime-attachment>



From: Graham, Barney (NIH/VRC) [E]
Sent: Wed, 4 Mar 2020 02:35:54 +0000
To: Kormann, Carolyn
Subject: Re: Interview with the New Yorker?

(b) (6).

Barney

Sent from my iPhone

On Mar 3, 2020, at 9:24 PM, Kormann, Carolyn <carolyn_kormann@newyorker.com> wrote:

That works -- many thanks! I can call you then. What is the best number?

On Tue, Mar 3, 2020 at 8:55 PM Graham, Barney (NIH/VRC) [E] <(b) (6)> wrote:

I could speak with you at about 7:30am EST if that works for you.
Barney Graham

Sent from my iPhone

On Mar 3, 2020, at 5:04 PM, Kormann, Carolyn <carolyn_kormann@newyorker.com> wrote:

Dear Dr. Barney Graham,
I apologize for the email out of the blue. I'm working on a story about the race to develop a COVID-19 vaccine, and I was hoping I could speak with you about the vaccine technologies currently being pursued, and how this effort compares with vaccine R&D for other outbreaks. If you have time this evening (sorry, I know it's late in the day), that'd be great. My deadline is tomorrow afternoon.
Thanks so much.

Best,
Carolyn

--

Carolyn Kormann
Staff Writer

The New Yorker
1 World Trade Center
New York, NY 10007
o: 212-286-7976

c: (b) (6)

--

Carolyn Kormann
Staff Writer

The New Yorker
1 World Trade Center
New York, NY 10007
o: 212-286-7976
c: (b) (6)

From: Graham, Barney (NIH/VRC) [E]
Sent: Thu, 2 Apr 2020 12:22:42 +0000
To: Seder, Robert (NIH/VRC) [E]
Subject: mRNA Clinical Trial Preclinical summary.pptx
Attachments: mRNA Clinical Trial Preclinical summary.pptx

Hi Bob,

Those text slides are from Marion Gruber at FDA, so please don't forward those. Thanks for your help.

Barney

From: Graham, Barney (NIH/VRC) [E]
Sent: Fri, 10 Apr 2020 19:16:08 +0000
To: Corbett, Kizzmekia (NIH/VRC) [E]
Subject: RE: (b) (5)

I prefer that we do the (b) (5). Would need to make sure you and others have done the courses necessary to work with (b) (5)

Barney

From: Corbett, Kizzmekia (NIH/VRC) [E] <(b) (6)>
Sent: Friday, April 10, 2020 3:15 PM
To: Graham, Barney (NIH/VRC) [E] (b) (6)
Subject: Re (b) (5)+

What are your thoughts? Adrian or us, honestly...

--

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

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

From: Barney Graham <(b) (6)>
Date: Friday, April 10, 2020 at 3:14 PM
To: Kizzmekia Corbett (b) (6)
Subject: RE: (b) (5)

We should be doing the (b) (5).

BG

From: Corbett, Kizzmekia (NIH/VRC) [E] (b) (6) >
Sent: Friday, April 10, 2020 1:59 PM
To: Graham, Barney (NIH/VRC) [E] (b) (6)
Subject: FW: (b) (5)

So is Adrian (b) (5)

--

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

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

From: "Roederer, Mario (NIH/VRC) [E]" (b) (6) >
Date: Friday, April 10, 2020 at 12:04 PM
To: "Foulds, Kathryn (NIH/VRC) [E]" (b) (6), Kizzmekia Corbett
(b) (6) >, Kaitlyn Morabito (b) (6) >, Barney Graham
(b) (6) >, "McDermott, Adrian (NIH/VRC) [E]" (b) (6) >,
"Seder, Robert (NIH/VRC) [E]" (b) (6) >, "Lewis, Mark" (b) (6) >
Subject: (b) (5)

Kathy, Adrian,

can you figure out what we'll need in order to do (b) (5)

(b) (5)

(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

From: Graham, Barney (NIH/VRC) [E]
Sent: Wed, 8 Apr 2020 20:40:26 +0000
To: Corey MD, Larry
Subject: RE: a favor

(b) (6)

Sounds like another virologist in the making.

From: Corey MD, Larry (b) (6)
Sent: Wednesday, April 8, 2020 1:43 PM
To: Graham, Barney (NIH/VRC) [E] (b) (6)
Subject: RE: a favor

Well it's hard because (b) (6)

Keep well my learned friend

From: Graham, Barney (NIH/VRC) [E] (b) (6)>
Sent: Wednesday, April 8, 2020 8:45 AM
To: Corey MD, Larry (b) (6)>
Subject: RE: a favor

Here is a short ppt and a short description of the biology.

(b) (6)

BG

From: Corey MD, Larry (b) (6)
Sent: Wednesday, April 8, 2020 11:37 AM
To: Graham, Barney (NIH/VRC) [E] (b) (6)>
Subject: RE: a favor

How about the abbreviated version today by email . (b) (6) I am ending a bit early today and much of the day a slump on Bart's IPCAVD so re the long version this weekend best if not then next week ; everyday seems like Sunday or everyday is like Monday who knows . I am happy to join whatever show you are setting up so you don't have to do this so often .

From: Graham, Barney (NIH/VRC) [E] (b) (6)
Sent: Wednesday, April 8, 2020 8:34 AM
To: Corey MD, Larry (b) (6)>
Subject: Re: a favor

Hi Larry,

I have an abbreviated slide deck on this subject and a much longer version from 25 years of RSV vaccine enhanced illness work. May not be fully discernible without the elevator talk. Are there other people that need to hear it? That's what I was alluding to when I mentioned the Zoom option to Mike.

Barney

Sent from my iPhone

On Apr 8, 2020, at 11:03 AM, Corey MD, Larry (b) (6)> wrote:

John tells me you have a slide deck you show people about enhancement ; working on a synopsis about vaccine approaches for Tony so would love to see the deck ; perhaps I should hear the elevator speech from you first hand . or both.

You have my cell or give me a time

From: Graham, Barney (NIH/VRC) [E]
Sent: Tue, 14 Apr 2020 16:14:34 +0000
To: Young, Monique (NIH/VRC) [E]
Subject: RE: WHO Consultation on SARS-CoV -2 Viruses, Reagents and immune Assays -
Wed 3:30 PM CET

I'm usually on this call, so if we can push lab meeting that would be best.

BG

From: Young, Monique (NIH/VRC) [E] (b) (6)
Sent: Tuesday, April 14, 2020 12:13 PM
To: Graham, Barney (NIH/VRC) [E] (b) (6)>
Subject: RE: WHO Consultation on SARS-CoV -2 Viruses, Reagents and immune Assays - Wed 3:30 PM CET

Hi Dr. Graham –

I don't think you attend these calls. If so, please let me know. They changed the time this week. It conflicts with Lab Meeting tomorrow – which I can push back to 11:00 am – 12:00 pm if needed.

Thanks...Monique

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

From: William Dowling (b) (6) >
Sent: Monday, April 13, 2020 12:16 PM
To: William Dowling; HENAO RESTREPO, Ana Maria; GSELL, Pierre; COSTA, Alejandro Javier; RIVEROS BALTA, Alina Ximena; Munster, Vincent (NIH/NIAID) [E]; (b) (6); (b) (6); Vasan, Vasan (H&B, Geelong AAHL; (b) (6); (b) (6) Damon, Inger K. (CDC/DDID/NCEZID/DHCPP); christian.brechot; Kayvon Modjarrad; Amy C. Shurtleff; Stemmy, Erik (NIH/NIAID) [E]; (b) (6); Mark Page; Graham, Barney (NIH/VRC) [E]; Falzarano, Darryl; Thue, Tracey; Hodgson, Paul; Napper, Scott; Nicola Rose; M.P.G. Koopmans; (b) (6); (b) (6) Gerber, Susan I. (CDC/DDID/NCIRD/DVD); Carroll, Darin (CDC/DDID/NCEZID/OD); Watson, John (CDC/DDID/NCIRD/DVD); Lathey, Janet (NIH/NIAID) [E]; Degrace, Marciela (NIH/NIAID) [E]; SATHIYAMOORTHY, Vaseeharan; (b) (6); Pallansch, Mark A. (CDC/DDID/NCIRD/OD); (b) (6) Nelson Michelle; Lever Steve; Prior Joann L; Marston, Hilary (NIH/NIAID) [E]; De wit, Emmie (NIH/NIAID) [E]; (b) (6); Mellors, John W; (b) (6) David

Vaughn; Jacqueline Kirchner; Karen Makar; (b) (6) Guthrie, Erica (CDC/DDID/NCIRD/ID); Thornburg, Natalie (CDC/DDID/NCIRD/DVD); Baric, Toni C; SALAMI, Kolawole; Simon Funnell; Cesar Munoz-fontela; Monalisa Chatterji; Smith, Ashley (OS/ASPR/BARDA); Erlandson, Karl (OS/ASPR/BARDA); Kovacs, Gerald (OS/ASPR/BARDA) (CTR); Little, James (OS/ASPR/BARDA); Jayashankar, Lakshmi (OS/ASPR/BARDA); (b) (6) Florence, Clint (NIH/NIAID) [E]; Delgado Vazquez.Rafael; Morabito, Kaitlyn (NIH/VRC) [E]; Corbett, Kizzmekia (NIH/VRC) [E]; N.M.A. Okba

Cc: (b) (6); Bozick, Brooke (NIH/OD) [E]; Luc Gagnon; Greg Kulnis; Schmaljohn, Connie (NIH/NIAID) [E]; Nalca, Aysegul CIV USARMY MEDCOM USAMRIID (USA); SWAMINATHAN, Soumya; MORGAN, Oliver; (b) (6); Krause, Philip (FDA/CBER); (b) (6); Pitt, Margaret L CIV USARMY MEDCOM USAMRIID (USA); Sarah Mudrak, Ph.D.; Georgia Tomaras, Ph.D.; Solomon Abebe Yimer; (b) (6); (b) (6) Erica Ollmann Saphire; Chu, May; Leader, Troy; (b) (6); (b) (6) MEDCOM WRAIR (USA); Boyle, David; McDermott, Adrian (NIH/VRC) [E]; (b) (6) Panayampalli, Subbian Satheshkumar (CDC/DDID/NCEZID/DHCPP); Shelly Krebs

Subject: WHO Consultation on SARS-CoV -2 Viruses, Reagents and immune Assays - Wed 3:30 PM CET

When: Wednesday, April 15, 2020 9:30 AM-10:30 AM (UTC-05:00) Eastern Time (US & Canada).

Where: Skype Meeting

Hello all

Last week we talked about having the developers call on the 15th, but that will instead be on the 22nd. This week we will have presentations from Cassandra Kelly at FIND and from Le Sun from AnyGo technology. A pre-print and other materials from Dr. Sun will be placed on the shared drive.

Bill

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From: Graham, Barney (NIH/VRC) [E]
Sent: Tue, 18 Feb 2020 01:03:26 +0000
To: Barton Haynes, M.D.
Cc: Mascola, John (NIH/VRC) [E]; Greg Sempowski (b) (6)
Subject: Re: coronavirus (b) (4)

No problem Bart. (b) (4) is one of the last boxes to check. Everything else has gone about as smoothly and rapidly as I could hope for.

Barney

Sent from my iPhone

On Feb 17, 2020, at 6:26 PM, Barton Haynes, M.D. (b) (6) > wrote:

Hi Barney; I cant tell you how much we appreciate your help with (b) (4). We will keep you informed and if anything we do can be of help to you just let us know. All the very best Bart

From: Corbett, Kizzmekia (NIH/VRC) [E] (b) (6) >
Sent: Monday, February 17, 2020 4:05 PM
To: Barton Haynes, M.D. (b) (6); Graham, Barney (NIH/VRC) [E]
(b) (6)
Cc: Mascola, John (NIH/VRC) [E] (b) (6) >; Gregory Sempowski
(b) (6); Thomas Denny (b) (6); Cynthia Nagle, Ph.D.
(b) (6) >; Kelly Soderberg (b) (6); Morabito, Kaitlyn (NIH/VRC)
[E] (b) (6); Marston, Hilary (NIH/NIAID) [E] (b) (6); Embry, Alan
(NIH/NIAID) [E] (b) (6); Stein, Judy (NIH/VRC) [C] (b) (6)
Subject: Re: coronavirus (b) (4)

Good evening Dr. Haynes,
Kaitlyn is facilitating our (b) (4)

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

From: "Barton Haynes, M.D." <(b) (6)>
Date: Monday, February 17, 2020 at 4:01:28 PM
To: "Graham, Barney (NIH/VRC) [E]" (b) (6)>
Cc: "Mascola, John (NIH/VRC) [E]" (b) (6), "Gregory Sempowski"
(b) (6)>, "Thomas Denny" (b) (6), "Cynthia Nagle,
Ph.D." (b) (6), "Kelly Soderberg" (b) (6)>, "Morabito,
Kaitlyn (NIH/VRC) [E]" (b) (6)>, "Corbett, Kizzmekia (NIH/VRC) [E]"
(b) (6)>, "Marston, Hilary (NIH/NIAID) [E]" (b) (6)>,
"Embry, Alan (NIH/NIAID) [E]" (b) (6)>
Subject: RE: coronavirus (b) (4)

Many thanks Barney

Also who would we talk to about (b) (4)

All the very best Bart

From: Graham, Barney (NIH/VRC) [E] (b) (6)>
Sent: Monday, February 17, 2020 2:53 PM
To: Barton Haynes, M.D. (b) (6)>
Cc: Mascola, John (NIH/VRC) [E] <(b) (6)>; Gregory Sempowski
(b) (6)>; Thomas Denny (b) (6)>; Cynthia Nagle, Ph.D.
(b) (6)>; Kelly Soderberg (b) (6)>; Morabito, Kaitlyn (NIH/VRC)
[E] (b) (6)>; Corbett, Kizzmekia (NIH/VRC) [E] (b) (6);
Marston, Hilary (NIH/NIAID) [E] (b) (6)>; Embry, Alan (NIH/NIAID) [E]
(b) (6)>
Subject: Re: coronavirus (b) (4)

Hi Bart. I'll make sure your lab is also on the list (b) (4)
(b) (4)

Best wishes,

Barney

Sent from my iPhone

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

Hi Barney:

(b) (4)

(b) (4)

All the very best Bart

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

(b) (6)

From: Graham, Barney (NIH/VRC) [E]
Sent: Tue, 21 Apr 2020 00:54:14 +0000
To: Corbett, Kizzmekia (NIH/VRC) [E]
Subject: help with awards


Hi Kizzmekia,

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) (6), (b) (5)



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: (b) (6)
Sent: Mon, 23 Mar 2020 10:58:23 -0400
To: Bok, Karin (NIH/VRC) [E]
Cc: Stein, Judy (NIH/VRC) [C]; Petrik, Amy (NIH/NIAID) [E]; Morabito, Kaitlyn (NIH/VRC) [E]; Corbett, Kizzmekia (NIH/VRC) [E]; Viviana Parreño
Subject: Re: (b) (4)

Agree.

Barney

Sent from my iPhone

On Mar 23, 2020, at 10:57 AM, Bok, Karin (NIH/VRC) [E] (b) (6) wrote:

Judy,

(b) (4)

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>

<image001.jpg>

From: Graham, Barney (NIH/VRC) [E]
Sent: Fri, 20 Mar 2020 21:49:33 +0000
To: Routh, Jennifer (NIH/NIAID) [E]
Cc: Oplinger, Anne (NIH/NIAID) [E]; Hiatt, Nissa (NIH/VRC) [C]
Subject: Re: Media Request: FiveThirtyEight

Sounds like a good idea to me.

Barney

Sent from my iPhone

On Mar 20, 2020, at 4:25 PM, Routh, Jennifer (NIH/NIAID) [E] (b) (6) >
wrote:

Sorry if this one was already addressed, but I'm wondering if this would be better suited for someone like Dr. Kanta Subbarao who is at one of the WHO Collaborating Centres and could speak to flu surveillance.

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: Graham, Barney (NIH/VRC) [E] (b) (6) >
Sent: Friday, March 20, 2020 2:25 PM
To: Routh, Jennifer (NIH/NIAID) [E] (b) (6) >; Oplinger, Anne (NIH/NIAID) [E]
(b) (6) >; Hiatt, Nissa (NIH/VRC) [C] <(b) (6)>
Subject: Fwd: Media Request: FiveThirtyEight

FYI.

BG

Sent from my iPhone

Begin forwarded message:

From: Kaleigh Rogers [REDACTED] (b) (6) >
Date: March 20, 2020 at 1:25:21 PM EDT
To: "Graham, Barney (NIH/VRC) [E]" [REDACTED] (b) (6) >
Subject: Media Request: FiveThirtyEight

Hi Dr. Graham:

I'm a reporter at FiveThirtyEight working on a story about the regular seasonal influenza this year and how it has interacted with the COVID-19 outbreak. I was wondering if you might be free for a brief phone interview early next week to go over what we know about how the seasonal flu had been progressing prior to COVID-19 and how the new coronavirus complicates monitoring and controlling seasonal flu.

Please let me know if we can arrange a time to chat.

Kind regards,
Kaleigh

[REDACTED] (b) (6)

From: Graham, Barney (NIH/VRC) [E]
Sent: Tue, 24 Mar 2020 14:49:27 +0000
To: Corbett, Kizzmekia (NIH/VRC) [E]; (b) (6)
Subject: RE: Greetings from Fellow M - NIAID Response to COVID-19

Thank you. I also appreciate the willingness and interest to help. Unfortunately, we do not have space or an administrative mechanism to bring on more people. We are already having to rotate and to take shifts among current staff to maintain the physical distancing requirements.

Take care,

Barney

From: Corbett, Kizzmekia (NIH/VRC) [E] (b) (6) >
Sent: Tuesday, March 24, 2020 10:43 AM
To: (b) (6)
Cc: Graham, Barney (NIH/VRC) [E] (b) (6)
Subject: Re: Greetings from Fellow M - NIAID Response to COVID-19

Thanks for your email. I am under the impression that with our closed campus and inability to hire or bring on special volunteers that this may not be possible. My PI, Dr. Barney Graham, can comment otherwise if apt.

Thanks tremendously for contacting us.

--

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

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

From: (b) (6)
Date: Tuesday, March 24, 2020 at 10:41 AM
To: Kizzmekia Corbett <(b) (6)>
Subject: Greetings from (b) (6) NIAID Response to COVID-19

Dear Kizzmekia,

My name is (b) (6). I wanted to send my warmest congratulations on the work you been doing and say how proud we are of how you've been representing. Keep it up!

I also am writing to get your help and guidance. My colleagues (scientists) and I have been thinking of ways to assist in this crisis. I received the message (below) from a good friend and researcher in Boston. Do you know if NIAID would accept this type of information? Or, perhaps the communications department?

Certainly, there are many aspects of federal operations and response that make it different from the state level. But, I was wondering if NIH would accept this voluntary information of people with relevant skills that want to help, and if there was a particular department that would handle it. There may be other initiatives you're of that may be more suitable. Any guidance would be appreciated.

Be Well,

(b) (6)

National Science Foundation
10400A (b) (6)

Hey I made a google form and more than 6,000 people responded and now I need to get it into the hands of decision makers. Know anyone at NSF who is trying to get their hands on this info? We have a few states using the database, but nothing yet at the federal level.

<https://tinyurl.com/COVID19SciVolunteers>
<https://tinyurl.com/COVID19SciVolunteersFAQ>

--

(b) (6)

(b) (6)



From: Graham, Barney (NIH/VRC) [E]
Sent: Thu, 23 Apr 2020 15:51:01 +0000
To: Hirsch, Marie (NIH/VRC) [E]
Cc: Austin, Sarah (NIH/NIAID) [E]; Mascola, John (NIH/VRC) [E]
Subject: Re: COVID19 Award Nomination

... and the (b) (5)

Barney

Sent from my iPhone

On Apr 23, 2020, at 11:50 AM, Hirsch, Marie (NIH/VRC) [E] <(b) (6)> wrote:

Hi Sarah,

(b) (6) is a contractor so I will take her off of this list. We will check with the Bridget and Patrick is there is a way to recognize contractors. Thanks.

Marie

From: Austin, Sarah (NIH/NIAID) [E] (b) (6)
Sent: Tuesday, April 21, 2020 7:04 PM
To: Hirsch, Marie (NIH/VRC) [E] (b) (6)
Cc: Graham, Barney (NIH/VRC) [E] (b) (6); Mascola, John (NIH/VRC) [E]
(b) (6)
Subject: COVID19 Award Nomination

Good afternoon Marie – forwarding the below nomination on Barney’s behalf.

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

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

Thank you,
Sarah

From: Graham, Barney (NIH/VRC) [E]
Sent: Thu, 23 Jan 2020 15:59:25 +0000
To: (b) (6), (b) (4)
Subject: RE: nCoV project

I think (b) (4)

BG

From: (b) (6), (b) (4)
Sent: Thursday, January 23, 2020 10:47 AM
To: Graham, Barney (NIH/VRC) [E] <(b) (6)>
Subject: Re: nCoV project

Okay, apparently (b) (6), (b) (4).

On Thu, Jan 23, 2020 at 7:14 AM (b) (6), (b) (4) wrote:
Hi Barney,

I have no idea who this person is. Do you know them? Any interest in working together?

I'll follow your lead here, as we are just supporting your efforts on Coronavirus nanoparticles.

(b) (4)

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

From: (b) (6), (b) (4)
Date: Thu, Jan 23, 2020 at 7:10 AM
Subject: Re: nCoV project
To: (b) (6), (b) (4)

Hi (b) (4)

Luckily (b) (4) is already working on a vaccine which is great! Please discuss with him.

(b) (4)

> On Jan 23, 2020, at 2:35 AM, (b) (6) wrote:

>

> Hi (b) (4)

> I'm so sorry to send you the letter in the mid-night. I'm very sad that Wuhan cov spreads so rapidly.

(b) (6)

As you know, I come from the biggest hospital in China, and we have the special medical center for infection disease.

(b) (4)

(b) (4)

From: Graham, Barney (NIH/VRC) [E]
Sent: Tue, 31 Mar 2020 11:45:02 +0000
To: Allison August
Subject: Re: URGENT: Moderna, Request for suggestion for replacement speaker for April 14, MERS and CoV-2
Attachments: image002.jpg, image003.jpg, image004.jpg, image005.jpg, image006.jpg, image008.jpg

Hi Allison,

(b) (4). He has a good understanding of these issues.

Interesting times. We are lucky this didn't happen in 2003 with the first SARS. At that time we didn't even have the technology to have virtual meetings.

Take care,

Barney

Sent from my iPhone

On Mar 31, 2020, at 7:29 AM, Allison August <(b) (6)> wrote:

Dear Barney,

Hope that all is well by you! Thanks for your leadership during these unprecedented times!

As stated by Stephane, we are sad yet completely understand.

Barney, could you recommend a (non-NIH) colleague to step in here? Ideally, someone who shares your understanding of the risks for enhanced disease.

Thank you!

Best, Allison

Allison August, MD

Senior Director, Clinical Development, Infectious Diseases | Moderna Therapeutics

(b) (6) | modernatx.com

mobile (b) (6)

[<image002.jpg>](#)

[<image003.jpg>](#)

[<image004.jpg>](#)

[<image005.jpg>](#)

[<image006.jpg>](#)

From: Stephane Bancel (b) (6) >
Sent: Monday, March 30, 2020 2:15 PM
To: Graham, Barney (NIH/VRC) [E] (b) (6) >; Lavina Talukdar <(b) (6)>
Cc: Chasen Richter (b) (6) Allison August (b) (6) >; Nancy McAdams (b) (6) >
Subject: Re: April 14, MERS and CoV-2

Hello, that is sad, but we understand it is not your choice

Thank you

Speak soon

Cheers

stephane

From: "Graham, Barney (NIH/VRC) [E]" (b) (6) >
Date: Monday, March 30, 2020 at 2:07 PM
To: Lavina Talukdar (b) (6) >, Stephane Bancel (b) (6) >
Cc: Chasen Richter <(b) (6)>, Allison August (b) (6) >, Nancy McAdams (b) (6) >
Subject: RE: April 14, MERS and CoV-2

Hi Stephane,

I've been advised by the Ethics office not to participate in this. I think before January 10th it was not so complicated, but with the active licensing and other activities it is viewed as unadvisable.

Sorry about that. Probably best if I focus on the task at hand anyway.

Take care,

Barney

From: Lavina Talukdar (b) (6) >
Sent: Wednesday, March 25, 2020 1:50 PM
To: Stephane Bancel <(b) (6)>; Graham, Barney (NIH/VRC) [E]
(b) (6) >
Cc: Chasen Richter (b) (6) >; Allison August
(b) (6) >; Nancy McAdams (b) (6)
Subject: Re: April 14, MERS and CoV-2

Hi Barney,

Great to e-meet you. Thank you so much for your participation. Below is the invite with details for the event.

An outline of the topics to cover on MERS preclinical and SARS-CoV-2 is below. If you can share slides for your part of presentation by April 1st that would be great. Also just in case, you end up having other commitments on April 14th, the day of our Vaccines Day event, can I suggest that we do record you beforehand? We would only need your voice-over to your slides and we can play it during your segment with the slides (there won't be video). If you are okay with that, I can work with you on setting up a day for a recording the week of April 6th. How does that sound?

Topic:

(b) (4)

Here is the invite with details as well.

<image008.jpg>

Lavina Talukdar, CFA
Head of IR, Moderna

O: (b) (6)
M: (b) (6)
E: (b) (6)

From: Stephane Bancel (b) (6)
Date: Wednesday, March 25, 2020 at 12:32 PM
To: "Graham, Barney (NIH/VRC) [E]" (b) (6)
Cc: Lavina Talukdar <(b) (6)>
Subject: Re: April 14, MERS and CoV-2

Thanks a lot

I really appreciate it

If you could present your work on MERS and CoV to date, it would be great

Lavina copied here will help with slides, format, agenda,...

Cheers

Stephane

From: "Graham, Barney (NIH/VRC) [E]" <(b) (6)>
Date: Wednesday, March 25, 2020 at 12:31 PM
To: Stephane Bancel <(b) (6)>
Cc: Lavina Talukdar <(b) (6)>
Subject: Re: April 14, MERS and CoV-2

I think I can still do this. If it looks like there will be a time conflict we can record, but I'm pretty sure I can work this out.

Barney

Sent from my iPhone

On Mar 25, 2020, at 12:04 PM, Stephane Bancel (b) (6) > wrote:

Barney, are you still ok to present scientific data pre clinical?

It will be online: voice + slides

April 14, but we could pre record you

Thanks a lot

Stephane

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moderna



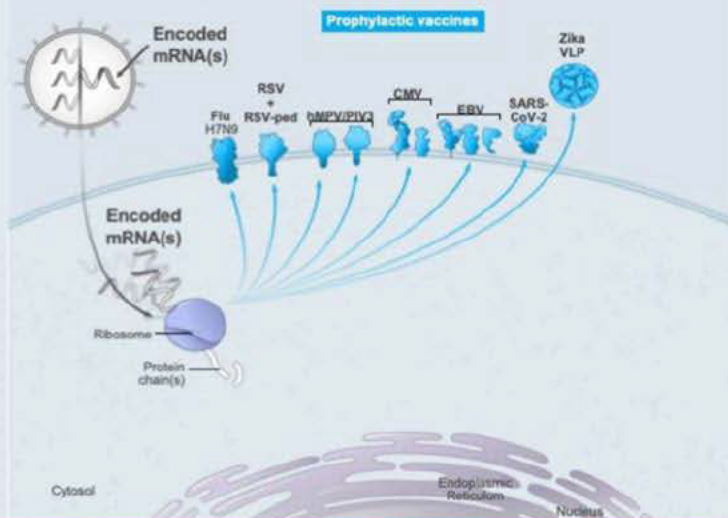
moderna

Cordially invites you to

Vaccines Day

Tuesday, April 14, 2020

8:30am to 1:30pm EDT
(virtual only event)



Webcast presentation will be available in the Investors section of the Moderna website

Please RSVP to receive dial-in information for live Q&A

RSVP@modernatx.com

From: Graham, Barney (NIH/VRC) [E]
Sent: Wed, 29 Apr 2020 00:37:43 +0000
To: Joel Blankson
Subject: Re: invited JCI viewpoint

Thanks Joel.

(b) (5)

(b) (5)

Thanks for the chance to vent (and publish).

Take care,

Barney

Sent from my iPhone

On Apr 28, 2020, at 7:47 PM, Joel Blankson (b) (6) wrote:

Hi Barney,

I love the article! It makes so much sense. Thank you so much for doing it.

It would be nice to work on some of these problems.

Anyway, I hope you're getting some rest.

Best,

Joel

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

Sent: Tuesday, April 28, 2020 6:42 PM

To: Lisa Conti <science_editor@the-jci.org>

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

Subject: RE: invited JCI viewpoint

Hi Lisa,

Thank you for your comments and for relatively minimal edits. I liked your one sentence summary and I changed the section titles a little but kept to less than 9 words. I also answered the conflict of interest questions and filled out the acknowledgements. Let me know if we need to add the patent statement to the acknowledgements.

We appreciate the opportunity to publish in JCI.

Best wishes,

Barney

From: Lisa Conti <science_editor@the-jci.org>
Sent: Sunday, April 26, 2020 3:58 PM
To: Graham, Barney (NIH/VRC) [E] (b) (6)>
Subject: Re: invited JCI viewpoint

Hi Barney,

Thank you so much for writing this excellent Commentary for us! The Board found the piece very interesting. I have attached some suggested edits, most of which serve to conform to JCI style and grammar guides. Please go through and add additional edits to this document. Please have your final text to me by Tuesday, April 28th.

Cheers,
Lisa

On 4/16/20 3:41 PM, Graham, Barney (NIH/VRC) [E] wrote:
Dear Lisa,

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

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

Best wishes and take care,

Barney

Barney S. Graham, MD, PhD
Senior Investigator
Deputy Director, Vaccine Research Center
Chief, Viral Pathogenesis Laboratory
National Institute of Allergy and Infectious Diseases, NIH
40 Convent Drive, MSC 3017
Bldg 40, Room 2502
Bethesda, MD 20892-3017

Phone: (b) (6)

URL: <https://www.niaid.nih.gov/research/barney-graham-md-phd>

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--

Lisa Conti, Ph. D.
Assistant Science Editor
The Journal of Clinical Investigation
science_editor@the-jci.org

From: Graham, Barney (NIH/VRC) [E]
Sent: Fri, 28 Feb 2020 13:38:43 +0000
To: Stein, Judy (NIH/VRC) [C]; Corbett, Kizzmekia (NIH/VRC) [E]; Morabito, Kaitlyn (NIH/VRC) [E]; Bok, Karin (NIH/VRC) [E]
Subject: RE: [External] RE: 2019 CoV

Larry is at Emory in Atlanta. Jim is in Nashville. (b) (4)

Barney

From: Stein, Judy (NIH/VRC) [C] (b) (6) >
Sent: Friday, February 28, 2020 8:36 AM
To: Corbett, Kizzmekia (NIH/VRC) [E] (b) (6); Morabito, Kaitlyn (NIH/VRC) [E] (b) (6); Bok, Karin (NIH/VRC) [E] (b) (6)
Cc: Graham, Barney (NIH/VRC) [E] <(b) (6)>
Subject: RE: [External] RE: 2019 CoV

Hi everyone,

(b) (4)

Thanks,
Judy

From: Anderson, Larry J (b) (6)
Sent: Friday, February 28, 2020 8:18 AM
To: Stein, Judy (NIH/VRC) [C] (b) (6) >; Corbett, Kizzmekia (NIH/VRC) [E] (b) (6); Morabito, Kaitlyn (NIH/VRC) [E] (b) (6) >; Bok, Karin (NIH/VRC) [E] (b) (6)
Cc: Graham, Barney (NIH/VRC) [E] (b) (6)
Subject: RE: [External] RE: 2019 CoV

(b) (4)

Thank you.

lja

Larry J. Anderson, MD
Division of Pediatric Infectious Diseases
Emory - Children's Center
2015 Uppergate Drive, Room 530
Atlanta, GA 30322
Tel. (b) (6)
Cell (b) (6)
404-727-8249 (fax)

(b) (6)

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

Sent: Sunday, February 23, 2020 6:50 PM

To: Anderson, Larry J (b) (6) >

Cc: Stein, Judy (NIH/VRC) [C] (b) (6); Corbett, Kizzmekia (NIH/VRC) [E]

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

Subject: Re: [External] RE: 2019 CoV

Hi Larry,

(b) (4)

I bet you are glad not to be at the CDC during this one. It's been non-stop.

Best wishes,

Barney

Sent from my iPhone

On Feb 23, 2020, at 2:11 PM, Anderson, Larry J (b) (6) wrote:

(b) (4)

(b) (4) The outbreak seems to be expanding globally, in a concerning, though not surprising fashion.

thanks.

lja

Larry J. Anderson, MD
Division of Pediatric Infectious Diseases
Emory - Children's Center
2015 Uppergate Drive, Room 530
Atlanta, GA 30322
Tel. (b) (6)
Cell (b) (6)
404-727-8249 (fax)

(b) (6)

From: Graham, Barney (NIH/VRC) [E] (b) (6)>
Sent: Tuesday, February 18, 2020 12:52 PM
To: Anderson, Larry J <(b) (6)>
Subject: [External] RE: 2019 CoV

Hi Larry,

Yes, we are in the middle of it. (b) (4)

(b) (4)

(b) (4)

Barney

From: Anderson, Larry J (b) (6)>
Sent: Tuesday, February 18, 2020 12:22 PM
To: Graham, Barney (NIH/VRC) [E] (b) (6)>
Subject: 2019 CoV

Barney,

Hope you are doing well and (b) (6)

Question. (b) (4)

(b) (4)

(b) (4)

Thanks.

lja
Larry J. Anderson, MD
Division of Pediatric Infectious Diseases
Emory - Children's Center
2015 Uppergate Drive, Room 530
Atlanta, GA 30322
Tel. (b) (6)
Cell (b) (6)
404-727-8249 (fax)
(b) (6)

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From: Graham, Barney (NIH/VRC) [E]
Sent: Mon, 20 Apr 2020 02:30:22 +0000
To: Chang, Lauren (NIH/VRC) [F]; Ruckwardt, Tracy (NIH/VRC) [E]; Abiona, Olubukola (NIH/VRC) [F]; Corbett, Kizzmekia (NIH/VRC) [E]; Morabito, Kaitlyn (NIH/VRC) [E]; Phung, Emily (NIH/VRC) [F]
Subject: RE: (b) (5) Graphs

Thanks Lauren, (b) (5)

BG

From: Chang, Lauren (NIH/VRC) [F] (b) (6)>
Sent: Sunday, April 19, 2020 9:57 PM
To: Ruckwardt, Tracy (NIH/VRC) [E] <(b) (6)>; Abiona, Olubukola (NIH/VRC) [F] (b) (6)>; Corbett, Kizzmekia (NIH/VRC) [E] (b) (6); Graham, Barney (NIH/VRC) [E] (b) (6)>; Morabito, Kaitlyn (NIH/VRC) [E] <(b) (6)>; Phung, Emily (NIH/VRC) [F] (b) (6)>
Subject: Re (b) (5) Graphs

Hi Tracy,

(b) (5)

Best,
Lauren

From: "Ruckwardt, Tracy (NIH/VRC) [E]" <(b) (6)>
Date: Sunday, April 19, 2020 at 9:09 PM

To: "Chang, Lauren (NIH/VRC) [F]" (b) (6), "Abiona, Olubukola (NIH/VRC) [F]" (b) (6), "Corbett, Kizzmekia (NIH/VRC) [E]" (b) (6), "Graham, Barney (NIH/VRC) [E]" (b) (6), "Morabito, Kaitlyn (NIH/VRC) [E]" (b) (6), "Phung, Emily (NIH/VRC) [F]" (b) (6)

Subject: Re: (b) (5) Graphs

Looks good, Lauren. Not sure what (b) (5)
(b) (5)

Tracy

From: "Chang, Lauren (NIH/VRC) [F]" (b) (6)
Date: Sunday, April 19, 2020 at 8:13 PM
To: "Abiona, Olubukola (NIH/VRC) [F]" (b) (6), "Corbett, Kizzmekia (NIH/VRC) [E]" (b) (6), "Ruckwardt, Tracy (NIH/VRC) [E]" (b) (6), "Graham, Barney (NIH/VRC) [E]" (b) (6), "Morabito, Kaitlyn (NIH/VRC) [E]" (b) (6), "Phung, Emily (NIH/VRC) [F]" (b) (6)
Subject: Re: (b) (5) Graphs

Hi all,

Please find attached a slide deck summarizing our (b) (5)
(b) (5)

Please let me know if you have any questions!

Best,
Lauren

From: "Abiona, Olubukola (NIH/VRC) [F]" (b) (6) >
Date: Saturday, April 18, 2020 at 6:33 PM
To: "Chang, Lauren (NIH/VRC) [F]" (b) (6) >
Subject: FW: (b) (5) Graphs

From: Corbett, Kizzmekia (NIH/VRC) [E] (b) (6) >
Sent: Saturday, April 18, 2020 5:15 PM
To: Abiona, Olubukola (NIH/VRC) [F] <(b) (6)>; Ruckwardt, Tracy (NIH/VRC) [E]
(b) (6); Graham, Barney (NIH/VRC) [E] (b) (6) >

Cc: Morabito, Kaitlyn (NIH/VRC) [E] (b) (6); Phung, Emily (NIH/VRC) [F]

(b) (6)

Subject: Re: (b) (5) Graphs

(b) (5)

Sent from the mobile device of:

Kizzmekia S. Corbett, PhD

Senior Research Fellow

coVip Scientific Lead

VRC | NIAID | NIH

(b) (6)

From: "Abiona, Olubukola (NIH/VRC) [F]" (b) (6)

Date: Saturday, April 18, 2020 at 3:59:06 PM

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

Cc: "Morabito, Kaitlyn (NIH/VRC) [E]" <(b) (6)>, "Phung, Emily (NIH/VRC) [F]" (b) (6)

Subject: RE: (b) (5) Graphs

Emily has been forwarding me the emails. All I need is (b) (5)
(b) (5)

-Olu

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

Sent: Saturday, April 18, 2020 3:23 PM

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

Cc: Morabito, Kaitlyn (NIH/VRC) [E] <(b) (6)> Phung, Emily (NIH/VRC) [F] (b) (6)>; Abiona, Olubukola (NIH/VRC) [F] (b) (6)>

Subject: Re: (b) (5) Graphs

Sounds good.

Yes (b) (5) I will coordinate with Olubukola (& all), who I just realized was not on these emails, re: (b) (5)

Sent from the mobile device of:

Kizzmekia S. Corbett, PhD

Senior Research Fellow

coVip Scientific Lead

VRC | NIAID | NIH

(b) (6)

From: "Ruckwardt, Tracy (NIH/VRC) [E]" (b) (6) >

Date: Saturday, April 18, 2020 at 3:04:03 PM

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

Cc: "Morabito, Kaitlyn (NIH/VRC) [E]" (b) (6) "Phung, Emily (NIH/VRC) [F]" (b) (6)

Subject: Re: (b) (5) Graphs

Yes, I think this is very possible. I think the first step may be something like a (b) (5)
(b) (5)

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

Date: Saturday, April 18, 2020 at 1:31 PM

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

Cc: "Morabito, Kaitlyn (NIH/VRC) [E]" (b) (6) >, "Phung, Emily (NIH/VRC) [F]" <(b) (6)>

Subject: RE: (b) (5) Graphs

If we could do (b) (5)

(b) (5)

BG

From: Corbett, Kizzmekia (NIH/VRC) [E] (b) (6) >
Sent: Saturday, April 18, 2020 1:27 PM
To: Ruckwardt, Tracy (NIH/VRC) [E] (b) (6); Graham, Barney (NIH/VRC) [E] (b) (6) >
Cc: Morabito, Kaitlyn (NIH/VRC) [E] (b) (6) >; Phung, Emily (NIH/VRC) [F] (b) (6)
Subject: Re: (b) (5) Graphs

I agree that this is a great idea, Tracy. (b) (5)
(b) (5)

--

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

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

From: "Ruckwardt, Tracy (NIH/VRC) [E]" (b) (6) >
Date: Friday, April 17, 2020 at 8:38 PM
To: Barney Graham (b) (6) Kizzmekia Corbett <(b) (6)>
Cc: Kaitlyn Morabito (b) (6), "Phung, Emily (NIH/VRC) [F]" (b) (6)
Subject: Re (b) (5) Graphs

Is it possible that (b) (5)
(b) (5)
(b) (5), so I'm not sure what to make of that.

From: "Graham, Barney (NIH/VRC) [E]" (b) (6) >
Date: Friday, April 17, 2020 at 6:11 PM
To: "Corbett, Kizzmekia (NIH/VRC) [E]" (b) (6) >
Cc: "Ruckwardt, Tracy (NIH/VRC) [E]" (b) (6), "Morabito, Kaitlyn (NIH/VRC)

[E]" <[REDACTED] (b) (6)>, "Phung, Emily (NIH/VRC) [F]" [REDACTED] (b) (6)

Subject: FW: [REDACTED] (b) (6) Graphs

Do you think there is any chance that we reversed the IgG1 and IgG2a results. It seems very odd to me especially in the C57 that there is virtually no IgG2a response, and this is a more Th1 oriented strain than BALB/c. Is there a way to check and be sure. This just doesn't seem right.

Barney

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

Sent: Friday, April 17, 2020 8:52 AM

To: Morabito, Kaitlyn (NIH/VRC) [E] [REDACTED] (b) (6); Graham, Barney (NIH/VRC) [E]

[REDACTED] (b) (6)>

Subject: FW: [REDACTED] (b) (5) Graphs

--

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: (301) 761-7610

Personal: [REDACTED] (b) (6)

Fax: [REDACTED] (b) (6)

From: "Phung, Emily (NIH/VRC) [F]" [REDACTED] (b) (6)>

Date: Tuesday, April 14, 2020 at 12:55 PM

To: Kizzmekia Corbett <[REDACTED] (b) (6)>

Cc: "Chang, Lauren (NIH/VRC) [F]" [REDACTED] (b) (6), "Abiona, Olubukola (NIH/VRC) [F]"

[REDACTED] (b) (6)>

Subject: [REDACTED] (b) (4) Graphs

Hi Kizzmekia,

Attached is the [REDACTED] (b) (5)
attached below).

[REDACTED] (b) (5)

Please let me know if you want me to change anything!

Thank you,
Emily

[REDACTED] (b) (5)

From: Graham, Barney (NIH/VRC) [E]
Sent: Fri, 6 Mar 2020 13:39:45 +0000
To: Helen Y Chu
Cc: Morabito, Kaitlyn (NIH/VRC) [E]
Subject: Re: Proposing a concept for monoclonal antibody trials as part of VTEU

By the way, we have the [REDACTED] (b) (4) that we will be working on ASAP. We will keep you up on our progress.

Barney

Sent from my iPhone

On Mar 6, 2020, at 6:34 AM, Graham, Barney (NIH/VRC) [E] [REDACTED] (b) (6) wrote:

OK. Sorry to hear that. Be careful.
Our vaccine trial with Moderna will begin next week in Seattle.
Barney

Sent from my iPhone

On Mar 5, 2020, at 10:27 PM, Helen Y Chu [REDACTED] (b) (6) wrote:

He's [REDACTED] (b) (6)

From: "Graham, Barney (NIH/VRC) [E]" [REDACTED] (b) (6)>
Date: Thursday, March 5, 2020 at 7:24 PM
To: Helen Y Chu [REDACTED] (b) (6)
Cc: "Morabito, Kaitlyn (NIH/VRC) [E]" [REDACTED] (b) (6)
Subject: Re: Proposing a concept for monoclonal antibody trials as part of VTEU

Thanks Helen.

You know that if one of these patients is willing we can fly them to NIH and apheresis them so all parties can receive the cells.

Barney

Sent from my iPhone

On Mar 5, 2020, at 8:00 PM, Helen Y Chu <(b) (6)> wrote:

We enrolled another patient today. Will reach out and coordinate biospecimens shortly.

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

Date: Tuesday, March 3, 2020 at 3:28 AM

To: Helen Y Chu <(b) (6)>

Cc: "Morabito, Kaitlyn (NIH/VRC) [E]" <(b) (6)>

Subject: Re: Proposing a concept for monoclonal antibody trials as part of VTEU

Hi Helen. (b) (4)

(b) (4)

Sorry to hear about the hot-spot in Seattle. Let us know if we can do more than (b) (4)
Stay well.

Barney

Sent from my iPhone

On Mar 3, 2020, at 2:28 AM, Helen Y Chu <(b) (6)> wrote:

Thanks Barney, and sorry for the delay. Things in Seattle suddenly got much busier than I imagined possible. (b) (4)

(b) (4)

Helen

Helen Y Chu, MD MPH
Division of Allergy & Infectious Diseases

New lab address

UW Medicine South Lake Union
Brotman Bldg, Room 254
850 Republican St, Seattle WA 98109
chulab.org

From: "Graham, Barney (NIH/VRC) [E]" (b) (6) >
Date: Wednesday, February 26, 2020 at 11:50 PM
To: Helen Y Chu (b) (6)
Cc: "Morabito, Kaitlyn (NIH/VRC) [E]" (b) (6) >
Subject: Re: Proposing a concept for monoclonal antibody trials as part of VTEU

Hi Helen,

We would be glad to help as we can. However our focus is on vaccine and assay development. The VRC will be Facilitating but not manufacturing a MAB in that timeframe. Some of our collaborating partners through DARPA May be, so we will see.

Barney

Sent from my iPhone

On Feb 27, 2020, at 12:12 AM, Helen Y Chu (b) (6) > wrote:

Hi Barney and Kaitlyn,

We'd like to (b) (4):

(b) (4)

Thanks for considering. Happy to talk on the phone.

Helen

Helen Y. Chu, MD MPH

Division of Allergy & Infectious Diseases

chulab.org

Our lab has moved to a new location in South Lake Union

From: Graham, Barney (NIH/VRC) [E]
Sent: Mon, 9 Mar 2020 00:41:41 +0000
To: Corbett, Kizzmekia (NIH/VRC) [E]
Subject: RE: Korea Tracking Number Shipment-FedEx Shipment (b) (4)
Notification

Hi Kizzy,

Have we reviewed the (b) (4), (b) (5)
Can we discuss this in the morning to make sure we are on the right path.

BG

From: Corbett, Kizzmekia (NIH/VRC) [E] (b) (6)>
Sent: Friday, March 6, 2020 6:47 PM
To: Gall, Jason (NIH/VRC) [C] (b) (6)
Cc: Mascola, John (NIH/VRC) [E] (b) (6)>; Graham, Barney (NIH/VRC) [E] (b) (6)
Subject: Fwd: Korea Tracking Number Shipment-FedEx Shipment (b) (4) Notification

Jason, I'm mobile but I wanted you to have the sequence now. See attached zip, & disregard the additional items unless of course you are interested.

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

From: "Corbett, Kizzmekia (NIH/VRC) [E]" <(b) (6)>
Date: Friday, March 6, 2020 at 1:36:52 PM
To: "최장훈" <>
Cc: "김성순" <>, "최병선" <>, "이주연" <>, "이한샘" <>, "Stein, Judy (NIH/VRC) [C]" <(b) (6)>
Subject: Re: Korea Tracking Number Shipment-FedEx Shipment (b) (4) Notification

Please find all the info you need attached.

--

Kizzmekia S. Corbett, PhD

Senior Research Fellow | Scientific Lead

Coronavirus Vaccines & Immunopathogenesis (coVip) Team

Viral Pathogenesis Laboratory | Vaccine Research Center

National Institutes of Allergy and Infectious Diseases

National Institutes of Health

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40 Convent Drive

Bethesda MD 20892

Laboratory: (b) (6)

Personal: (b) (6)

Fax: (301) 480-2771

From: (b) (6) > on behalf of 최장훈 (b) (6) >

Date: Friday, March 6, 2020 at 12:53 AM

To: Kizzmekia Corbett (b) (6)

Cc: ""김성순"" (b) (6), ""최병선"" (b) (6) >, ""이주연"" (b) (6) >, ""이한샘"" (b) (6)

Subject: RE: FW: Korea Tracking Number Shipment-FedEx Shipment (b) (4) Notification

Dear Dr. Corbett,

Thank you for updating shipment. Would you please send me the (b) (4)

Jagnhoon

----- 원본 메일 -----

보낸사람 : "Corbett, Kizzmekia (NIH/VRC)" (b) (6) >

받는사람 : (b) (6) >

받은날짜 : 2020년 3월 6일(금) 08:07:24

제목 : FW: Korea Tracking Number Shipment-FedEx Shipment (b) (4) Notification

--

Kizzmekia S. Corbett, PhD

Senior Research Fellow | Scientific Lead

Coronavirus Vaccines & Immunopathogenesis (coVip) Team

Viral Pathogenesis Laboratory | Vaccine Research Center

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National Institutes of Health

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40 Convent Drive
Bethesda MD 20892

Laboratory: (b) (6)
Personal: (b) (6)
Fax: (301) 480-2771

From: "Abiona, Olubukola (NIH/VRC) [F]" <(b) (6)>
Date: Thursday, March 5, 2020 at 4:22 PM
To: Kizzmekia Corbett <(b) (6)>
Subject: Korea Tracking Number Shipment-FedEx Shipment (b) (4) Notification

From: TrackingUpdates@fedex.com <TrackingUpdates@fedex.com>
Sent: Thursday, March 5, 2020 4:17 PM
To: Abiona, Olubukola (NIH/VRC) [F] (b) (6)
Subject: FedEx Shipment (b) (4) Notification

his shipment is scheduled to be
ent on 03/05/2020.

he delivery date may be updated
hen FedEx receives the package.

ee "Preparing for Delivery" for helpful tips

acking # (b) (4)

Anticipated ship
date:
nu, 3/5/2020

Estimated delivery
date:
Mon, 3/9/2020 by
m

RIGHT

FORWARDING

SECTION

Initiated

PHD

NIH/TRANSPORTATIO
N MANAGEMENT DIV.

DIV OF VIRAL
DISEASES RESE,

BETHESDA, MD 20892

US

KOREA

CHEONGCHE-DO, REP
OF KOREA

NTL INST OF HLTH,

187 OSONGSAEN

CHEONGJU-SI

HEUNGDEOK-GU,

28159

KR

Shipment Facts

Tracking number:

(b) (4)

Reference:

Service type:

International Priority®

Packaging type:

Your Packaging

Number of pieces:

1

Weight:

6.00 lb.

Special handling/Services:

Deliver Weekday

Dry Ice

☐ Please do not respond to this message. This email was sent from an unattended mailbox. This report was generated at approximately 3:16 PM CST on 03/05/2020.

All weights are estimated.

The shipment is scheduled for delivery on or before the scheduled delivery displayed above. FedEx does not determine money-back guarantee or delay claim requests based on the scheduled delivery. Please see the FedEx Service Guide for terms and conditions of service, including the FedEx Money-Back Guarantee, or contact your FedEx customer support representative.

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Thank you for your business.



From: Graham, Barney (NIH/VRC) [E]
Sent: Mon, 6 Apr 2020 21:52:33 +0000
To: McDermott, Adrian (NIH/VRC) [E]
Cc: Koup, Richard (NIH/VRC) [E]
Subject: Re: Quick CoV-2 assay update

Thanks Adrian. I'm very interested. I tried to

(b) (5)

(b) (5)

Barney

Sent from my iPhone

On Apr 6, 2020, at 5:39 PM, McDermott, Adrian (NIH/VRC) [E]
wrote:

(b) (6)>

Barney,

(b) (5)

Will include you in the future.
Adrian

On Apr 6, 2020, at 4:13 PM, Graham, Barney (NIH/VRC) [E]

(b) (6)> wrote:

Hi Adrian,

It might be helpful if you include me on your COVID-19 assay emails.

(b) (5)

(b) (5)

Barney

From: Mascola, John (NIH/VRC) [E] (b) (6) >
Sent: Monday, April 6, 2020 3:51 PM
To: McDermott, Adrian (NIH/VRC) [E] (b) (6) >; Ledgerwood, Julie (NIH/NIAID) [E] (b) (6) >
Cc: Widge, Alicia (NIH/NIAID) [E] <(b) (6)>; Graham, Barney (NIH/VRC) [E] (b) (6) >; Marston, Hilary (NIH/NIAID) [E] (b) (6) >
Subject: RE: Quick CoV-2 assay update

Hi Adrian,

This is helpful. Adding Barney here – and Hilary Marston for awareness.

I think (b) (5)

John

From: McDermott, Adrian (NIH/VRC) [E] (b) (6)
Sent: Monday, April 6, 2020 3:13 PM
To: Ledgerwood, Julie (NIH/NIAID) [E] (b) (6) >
Cc: Widge, Alicia (NIH/NIAID) [E] (b) (6) >; Koup, Richard (NIH/VRC) [E] (b) (6) >; Mascola, John (NIH/VRC) [E] (b) (6) >; Carlton, Kevin (NIH/VRC) [E] (b) (6) >
Subject: Quick CoV-2 assay update

Dear Julie,

(b) (5)

Lots and lots of work summarized very quickly.

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): (b) (6)
Phone (Cell): (b) (6)*

From: Graham, Barney (NIH/VRC) [E]
Sent: Tue, 11 Feb 2020 08:12:30 +0000
To: Mascola, John (NIH/VRC) [E]; Fauci, Anthony (NIH/NIAID) [E]
Cc: Marston, Hilary (NIH/NIAID) [E]
Subject: nCoV-2019 S Combined.pdf
Attachments: nCoV-2019 S Combined.pdf

FYI. This was submitted to Science this morning and will be posted to BioRxiv in the next day or two. PDB structures are posted and should be available in next few days.

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

Barney

From: Graham, Barney (NIH/VRC) [E]
Sent: Mon, 30 Mar 2020 13:21:26 +0000
To: Chad Moles
Subject: Re: COVID-19 Vaccine: Proposal & Inquiry

I've forwarded your inquiry to DMID where they are processing these kinds of requests.

Barney Graham

Sent from my iPhone

On Mar 26, 2020, at 4:40 PM, Chad Moles (b) (6) wrote:

Hi Dr. Graham

My name is Chad Moles, and I'm the CSO of [Humane Genomics](#) a biotech company focused on developing synthetic viruses as personalized therapeutics. You may not recall, but we met briefly at ASV 2018 at the University of Maryland. I enjoyed your discussion and thoughts on synthetic vaccinology.

Related to this, my company and I came up with a **proposal for a COVID-19 vaccine**. We aim to develop vesicular stomatitis virus (VSV) engineered with the spike glycoprotein of SARS-CoV-2. You can read more about it in the attached slide deck, or on our blog [here](#) and [here](#). Of note, we received SARS-CoV-2 gene fragments today and plan to complete whole-genome assembly by Friday, bringing the design and build of vaccine candidates to 10 days.

I know you are currently collaborating with Moderna on their mRNA vaccine, but I would love to get your feedback on our vaccine proposal and learn more about how we can collaborate with government or advance our testing capabilities.

It would be great if we could setup a brief call to discuss.

Best regards,

Chad

--

Chad Moles, CSO @ Humane Genomics
(M) (b) (6), (W) humanegenomics.com

<COVID19 Vaccine 20200326.pdf>

From: Graham, Barney (NIH/VRC) [E]
Sent: Thu, 26 Mar 2020 14:14:59 +0000
To: Narpala, Sandeep (NIH/VRC) [C]
Cc: Corbett, Kizzmekia (NIH/VRC) [E]; Liu, Catherine (NIH/VRC) [C]; Abiona, Olubukola (NIH/VRC) [F]; McDermott, Adrian (NIH/VRC) [E]
Subject: Re: Status of (b) (4), (b) (5) Assay... Please Comment

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

Barney

Sent from my iPhone

On Mar 26, 2020, at 10:11 AM, Narpala, Sandeep (NIH/VRC) [C] (b) (6) wrote:

Thank you. (b) (4), (b) (5).

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

Best,
Sandeep

From: Corbett, Kizzmekia (NIH/VRC) [E] (b) (6) >
Sent: Thursday, March 26, 2020 10:00 AM
To: Narpala, Sandeep (NIH/VRC) [C] (b) (6) >
Cc: Liu, Catherine (NIH/VRC) [C] (b) (6) >; Abiona, Olubukola (NIH/VRC) [F] (b) (6) >; McDermott, Adrian (NIH/VRC) [E] (b) (6); Graham, Barney (NIH/VRC) [E] (b) (6)
Subject: Re: Status of (b) (4), (b) (5) Assay... Please Comment

Good morning,

Attaching the things in yellow. You can find the (b) (4), (b) (5) in an email that I sent already or Olubukola can share it here. I have been up all night so I am going to sleep and thus will not be replying to emails until tomorrow.

--

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: "Narpala, Sandeep (NIH/VRC) [C]" (b) (6)>

Date: Thursday, March 26, 2020 at 9:34 AM

To: Kizzmekia Corbett <(b) (6)>

Cc: "Liu, Catherine (NIH/VRC) [C]" (b) (6)>, "Abiona, Olubukola (NIH/VRC) [F]" (b) (6)>, "McDermott, Adrian (NIH/VRC) [E]" (b) (6)>

Subject: RE: Status of (b) (4), (b) (5) Assay... Please Comment

Good Morning Kizzie, Catherine and Olu,

Gentle reminder about the request below. (b) (4), (b) (5)

Thank you.

Best,
Sandeep

From: Narpala, Sandeep (NIH/VRC) [C] (b) (6)>

Sent: Wednesday, March 25, 2020 5:20 PM

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

Cc: Liu, Catherine (NIH/VRC) [C] (b) (6); Abiona, Olubukola (NIH/VRC) [F] (b) (6); McDermott, Adrian (NIH/VRC) [E] (b) (6)>

Subject: Re: Status of (b) (4), (b) (5) Assay... Please Comment

Thank you so much Kizzie. (b) (4), (b) (5) Below is some information they are requesting. Please send it to me when you get a chance.

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

Best,
Sandeep

From: "Corbett, Kizzmekia (NIH/VRC) [E]" <(b) (6)>
Date: Wednesday, March 25, 2020 at 3:05 PM
To: "Narpala, Sandeep (NIH/VRC) [C]" (b) (6)>
Subject: Re: Status of (b) (4), (b) (5) Assay... Please Comment

--

Kizzmekia S. Corbett, PhD
Senior Research Fellow | Scientific Lead
Coronavirus Vaccines & Immunopathogenesis (coVip) Team
Viral Pathogenesis Laboratory | Vaccine Research Center
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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: "Narpala, Sandeep (NIH/VRC) [C]" <(b) (6)>
Date: Wednesday, March 25, 2020 at 2:11 PM
To: Kizzmekia Corbett (b) (6)
Subject: RE: Status of (b) (4), (b) (5) Assay... Please Comment

Hello Kizzie,

Thanks for putting together the shipment. Can you please fill out the information for (b) (4), (b) (5) in the table below and send it back to me? (b) (4), (b) (5)

(b) (4), (b) (5) Thanks.

Best,
Sandeep

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

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

From: Corbett, Kizzmekia (NIH/VRC) [E] <(b) (6)>
Sent: Wednesday, March 25, 2020 12:31 PM

NIH-001128

To: Narpala, Sandeep (NIH/VRC) [C] (b) (6); Andrews, Sarah (NIH/VRC) [E] (b) (6)>
Cc: O'Connell, Sarah (NIH/VRC) [C] (b) (6)
Subject: Re: Status of (b) (4), (b) (5) Assay... Please Comment

How much do you need? I'm about to pack them up...

--

Kizzmekia S. Corbett, PhD

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Laboratory: (b) (6)

Personal: (b) (6)

Fax: (301) 480-2771

From: "Narpala, Sandeep (NIH/VRC) [C]" (b) (6)
Date: Wednesday, March 25, 2020 at 12:24 PM
To: Kizzmekia Corbett (b) (6), "Andrews, Sarah (NIH/VRC) [E]" (b) (6)>
Cc: "O'Connell, Sarah (NIH/VRC) [C]" (b) (6)>
Subject: RE: Status of (b) (4), (b) (5) Assay... Please Comment

Hello Kizzie and Sarah,

Can you please provide the info for the (b) (4), (b) (5) today. I'm working on (b) (4), (b) (5)
(b) (4), (b) (5)

Best,
Sandeep

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

From: Corbett, Kizzmekia (NIH/VRC) [E] (b) (6)
Sent: Tuesday, March 24, 2020 6:32 PM
To: Narpala, Sandeep (NIH/VRC) [C] (b) (6)>
Cc: Liu, Catherine (NIH/VRC) [C] (b) (6); McDermott, Adrian (NIH/VRC) [E] <(b) (6)>; Wang, Lingshu (NIH/VRC) [E] <(b) (6)>
Subject: Re: Status of (b) (4), (b) (5) Assay... Please Comment

If I can get to the 4th floor in the am at 10, I'm happy to do that. Maybe someone who is there can swap places with me... Catherine or lingshu, can you provide guidance of who will be in your lab at 10am tomorrow?

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

From: "Narpala, Sandeep (NIH/VRC) [C]" (b) (6)>
Date: Tuesday, March 24, 2020 at 6:23:19 PM
To: "Corbett, Kizzmekia (NIH/VRC) [E]" (b) (6)>, "Andrews, Sarah (NIH/VRC) [E]" (b) (6), "Kanekiyo, Masaru (NIH/VRC) [E]" (b) (6), "McDermott, Adrian (NIH/VRC) [E]" (b) (6)
Cc: "Liu, Catherine (NIH/VRC) [C]" (b) (6)>
Subject: RE: Status of (b) (4), (b) (5) Assay... Please Comment

Hello Kizzie and Catherine,

See response from XJ regarding

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

Best,
Sandeep

From: Corbett, Kizzmekia (NIH/VRC) [E] (b) (6) >
Sent: Tuesday, March 24, 2020 5:03 PM
To: Andrews, Sarah (NIH/VRC) [E] (b) (6) >; Kanekiyo, Masaru (NIH/VRC) [E] (b) (6) >; Narpala, Sandeep (NIH/VRC) [C] (b) (6) >; McDermott, Adrian (NIH/VRC) [E] (b) (6) >
Cc: Liu, Catherine (NIH/VRC) [C] <(b) (6)>
Subject: Re: Status of Proteins for MSG Assay... Please Comment

I will come and pick them up at 10AM tomorrow to pack in the box. Thanks Sarah.

--

Kizzmekia S. Corbett, PhD
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Personal: (b) (6)
Fax: (301) 480-2771

From: "Andrews, Sarah (NIH/VRC) [E]" (b) (6) >
Date: Tuesday, March 24, 2020 at 4:56 PM
To: Kizzmekia Corbett <(b) (6)>, "Kanekiyo, Masaru (NIH/VRC) [E]" (b) (6) >, "Narpala, Sandeep (NIH/VRC) [C]" <(b) (6)>, "McDermott, Adrian (NIH/VRC) [E]" (b) (6) >
Cc: "Liu, Catherine (NIH/VRC) [C]" (b) (6) >
Subject: Re: Status of (b) (4), (b) (5) Assay... Please Comment

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

A large rectangular area of the email body is completely redacted with a solid grey fill.

Sarah

From: "Corbett, Kizzmekia (NIH/VRC) [E]" (b) (6) >
Date: Tuesday, March 24, 2020 at 10:28 AM

To: "Andrews, Sarah (NIH/VRC) [E]" (b) (6), "Kanekiyo, Masaru (NIH/VRC) [E]" (b) (6) >, "Narpala, Sandeep (NIH/VRC) [C]" (b) (6)
< (b) (6) "McDermott, Adrian (NIH/VRC) [E]" (b) (6)
< (b) (6) .
Cc: "Liu, Catherine (NIH/VRC) [C]" (b) (6) >
Subject: Re: Status of (b) (4), (b) (5) Assay... Please Comment

(b) (6)
Catherine Liu will be packing the box.

--
Kizzmekia S. Corbett, PhD
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Fax: (301) 480-2771

From: "Andrews, Sarah (NIH/VRC) [E]" (b) (6) >
Date: Tuesday, March 24, 2020 at 10:27 AM
To: "Kanekiyo, Masaru (NIH/VRC) [E]" (b) (6), "Narpala, Sandeep (NIH/VRC) [C]" (b) (6) >, "McDermott, Adrian (NIH/VRC) [E]" (b) (6)
(b) (6) >
Cc: Kizzmekia Corbett (b) (6)
Subject: Re: Status of (b) (4), (b) (5) Assay... Please Comment

Let me know when and where I should have these (b) (4), (b) (5) today. I'll need 30-40mins to get them as I'm at home.

Sarah

From: "Kanekiyo, Masaru (NIH/VRC) [E]" < (b) (6) >
Date: Tuesday, March 24, 2020 at 10:06 AM
To: "Andrews, Sarah (NIH/VRC) [E]" (b) (6) >, "Narpala, Sandeep (NIH/VRC) [C]" (b) (6) "McDermott, Adrian (NIH/VRC) [E]" (b) (6)
(b) (6)

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

Subject: Re: Status of (b) (4), (b) (5) Assay... Please Comment

Thank you, Sarah. I think we want (b) (4), (b) (5)
(b) (4), (b) (5)

Masaru

From: Sarah Andrews <(b) (6)>

Date: Tuesday, March 24, 2020 at 10:03 AM

To: "Narpala, Sandeep (NIH/VRC) [C]" <(b) (6)>, "Kanekiyo, Masaru (NIH/VRC) [E]" <(b) (6)>, "McDermott, Adrian (NIH/VRC) [E]" <(b) (6)>

Cc: Kizzmekia Corbett <(b) (6)>

Subject: Re: Status of (b) (4), (b) (5) Assay... Please Comment

I can get ahold of (b) (4), (b) (5) today for:

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

Sarah

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

Date: Tuesday, March 24, 2020 at 10:00 AM

To: "Kanekiyo, Masaru (NIH/VRC) [E]" <(b) (6)>, "McDermott, Adrian (NIH/VRC) [E]" <(b) (6)>

Cc: "Corbett, Kizzmekia (NIH/VRC) [E]" <(b) (6)>, "Andrews, Sarah (NIH/VRC) [E]" <(b) (6)>

Subject: Re: Status of (b) (4), (b) (5) Assay... Please Comment

Masaru and Sarah,

Just to confirm, with both of you combined, (b) (4), (b) (5)

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

I will reach out to Azad for (b) (4), (b) (5) and Wei for (b) (4), (b) (5)

Best,
Sandeep

From: Kanekiyo, Masaru (NIH/VRC) [E] (b) (6)
Sent: Tuesday, March 24, 2020 9:56 AM
To: McDermott, Adrian (NIH/VRC) [E] (b) (6)>
Cc: Corbett, Kizzmekia (NIH/VRC) [E] (b) (6); Andrews, Sarah (NIH/VRC) [E] (b) (6)>; Narpala, Sandeep (NIH/VRC) [C] <(b) (6)>
Subject: Re: Status of (b) (4), (b) (5) Assay... Please Comment

We cannot get into the second floor today. It's not possible unfortunately.

Masaru

From: "McDermott, Adrian (NIH/VRC) [E]" (b) (6)
Date: Tuesday, March 24, 2020 at 9:53 AM
To: "Kanekiyo, Masaru (NIH/VRC) [E]" (b) (6)>
Cc: Kizzmekia Corbett (b) (6) Sarah Andrews (b) (6)>, "Narpala, Sandeep (NIH/VRC) [C]" (b) (6)>
Subject: Re: Status of (b) (4), (b) (5) Assay... Please Comment

(b) (4), (b) (5) Sorry but being pushy to get this going ASAP. Once we have this we can start to chat about (b) (4), (b) (5)
(b) (4), (b) (5)

Sent from my iPhone

On Mar 24, 2020, at 9:48 AM, Kanekiyo, Masaru (NIH/VRC) [E] (b) (6) wrote:

I need Becky to send (b) (4), (b) (5) Probably can ship on Wednesday via fedex.

Masaru

From: Kizzmekia Corbett (b) (6)>
Date: Tuesday, March 24, 2020 at 9:39 AM
To: Sarah Andrews (b) (6)>, "McDermott, Adrian (NIH/VRC) [E]" (b) (6)>, "Narpala, Sandeep (NIH/VRC) [C]" (b) (6)
Cc: "Kanekiyo, Masaru (NIH/VRC) [E]" (b) (6)>
Subject: Re: Status of (b) (4), (b) (5) Assay... Please Comment

We are only looking for the following (b) (4), (b) (5) and Sandeep will advise on (b) (4), (b) (5) That said, I think (b) (4), (b) (5)

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

--

Kizzmekia S. Corbett, PhD

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Laboratory: (b) (6)

Personal: (b) (6)

Fax: (301) 480-2771

From: "Andrews, Sarah (NIH/VRC) [E]" (b) (6) >

Date: Tuesday, March 24, 2020 at 9:37 AM

To: "McDermott, Adrian (NIH/VRC) [E]" (b) (6) >, "Narpala, Sandeep (NIH/VRC) [C]" <(b) (6)>

Cc: Kizzmekia Corbett (b) (6) >, "Kanekiyo, Masaru (NIH/VRC) [E]" <(b) (6)>

Subject: Re: Status of (b) (4), (b) (5) Assay... Please Comment

Are you looking for any (b) (4), (b) (5)
(b) (4), (b) (5) I could get ahold of today if you want it sent today.

Sarah

From: "McDermott, Adrian (NIH/VRC) [E]" (b) (6) >

Date: Tuesday, March 24, 2020 at 9:04 AM

To: "Narpala, Sandeep (NIH/VRC) [C]" (b) (6)

Cc: "Corbett, Kizzmekia (NIH/VRC) [E]" (b) (6) >, "Andrews, Sarah (NIH/VRC) [E]" (b) (6) >, "Kanekiyo, Masaru (NIH/VRC) [E]" <(b) (6)>

<(b) (6)>

Subject: Re: Status of (b) (4), (b) (5) Assay... Please Comment

Thanks Kizzie and Sandeep - we can also ask Sarah A (b) (4), (b) (5)
(b) (4), (b) (5)

Kizzie, if you are sending reagents today to (b) (4), (b) (5)

Thanks
Adrian

On Mar 24, 2020, at 8:45 AM, Narpala, Sandeep (NIH/VRC) [C] (b) (6) wrote:

Hello Kizzie,

Thanks for the email. I will follow up with Masaru and others for the remaining (b) (4), (b) (5)

Will get back to you about the preferred way of sending the (b) (4), (b) (5) after checking with them.

Best,
Sandeep

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

Date: Tuesday, March 24, 2020 at 7:09:13 AM

To: "Narpala, Sandeep (NIH/VRC) [C]" (b) (6), "McDermott, Adrian (NIH/VRC) [E]" (b) (6)

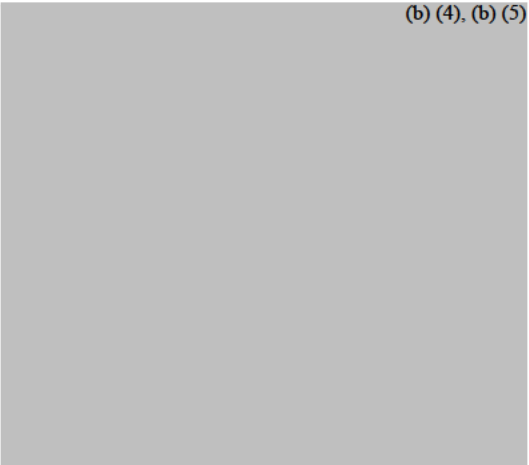
Subject: Re: Status of (b) (4), (b) (5) Assay... Please Comment

Good morning Sandeep & Adrian.

I have only heard about the (b) (4), (b) (5)

(b) (4), (b) (5) Also Sandeep, please tell me how you would prefer the shipment (b) (4), (b) (5)

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



--

Kizzmekia S. Corbett, PhD

Senior Research Fellow | Scientific Lead

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40 Convent Drive

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Laboratory: (b) (6)

Personal: (b) (6)

Fax: (301) 480-2771

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

Date: Friday, March 20, 2020 at 6:42 PM

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

Cc: "Kanekiyo, Masaru (NIH/VRC) [E]" (b) (6)>, "Bok, Karin (NIH/VRC) [E]"
(b) (6), "Ruckwardt, Tracy (NIH/VRC) [E]" (b) (6)>, Barney
Graham <(b) (6)>, "Taylor, Alison (NIH/VRC) [C]" <(b) (6)>
"Stein, Judy (NIH/VRC) [C]" (b) (6), "O'Connell, Sarah (NIH/VRC) [C]"
(b) (6)>, "Shi, Wei (NIH/VRC) [E]" (b) (6)>, Wing-Pui Kong
(b) (6), "Kumar, Azad (NIH/VRC) [E]" (b) (6)

Subject: Re: Status of (b) (4), (b) (5) Assay... Please Comment

Hello Kizzie,

If you prefer (b) (4), (b) (5)
(b) (4), (b) (5)

Alternatively, you can send (b) (4), (b) (5)
(b) (4), (b) (5)

Best,
Sandeep

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

Sent: Friday, March 20, 2020 6:25 PM

To: McDermott, Adrian (NIH/VRC) [E] <(b) (6)>

Cc: Kanekiyo, Masaru (NIH/VRC) [E] (b) (6)>; Bok, Karin (NIH/VRC) [E]
(b) (6); Ruckwardt, Tracy (NIH/VRC) [E] (b) (6)>; Narpala, Sandeep

(NIH/VRC) [C] (b) (6)>; Graham, Barney (NIH/VRC) [E] (b) (6);
Taylor, Alison (NIH/VRC) [C] (b) (6)>; Stein, Judy (NIH/VRC) [C] < (b) (6)>;
O'Connell, Sarah (NIH/VRC) [C] (b) (6)>; Shi, Wei (NIH/VRC) [E] (b) (6)
Kong, Wing-Pui (NIH/VRC) [E] < (b) (6)>; Kumar, Azad (NIH/VRC) [E]
(b) (6)>

Subject: Re: Status of (b) (4), (b) (5) Assay... Please Comment

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

(b) (4), (b) (5) If so, please provide a POC.

Sent from the mobile device of:

Kizzmekia S. Corbett, PhD

Senior Research Fellow

coVip Scientific Lead

VRC | NIAID | NIH

(b) (6)

From: "McDermott, Adrian (NIH/VRC) [E]" (b) (6)

Date: Friday, March 20, 2020 at 3:45:06 PM

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

Cc: "Kanekiyo, Masaru (NIH/VRC) [E]" (b) (6)>, "Bok, Karin (NIH/VRC) [E]"
(b) (6) "Ruckwardt, Tracy (NIH/VRC) [E]" (b) (6)>, "Narpala, Sandeep
(NIH/VRC) [C]" < (b) (6)>, "Graham, Barney (NIH/VRC) [E]" (b) (6)>,
"Taylor, Alison (NIH/VRC) [C]" < (b) (6) "Stein, Judy (NIH/VRC) [C]"
(b) (6)>, "O'Connell, Sarah (NIH/VRC) [C]" (b) (6), "Shi, Wei
(NIH/VRC) [E]" (b) (6), "Kong, Wing-Pui (NIH/VRC) [E]" (b) (6)>, "Kumar,
Azad (NIH/VRC) [E]" (b) (6)

Subject: Re: Status of (b) (4), (b) (5) Assay... Please Comment

No need for the (b) (4), (b) (5) - we got that.

If you have (b) (4), (b) (5) and folks can carry on with other COV stuff.

Adrian

Sent from my iPhone

On Mar 20, 2020, at 2:28 PM, Corbett, Kizzmekia (NIH/VRC) [E] < (b) (6)> wrote:

Hi all, if your name is beside the following (b) (4), (b) (5) please send me in a separate email the availability of

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

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

I believe that Tracy is recruiting in Azad for (b) (4), (b) (5) here.

--

Kizzmekia S. Corbett, PhD

Senior Research Fellow | Scientific Lead

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National Institutes of Health

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40 Convent Drive

Bethesda MD 20892

Laboratory: (b) (6)

Personal: (b) (6)

Fax: (301) 480-2771

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

Date: Friday, March 20, 2020 at 2:22 PM

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

(b) (6)>, "Bok, Karin (NIH/VRC) [E]" (b) (6) "Ruckwardt, Tracy (NIH/VRC) [E]" (b) (6)>

Cc: "Narpala, Sandeep (NIH/VRC) [C]" (b) (6)>, Barney Graham

(b) (6), "Taylor, Alison (NIH/VRC) [C]" (b) (6) "Stein, Judy (NIH/VRC) [C]" (b) (6), "O'Connell, Sarah (NIH/VRC) [C]"

(b) (6)>

Subject: Re: (b) (4), (b) (5) status?

OK – Kizzie you can discuss with Sarah et al at the lab

Still need to know availability of the (b) (4), (b) (5)

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

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

From: "Corbett, Kizzmekia (NIH/VRC) [E]" (b) (6)
Date: Friday, March 20, 2020 at 2:11 PM
To: "McDermott, Adrian (NIH/VRC) [E]" (b) (6), "Kanekiyo, Masaru (NIH/VRC) [E]" (b) (6), "Bok, Karin (NIH/VRC) [E]" <(b) (6)>, "Ruckwardt, Tracy (NIH/VRC) [E]" (b) (6)
Cc: "Narpala, Sandeep (NIH/VRC) [C]" (b) (6), Barney Graham (b) (6), "Taylor, Alison (NIH/VRC) [C]" (b) (6), "Stein, Judy (NIH/VRC) [C]" (b) (6), "O'Connell, Sarah (NIH/VRC) [C]" (b) (6)
Subject: Re: (b) (4), (b) (6) status?

List as I see it below

--

Kizzmekia S. Corbett, PhD
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Fax: (301) 480-2771

From: "McDermott, Adrian (NIH/VRC) [E]" <(b) (6)>
Date: Friday, March 20, 2020 at 2:00 PM
To: "Kanekiyo, Masaru (NIH/VRC) [E]" (b) (6), Kizzmekia Corbett (b) (6), "Bok, Karin (NIH/VRC) [E]" <(b) (6)>, "Ruckwardt,

Tracy (NIH/VRC) [E]" < (b) (6)>

Cc: "Narpala, Sandeep (NIH/VRC) [C]" < (b) (6)>, Barney Graham
(b) (6)>, "Taylor, Alison (NIH/VRC) [C]" (b) (6) "Stein, Judy
(NIH/VRC) [C]" (b) (6)>, "O'Connell, Sarah (NIH/VRC) [C]"
(b) (6)>

Subject: Re: (b) (4), (b) status?

Barney, Masaru and Kizzie,

Absolutely.....That is not the final.....copy errors in there from a spreadsheet I was given and like the

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

We need to decide ASAP!!

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

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

Date: Friday, March 20, 2020 at 1:52 PM

To: "McDermott, Adrian (NIH/VRC) [E]" < (b) (6)>, "Corbett, Kizzmekia
(NIH/VRC) [E]" (b) (6)>, "Bok, Karin (NIH/VRC) [E]" (b) (6)

Cc: "Narpala, Sandeep (NIH/VRC) [C]" (b) (6)>, Barney Graham
(b) (6), "Taylor, Alison (NIH/VRC) [C]" (b) (6)>, "Stein, Judy
(NIH/VRC) [C]" (b) (6)>, "O'Connell, Sarah (NIH/VRC) [C]"
(b) (6)>

Subject: Re: (b) (4), (b) status?

Any particular reason for having (b) (4), (b) (5)

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

Just my thoughts.

Masaru

From: "McDermott, Adrian (NIH/VRC) [E]" (b) (6) >
Date: Friday, March 20, 2020 at 11:53 AM
To: Kizzmekia Corbett (b) (6) >, "Bok, Karin (NIH/VRC) [E]" (b) (6) >
Cc: "Narpala, Sandeep (NIH/VRC) [C]" (b) (6) >, Barney Graham (b) (6) >, "Taylor, Alison (NIH/VRC) [C]" (b) (6) >, Judith Stein (b) (6) >, "Kanekiyo, Masaru (NIH/VRC) [E]" (b) (6) >, "O'Connell, Sarah (NIH/VRC) [C]" (b) (6) >
Subject: (b) (4), (b) (6) status?

Kizzie et al,

Heard you on the meeting this morning.... (b) (4), (b) (5)
(b) (4), (b) (5)



We can do this quickly

Thanks

Axdrian

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): (b) (6)
Phone (Cell): (b) (6)

(b) (5)



From: Graham, Barney (NIH/VRC) [E]
Sent: Fri, 14 Feb 2020 14:39:41 +0000
To: Mascola, John (NIH/VRC) [E]
Subject: Re: (b) (5) Request of antibody from VRC317

Thanks John,

And we need to coordinate with Tracy because she is developing a (b) (5).
(b) (5)

Barney

Sent from my iPhone

On Feb 14, 2020, at 8:54 AM, Mascola, John (NIH/VRC) [E] (b) (6) wrote:

Hi Maryam,

We want to take a systematic approach here.

Please make a short PP slide deck of your project and current data – borrowing from draft Figs.

(b) (5)

We want to decide soon – so we can craft you thesis and paper.

Best,

John

From: Mukhamedova, Maryam (NIH/NIAID) [F] (b) (6)>
Sent: Thursday, February 13, 2020 4:41 PM
To: (b) (6); Mascola, John (NIH/VRC) [E] (b) (6)>; Graham, Barney (NIH/VRC) [E] (b) (6); Ruckwardt, Tracy (NIH/VRC) [E] (b) (6); Morabito, Kaitlyn (NIH/VRC) [E] (b) (6)
Subject: (b) (5) Request of antibody from VRC317

Hi Jason,

I hope you are well and understand you must be very busy with SARS-CoV-2 work.

(b) (5)

Thank you very much.

Sincerely,

Maryam

<VRC317_Public_Clones.xlsx>

From: Graham, Barney (NIH/VRC) [E]
Sent: Fri, 7 Feb 2020 17:37:14 +0000
To: Levy, Ofer (b) (4) NIH/VRC) [C]
Cc: (b) (4) (NIH/VRC) [(b) (4)]; Dowling, David; Borriello, Francesco
Subject: (b) (4)
(b) (4)

Thanks Ofer.

BG

From: Levy, Ofer (b) (6) >
Sent: Friday, February 7, 2020 11:03 AM
To: Graham, Barney (NIH/VRC) [E] (b) (6) >; Stein, Judy (NIH/VRC) [C] (b) (6) >
Cc: (b) (6), (b) (4) Degar, James (b) (6) >; MTA(BCH) (b) (6) >; Dowling, David (b) (6) Borriello, Francesco (b) (6)
Subject: (b) (4)
(b) (4)

Dear Barney & (b) (6), (b) (4)

Good morning and thank you for all your efforts to arrange (b) (5)

@ Barney: Good speaking with you yesterday... (b) (5)
(b) (5)

(b) (4)

Thanks for all and have a good weekend,

Ofer

Ofer Levy MD, PhD

Staff Physician & Principal Investigator

Director, *Precision Vaccines Program*

Division of Infectious Diseases

Boston Children's Hospital

Professor, Harvard Medical School

Associate Member, Broad Institute

Office: (b) (6)

Cell: (b) (6)

E-mail: (b) (6)

Twitter: @PrecVaccines, @EPICVaccines

facebook.com/PrecisionVaccines

linkedin.com/company/PrecisionVaccines



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

Date: Thursday, February 6, 2020 at 5:38 PM

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

Cc: Ofer Levy (b) (6) David Dowling

(b) (6) "Borriello, Francesco"

(b) (6)

Subject: (b) (4)

(b) (4)

Dear (b) (4)

(b) (4)

(b) (4) I am happy to answer any questions.

Kind regards,

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

Boston Children's Hospital | www.childrensinnovations.org

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

Date: Thursday, February 6, 2020 at 9:52 AM

To: Ofer Levy (b) (6) >

Cc: David Dowling (b) (6), Diana Vo

(b) (6) "Borriello, Francesco" (b) (6) >

Subject: RE: (b) (4)

[EXTERNAL]

*** External Email - Caution ***

Dear Ofer,

I have attached the (b) (4)

(b) (4)

Thanks very much.

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

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

Sent: Wednesday, February 5, 2020 6:28 PM

To: Ofer Levy (b) (6) >

Cc: Dowling, David (b) (6) >; Diane Vo (Levy)

(b) (6) >; Borriello, Francesco <(b) (6)>;

(b) (6), (b) (4); Bok, Karin (NIH/VRC) [E] (b) (6)

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

<(b) (6)>

Subject: Re: (b) (4)

[EXTERNAL]

Hi Ofer,

I have connected you to (b) (4)

Barney

Sent from my iPhone

On Feb 3, 2020, at 7:28 PM, Levy, Ofer (b) (6) > wrote:

Hi Barney

Thanks for your reply.

(b) (4)

We are hoping to start working (b) (4)

All the best,

Ofer

--

Ofer Levy MD, PhD
Staff Physician & Principal Investigator
Director, *Precision Vaccines Program*
Division of Infectious Diseases
Boston Children's Hospital
Professor, Harvard Medical School
Associate Member, Broad Institute
Office: (b) (6)
Cell: (b) (6)
E-mail: (b) (6)
Twitter: @PrecVaccines, @EPICVaccines
facebook.com/PrecisionVaccines
linkedin.com/company/PrecisionVaccines
<Screen Shot 2016-02-03 at 1.39.14 PM[3][26].png>

From: Barney Graham (b) (6) >

Date: Saturday, February 1, 2020 at 7:18 AM

To: Ofer Levy <[REDACTED]> (b) (6)

Subject: Re: [REDACTED] [EXTERNAL]

*** External Email - Caution ***

Hi Ofer,

Sorry for delay. I have not been able to keep up. Our primary agenda is to get the mRNA into the clinic and get the preclinical and diagnostics going. [REDACTED] (b) (4)

(b) (4)

Barney

Sent from my iPhone

On Jan 29, 2020, at 11:20 PM, Levy, Ofer <[REDACTED]> (b) (6) wrote:

Hi Barney,

Hope all is well.

(b) (4)

In this context, do you have any suggestions?

Thanks for all and hope to speak soon,

Ofer

Ofer Levy MD, PhD
Staff Physician & Principal Investigator
Director, *Precision Vaccines Program*

Division of Infectious Diseases
Boston Children's Hospital
Professor, Harvard Medical School
Associate Member, Broad Institute
Office: (b) (6)
Cell: (b) (6)
E-mail: (b) (6)
Twitter: @PrecVaccines, @EPICVaccines
facebook.com/PrecisionVaccines
linkedin.com/company/PrecisionVaccines
<Screen Shot 2016-02-03 at 1.39.14 PM[3][194].png>

From: Graham, Barney (NIH/VRC) [E]
Sent: Fri, 17 Jan 2020 02:37:13 +0000
To: Corbett, Kizzmekia (NIH/VRC) [E]
Cc: Morabito, Kaitlyn (NIH/VRC) [E]
Subject: Re: Wuhan CoV - (b) (4)
Attachments: image001.jpg, image002.jpg, image003.jpg, image004.jpg, image005.jpg

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

BTW, my flight home tomorrow lands about 4pm so I could get on the Moderna call shortly after.

BG

Sent from my iPhone

On Jan 16, 2020, at 5:24 PM, Corbett, Kizzmekia (NIH/VRC) [E] <(b) (6)> wrote:

Hi Dr. Graham,

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

Thanks,
Sent from the mobile device of:
Kizzmekia S. Corbett, PhD
Senior Research Fellow
NIH | NIAID | VRC

(b) (6)

From: "Corbett, Kizzmekia (NIH/VRC) [E]" (b) (6)
Date: Thursday, January 16, 2020 at 6:32:20 PM
To: "Morabito, Kaitlyn (NIH/VRC) [E]" (b) (6) >
Subject: Re: Wuhan CoV - (b) (4)

Hi Kaitlyn,

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

--

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: Kaitlyn Morabito (b) (6) >
Date: Tuesday, January 14, 2020 at 8:24 PM
To: Barney Graham (b) (6) >, Hamilton Bennett
(b) (6) >, Sunny Himansu (b) (6),
"Stein, Judy (NIH/VRC) [C]" (b) (6)
Cc: Andrea Carfi (b) (6) >, Kizzmekia Corbett
(b) (6)
Subject: Re: Wuhan CoV - (b) (4)

Hamilton and all,

(b) (4)

Please let us know if you have any questions. Barney is on travel at the end of the week, but it looks like he may have some time early on Tuesday Morning before 10 if you are available.

Best,
Kaitlyn

From: Barney Graham (b) (6)
Date: Tuesday, January 14, 2020 at 4:01 PM
To: Hamilton Bennett <(b) (6)>, "Morabito, Kaitlyn (NIH/VRC) [E]"
(b) (6)
Cc: Andrea Carfi (b) (6), Kizzmekia Corbett
(b) (6)
Subject: RE: Wuhan CoV - (b) (4)

I asked that the (b) (4) so hopefully tonight.

BG

From: Hamilton Bennett (b) (6)
Sent: Tuesday, January 14, 2020 3:56 PM

To: Morabito, Kaitlyn (NIH/VRC) [E] (b) (6)>; Graham, Barney (NIH/VRC) [E]
(b) (6)
Cc: Andrea Carfi (b) (6) >
Subject: Wuhan CoV - (b) (4).

Hi Kaitlyn and Barney,

Would you be able to provide an update on (b) (4)
(b) (4)

I suggest we regroup at the end of the week if that works for you. Andrea and I are both available at 4pm on Thursday and Friday.

Cheers,

Hamilton Bennett

Associate Director, Vaccine Access and Partnerships | Moderna
Tel: (b) (6) | Cell: (b) (6) | modernatx.com

[<image001.jpg>](#)

[<image002.jpg>](#)

[<image003.jpg>](#)

[<image004.jpg>](#)

[<image005.jpg>](#)

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<2019-nCoV S-2P & SARS Sequence for Moderna_20200116.docx>

The Moderna logo, featuring the word "moderna" in a lowercase, sans-serif font. The letters are red, and there is a blue dashed line underneath the text.

From: Graham, Barney (NIH/VRC) [E]
Sent: Fri, 20 Mar 2020 01:12:05 +0000
To: Mascola, John (NIH/VRC) [E]
Subject: Fwd: mAbs

FYI. What do you think? (b) (4)

Barney

Sent from my iPhone

Begin forwarded message:

From: (b) (4), (b) (6)
Date: March 19, 2020 at 2:21:07 PM EDT
To: "Graham, Barney (NIH/VRC) [E]" <(b) (6)>
Subject: RE: (b) (4)

Hi, Barnev. (b) (4)

From: Graham, Barney (NIH/VRC) [E] (b) (6)
Sent: Thursday, March 19, 2020 1:13 PM
To: (b) (4), (b) (6)
Subject: [EXTERNAL] Re: (b) (4)

EXTERNAL : Real sender is (b) (6)

(b) (4)

BG

Sent from my iPhone

On Mar 19, 2020, at 12:19 PM, (b) (4), (b) (6) wrote:

Barney, (b) (4)
(b) (4)

From: Graham, Barney (NIH/VRC) [E] (b) (6)
Sent: Thursday, March 19, 2020 12:03 PM
To: (b) (4), (b) (6)
Subject: [EXTERNAL] RE: (b) (4)

EXTERNAL : Real sender is (b) (6)

(b) (4)

BG

From: (b) (4), (b) (6)
Sent: Thursday, March 19, 2020 11:59 AM
To: Graham, Barney (NIH/VRC) [E] <(b) (6)>
Subject: RE: (b) (4)

(b) (4)

From: Graham, Barney (NIH/VRC) [E] (b) (6)
Sent: Thursday, March 19, 2020 11:52 AM
To: (b) (4), (b) (6)
Subject: [EXTERNAL] Re: (b) (4)

EXTERNAL : Real sender is (b) (6)

(b) (4)

Barney

Sent from my iPhone

On Mar 19, 2020, at 11:47 AM, (b) (4), (b) (6) wrote:

Thank you for your quick reply. (b) (4) (b) (6)

(b) (4) All the best,
(b) (4)

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

Sent: Thursday, March 19, 2020 11:38 AM

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

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

EXTERNAL : Real sender is (b) (6)

(b) (4)

Barney

Sent from my iPhone

On Mar 19, 2020, at 11:12 AM, (b) (4)> wrote:

Barney, (b) (4) se
(b) (4)

(b) (4)

From: (b) (6)
Sent: Fri, 17 Apr 2020 19:09:51 -0400
To: Douglas, Trevor
Subject: Re: SARS-CoV-2

Hi Trevor. Nice to hear from you.

Do you have (b) (5)

(b) (4)

Best wishes and take care,

Barney

Sent from my iPhone

> On Apr 16, 2020, at 7:43 PM, Douglas, Trevor (b) (6) > wrote:

>

> Hi Barney

>

> I hope you are well in these challenging times. I'm sure this is a very busy time for you - hopefully it is also a productive time for your vaccine work ...against SARS-CoV-2!

(b) (4)

> Look forward to hearing from you.

>

> Regards,

>

> Trevor Douglas

>

>

> Trevor Douglas

> Earl Blough Professor of Chemistry

> Department of Chemistry

> Indiana University

> 800 E. Kirkwood Avenue

> Bloomington, IN 47405

>

> (b) (6)

From: Graham, Barney (NIH/VRC) [E]
Sent: Thu, 30 Apr 2020 19:34:14 +0000
To: Dekosky, Brandon J
Subject: RE: mAb discovery priorities

Hi Brandon,

Would be glad to talk. Today is a little full, but by tomorrow evening there should be time.

Would you prefer early or late in the day.

Barney

From: Dekosky, Brandon J <(b) (6)>
Sent: Tuesday, April 28, 2020 10:54 PM
To: Graham, Barney (NIH/VRC) [E] (b) (6)
Subject: mAb discovery priorities

Hi Barney,

I hope all is good! I was on a call with John Mascola this morning, (b) (4)
(b) (4)

(b) (4) If you might have a few minutes to connect, let me know and would love to chat.

In any case, stay well and look forward to catching up soon!

Best,

Brandon

Brandon DeKosky, Ph.D.
Assistant Professor
Department of Chemical & Petroleum Engineering
Department of Pharmaceutical Chemistry
Kansas Vaccine Institute
The University of Kansas
2095 Simons Biosciences Research Labs, Rm 136B
Lawrence, KS 66044

(b) (6)
tel: (b) (6)

<http://www.dekoskylab.org>

From: Graham, Barney (NIH/VRC) [E]
Sent: Fri, 10 Apr 2020 19:23:04 +0000
To: Ellis, Darrel
Subject: RE: Thanks

Thanks Darrel,

I think all the experiences I had and people I met at KUSM-Wichita and Vanderbilt prepared me well for what we are going through now. Hopefully some of these early efforts will work.

Best wishes and take care,

Barney

From: Ellis, Darrel (b) (6)
Sent: Friday, April 10, 2020 2:17 PM
To: Graham, Barney (NIH/VRC) [E] (b) (6)
Subject: Thanks

Dear Barney,

I saw the article in Science where you were working on a coronavirus vaccine. That prompted me to drop you a line to say "Thanks" for all the great work you do. I appreciate all the time and effort you have put in to understanding viruses and how to protect the public from them. Who knew back in those days at KUSM-Wichita and Vanderbilt that we'd be in the middle of a pandemic?

I trust you are doing well.
Stay safe! We need good physician-scientists like you!

Best regards,
Darrel

Darrel L. Ellis, M.D.
Professor
Department of Dermatology
Vanderbilt University and Nashville VA Medical Centers
Nashville, TN

From: Graham, Barney (NIH/VRC) [E]
Sent: Tue, 21 Apr 2020 03:11:21 +0000
To: Andrea Carfi
Subject: Re: SARS-CoV-2 (b) (4)

Hi Andrea. (b) (4)

(b) (4)

Barney

Sent from my iPhone

On Apr 20, 2020, at 10:54 PM, Andrea Carfi <(b) (6)> wrote:

Hi Barney,

A month ago you mention some

(b) (4)

(b) (4)

Best,
Andrea

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From: Graham, Barney (NIH/VRC) [E]
Sent: Wed, 11 Mar 2020 20:54:21 +0000
To: Oplinger, Anne (NIH/NIAID) [E]; Hiatt, Nissa (NIH/VRC) [C]
Subject: Fwd: Fox News Radio Interview Request

FYI. This would only be 30 minutes from now. Not much time to respond.

BG

Sent from my iPhone

Begin forwarded message:

From: "Flattery, Siobhan" <Siobhan.Flattery@FOXNEWS.COM>
Date: March 11, 2020 at 3:20:59 PM EDT
To: "Graham, Barney (NIH/VRC) [E]" (b) (6)
Subject: Fox News Radio Interview Request

Hello Dr. Graham,

My name is Siobhan Flattery I work at FOX News Radio in New York. I'm reaching out to see if you are available today to join our syndicated daily news show and popular podcast the FOX News Rundown to discuss the latest on the coronavirus, the WHO declaring the coronavirus outbreak a pandemic?

This will be a 10-15 minute, pre-taped, audio interview with our host Jessica Rosenthal. We can do interviews today until 5:30PM ET via skype (preferably) or landline. **Please no cellphone.**

The FOX News Rundown is a news-based weekday syndicated morning show and podcast hosted by FOX News Radio anchors, that offers a deep dive into the major and controversial stories of the day. We strive to offer contrasting perspectives that may not be heard elsewhere while going far beyond the basic headlines. Each weekday The FOX News Rundown features insight from top newsmakers, along with FOX News reporters and contributors, plus a daily commentary on a significant issue of the day.

(You can listen to previous podcasts by visiting: (<https://radio.foxnews.com/podcast/fox-news-rundown/>))

Please email – or call me at the number below if you have any further questions or to confirm a time for **today's** interview.

Thank you in advance,
Siobhan

Siobhan {Sha-von} Flattery
FOX News Radio Podcast Coordinator
1211 Avenue of the Americas | New York, NY 10036
Phone: 212 301 5840

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From: Graham, Barney (NIH/VRC) [E]
Sent: Wed, 8 Apr 2020 20:46:50 +0000
To: Grady, Christine (NIH/CC/BEP) [E]
Cc: Danis, Marion (NIH/CC/BEP) [E]; Young, Monique (NIH/VRC) [E]
Subject: RE: seeking your assistance

3:30 or 5:00 PM tomorrow could work for short calls.

Barney

From: Grady, Christine (NIH/CC/BEP) [E] (b) (6) >
Sent: Wednesday, April 8, 2020 3:16 PM
To: Graham, Barney (NIH/VRC) [E] (b) (6) >
Cc: Danis, Marion (NIH/CC/BEP) [E] <(b) (6)>
Subject: RE: seeking your assistance

Hi Barney-

Unfortunately, I will be in an IRB meeting at 4:30 and (b) (6).
Are you available anytime tomorrow?

Thank you.

Christine

Christine Grady
Chief, Department of Bioethics
NIH Clinical Center

(b) (6)
(b) (6)

From: Graham, Barney (NIH/VRC) [E] (b) (6)
Sent: Wednesday, April 8, 2020 2:38 PM
To: Grady, Christine (NIH/CC/BEP) [E] (b) (6)
Cc: Danis, Marion (NIH/CC/BEP) [E] (b) (6) >
Subject: Re: seeking your assistance

I could talk at 4:30 today and also give you some text to use if needed.

Barney

Sent from my iPhone

On Apr 8, 2020, at 1:33 PM, Grady, Christine (NIH/CC/BEP) [E] (b) (6) wrote:

Thank you so much, Barney.

we would appreciate your perspective on these few questions:

(b) (5)

If it would be easier to talk by phone, please let me know.

Thank you so much.

Christine

Christine Grady
Chief, Department of Bioethics
NIH Clinical Center

(b) (6)
(b) (6)

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

Sent: Tuesday, April 7, 2020 11:21 AM

To: Grady, Christine (NIH/CC/BEP) [E] (b) (6)>

Cc: Danis, Marion (NIH/CC/BEP) [E] (b) (6)>

Subject: Re: seeking your assistance

Hi Christine,

I'm a clinician and virologist, (b) (5)

(b) (5) I'm glad to help if given those caveats you think I can.

Take care,

Barney

Sent from my iPhone

On Apr 7, 2020, at 10:53 AM, Grady, Christine (NIH/CC/BEP) [E] (b) (6)> wrote:

Hi Barney-

I hope you and yours are well and staying safe.

I am writing to see if you or someone else from VRC could help us.

(b) (5)

Thank you very much,
Christine

From: Graham, Barney (NIH/VRC) [E]
Sent: Sun, 15 Mar 2020 14:59:59 +0000
To: Corey MD, Larry;Erbelding, Emily (NIH/NIAID) [E];Mascola, John (NIH/VRC) [E]
Cc: Dieffenbach, Carl (NIH/NIAID) [E]
Subject: RE: Reuters: As pressure for coronavirus vaccine mounts, scientists debate risks of accelerated testing

Having been on a call with Stanley Perlman (one of the co-authors) reviewing enhanced disease concepts, I am less concerned about this paper.

(b) (5)

Barney

From: Corey MD, Larry (b) (6)
Sent: Thursday, March 12, 2020 10:01 AM
To: Erbelding, Emily (NIH/NIAID) [E] (b) (6); Mascola, John (NIH/VRC) [E] (b) (6)
Cc: Dieffenbach, Carl (NIH/NIAID) [E] (b) (6); Graham, Barney (NIH/VRC) [E] (b) (6) >
Subject: RE: Reuters: As pressure for coronavirus vaccine mounts, scientists debate risks of accelerated testing

Interesting that Skip Virgin also sent me this article late yesterday so I have read through it this am . Its really quite a decent article , in my opinion, and it appears to show that in the adoptive transfer studies of antibodies low doses of what is defined as neutralizing antibodies is associated with more cellular infiltration in the lower lungs which they almost solely characterize as macrophages but there is no staining of other cells e.g. T cells NK B cells etc. . So I think the data on the "causal issues" that its some alteration in macrophage dysfunction is less cogent not because the data are wrong but because other explanations are also quite plausible just not outlined or looked for.

(b) (5)

Thanks Emily .. kept me home in social mitigation for an hour this am!!

From: Erbeling, Emily (NIH/NIAID) [E] (b) (6)>

Sent: Thursday, March 12, 2020 5:44 AM

To: Corey MD, Larry (b) (6)>; Mascola, John (NIH/VRC) [E] (b) (6)

Cc: Dieffenbach, Carl (NIH/NIAID) [E] (b) (6)>; Graham, Barney (NIH/VRC) [E] (b) (6)>

Subject: RE: Reuters: As pressure for coronavirus vaccine mounts, scientists debate risks of accelerated testing

There are several studies in NHP, one I've seen showing a potential safety signal in NHP. I think others were equivocal or negative.

Anti-spike IgG causes severe acute lung injury by skewing macrophage responses during acute SARS-CoV infection -

Liu et al., 2019

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6478436/>

- In SARS-CoV/monkey models, vaccine-induced S-specific immunity resulted in severe ALI in SARS-CoV infected Chinese macaques.

Emily Erbeling, M.D., M.P.H.
 Director, Division of Microbiology and Infectious Diseases
 NIAID/NIH
 5601 Fishers Lane
 Rockville, MD 20852
 Tel: (b) (6)

From: Corey MD, Larry (b) (6)

Sent: Wednesday, March 11, 2020 9:25 PM

To: Mascola, John (NIH/VRC) [E] (b) (6)>

Cc: Erbeling, Emily (NIH/NIAID) [E] (b) (6)>; Dieffenbach, Carl (NIH/NIAID) [E] (b) (6); Graham, Barney (NIH/VRC) [E] (b) (6)>

Subject: Re: Reuters: As pressure for coronavirus vaccine mounts, scientists debate risks of accelerated testing

It is a very well done article. Informative. Nice quotes from you Emily. Complicated
We're any SARS vaccine trials done in NHPs.? Uses the same receptor. Guess I need to look up the
assays used in articles reporting coronavirus enhancement

Sent from my iPhone

On Mar 11, 2020, at 5:38 PM, Mascola, John (NIH/VRC) [E] <[REDACTED]> (b) (6) wrote:

The issue of enhancement already getting press. See below.

(b) (5)

John

From: Folkers, Greg (NIH/NIAID) [E] <[REDACTED]> (b) (6)

Sent: Wednesday, March 11, 2020 11:00 AM

Subject: Reuters: As pressure for coronavirus vaccine mounts, scientists debate risks of accelerated testing

March 11, 2020 / 7:07 AM / Updated 4 hours ago

As pressure for coronavirus vaccine mounts, scientists debate risks of accelerated testing

[Julie Steenhuisen](#)

10 Min Read

<image002.jpg>

CHICAGO (Reuters) - Drugmakers are working as quickly as possible to develop a vaccine to combat the rapidly spreading coronavirus that has infected more than 100,000 people worldwide.

FILE PHOTO: Nurse Jeff Gates processes a patient sample at a drive-through testing clinic for coronavirus, flu and RSV, currently by appointment for employees at UW Medical Center Northwest in Seattle, Washington, U.S. March 9, 2020. REUTERS/Lindsey Wasson

Behind the scenes, scientists and medical experts are concerned that rushing a vaccine could end up worsening the infection in some patients rather than preventing it.

Studies have suggested that coronavirus vaccines carry the risk of what is known as vaccine enhancement, where instead of protecting against infection, the vaccine can actually make the disease worse when a vaccinated person is infected with the virus. The mechanism that causes that risk is not

fully understood and is one of the stumbling blocks that has prevented the successful development of a coronavirus vaccine.

Normally, researchers would take months to test for the possibility of vaccine enhancement in animals. Given the urgency to stem the spread of the new coronavirus, some drugmakers are moving straight into small-scale human tests, without waiting for the completion of such animal tests.

"I understand the importance of accelerating timelines for vaccines in general, but from everything I know, this is not the vaccine to be doing it with," Dr Peter Hotez, dean of the National School of Tropical Medicine at Baylor College of Medicine, told Reuters.

Hotez worked on development of a vaccine for SARS (Severe Acute Respiratory Syndrome), the coronavirus behind a major 2003 outbreak, and found that some vaccinated animals developed more severe disease compared with unvaccinated animals when they were exposed to the virus.

"There is a risk of immune enhancement," said Hotez. "The way you reduce that risk is first you show it does not occur in laboratory animals."

Hotez testified last week before the U.S. House Committee on Science, Space and Technology about the need for sustained funding for vaccine research. There remains no vaccine for any of the new coronaviruses that have caused outbreaks in the past 20 years.

At least for now, the world's experts have concluded that accelerated testing is a risk worth taking.

At a specially convened World Health Organization (WHO) meeting in mid-February, designed to coordinate a global response to the new coronavirus, scientists representing government-funded research organizations and drugmakers around the world agreed that the threat was so great that vaccine developers should move quickly into human trials, before animal testing is completed, four people who attended the meeting told Reuters.

"You want to have a vaccine as quickly as possible," Dr Marie-Paule Kieny, former assistant director-general at the WHO, who co-chaired the meeting, told Reuters. "You have to balance this with the risk that you impose on a very small number of people, and do all you can do to mitigate this risk as much as possible."

The conclusion of that meeting, which was not open to media, has not been officially publicized by the WHO. It does not reflect any official position adopted by the WHO, a United Nations body whose job it is to help shape global health policy.

Regulatory oversight of drugmakers and medical research is in the hands of national regulators. The most powerful of those, the U.S. Food and Drug Administration (FDA), has signaled that it is in agreement with the consensus and will not stand in the way of accelerated testing schedules.

"When responding to an urgent public health situation such as novel coronavirus, we intend to exercise regulatory flexibility and consider all data relevant to a certain vaccine platform," FDA spokeswoman Stephanie Caccamo said in a statement. The agency had no comment specifically on animal testing for vaccine enhancement.

Coronavirus vaccine developers are still required to conduct routine animal testing to make sure the vaccine itself is not toxic and is likely to help the immune system respond to the virus.

SEATTLE RISK

Some 20 coronavirus vaccine candidates are being developed by research institutes and drugmakers including America's Johnson & Johnson and France's Sanofi SA. The U.S. government has earmarked more than \$3 billion for coronavirus treatments and vaccines.

Biotechnology company Moderna Inc, which is working with the U.S.-funded National Institutes of Health (NIH), is the closest to human testing, announcing plans to start a trial with 45 people in Seattle this month.

Testing for the specific risk of vaccine enhancement in animals will proceed simultaneously with human trials, the NIH told Reuters, which it said should establish whether it is safe to expose larger numbers of people to the vaccine. Moderna did not respond to requests for comment.

The plan is consistent with the WHO consensus and FDA requirements, said Dr Emily Erbelding, director of the Division of Microbiology and Infectious Diseases of the National Institute of Allergy and Infectious Diseases (NIAID), part of the NIH. The trial is expected to take 14 months, a spokeswoman for the NIH said.

Dr Gregory Poland, a virologist and vaccine researcher with the Mayo Clinic in Rochester, Minnesota, expressed doubts about that approach. "This is important, but it has to be done in a way that reassures scientists and the public that these (vaccines) are not only efficacious, but safe," he told Reuters. Hotez said he was surprised human trials were going ahead. "If there is immune enhancement in laboratory animals vaccinated with the Moderna vaccine, that's a showstopper," he said.

U.S. immunotherapy company Inovio Pharmaceuticals Inc, which is developing a coronavirus vaccine in collaboration with a Chinese company, also expects to start human clinical trials in 30 U.S. volunteers in April rather than wait for animal studies on vaccine enhancement.

"The community as a whole weighed that and said we don't want to delay the clinical process. We've been encouraged to go as rapidly as possible into Phase 1 studies," Inovio Chief Executive Joseph Kim told Reuters.

The company plans to start human safety trials shortly thereafter in China and South Korea - two countries that have been hit hard by the virus. Kim said he expects to have an answer to the question of vaccine enhancement at some point this year.

[Slideshow \(3 Images\)](#)

The Moderna/NIH trial is enrolling patients at the Kaiser Permanente Washington Health Research Institute in Seattle. The choice of location, made several weeks ago, could prove to be problematic. To reduce the risk to volunteers, scientists at the WHO meeting recommended that drugmakers restrict early clinical trials to small groups of healthy people and conduct them in places where the virus is not spreading, according to Kieny, who now works at French research institute Inserm. That lowers the chances that people who get the vaccine could encounter the virus and trigger a more severe reaction. Since the location was chosen, the Seattle metro area has emerged as the epicenter of infections in the United States. Washington state has reported 162 coronavirus infections and 22 deaths, out of a total of 755 infections and 26 deaths in the country as of Tuesday, according to a tally by Johns Hopkins University.

Nevertheless, Moderna and the NIH plan to go ahead.

"We think there is no reason to have to change the site. If you change it, there might be community transmission in another site over the next couple of weeks," Erbelding said. "Any risk of that to participants is very small. It would be manageable as the trial progresses. People are being observed very, very carefully."

EARLY WARNING SIGNS

Tragic lessons from other vaccines and prior work on coronaviruses have raised some warning flags for developers.

The best-known example occurred in a U.S. trial in the 1960s of a vaccine created by the NIH and licensed to Pfizer Inc to fight respiratory syncytial virus (RSV), which causes pneumonia in infants. The vast majority of babies who received the vaccine developed more severe disease, and two toddlers died. A more recent example occurred in the Philippines, where some 800,000 children were vaccinated with Sanofi's dengue vaccine, Dengvaxia. Only afterward did the company learn that it could increase the risk of more severe disease in a small percentage of individuals.

Research, including that conducted by Hotez, has shown that coronaviruses in particular have the potential to produce this kind of response. But testing for the risk of vaccine enhancement is time-consuming because it requires scientists to breed mice that are genetically altered to respond to the virus like humans. Work on these and other animal models is just getting under way in several laboratories around the world.

Moderna, Inovio and several other vaccine developers are not waiting for that process to be completed and are planning to launch human trials in record time for a virus that was only discovered in December.

Both Moderna and Inovio say their vaccines are likely to have a lower risk of vaccine enhancement because they are made using newer technology that focuses on specific genes on the outer 'spike' portion of the virus. Coronavirus vaccines that caused vaccine enhancement were typically made using an inactivated version of the entire virus. Neither company has produced a licensed vaccine to date. J&J said it is developing animal models to test for vaccine enhancement and hopes to have a vaccine candidate ready for human trials in October. A Sanofi spokeswoman said the company will examine this risk before testing the vaccine in clinical trials.

"People know how traumatic the RSV experience was," said Dr Johan Van Hoof, global head of Janssen Vaccines, J&J's vaccine unit. "When you see signals in animals like this, we should not ignore them."

Reporting by Julie Steenhuysen in Chicago; Additional reporting by Michael Erman in New York; Editing by Michele Gershberg and Bill Rigby

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From: Graham, Barney (NIH/VRC) [E]
Sent: Mon, 23 Mar 2020 15:11:38 +0000
To: Hiatt, Nissa (NIH/VRC) [C]
Cc: Corbett, Kizzmekia (NIH/VRC) [E]; Prince, Tasheema (NIH/VRC) [C]
Subject: Re: Interview Request for today: Toronto Star
Attachments: image001.png

We spoke to WSJ on Saturday. Went well but won't know until we see the article.

I'm not going to have time for the Toronto reporter. Could they watch the Science Facebook post?

Barney

Sent from my iPhone

On Mar 23, 2020, at 10:44 AM, Hiatt, Nissa (NIH/VRC) [C] (b) (6) wrote:

Hi Barney and Kizzmekia,

A reporter from the Toronto Star would like to talk to an expert today by phone or email. His questions are about the development of NIAID's COVID-19 vaccine, and the clinical trial. I know this is a really quick turnaround so OCGR did offer to draft written response for you to review or decline if everyone is busy. They also offered to send for clearance, if one of you has time today to talk on the phone -quicker since this is a print request. Please let me know your preferences!

Were you able to connect with Peter Loftus from the WSJ or will you talk to him today?

Thanks in advance!

Nissa

Nissa Hiatt

Communications

Vaccine Research Center, NIAID, NIH

40 Convent Drive, Bldg 40, Room 1100

Bethesda, MD 20892

Cell: (b) (6)

Office: (b) (6)

(b) (6)

<image001.png>

From: Graham, Barney (NIH/VRC) [E]
Sent: Tue, 24 Mar 2020 14:50:04 +0000
To: Corbett, Kizzmekia (NIH/VRC) [E]
Subject: RE: Greetings from Fellow M - NIAID Response to COVID-19

(b) (5)

BG

From: Corbett, Kizzmekia (NIH/VRC) [E] (b) (6)>
Sent: Tuesday, March 24, 2020 10:43 AM
To: (b) (6)
Cc: Graham, Barney (NIH/VRC) [E] (b) (6)
Subject: Re: Greetings from Fellow M - NIAID Response to COVID-19

Thanks for your email. I am under the impression that with our closed campus and inability to hire or bring on special volunteers that this may not be possible. My PI, Dr. Barney Graham, can comment otherwise if apt.

Thanks tremendously for contacting us.

--

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

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

From: (b) (6)
Date: Tuesday, March 24, 2020 at 10:41 AM
To: Kizzmekia Corbett (b) (6)
Subject: Greetings from (b) (6)- NIAID Response to COVID-19

Dear Kizzmekia,

My name is [REDACTED] (b) (6) I wanted to send my warmest congratulations on the work you been doing and say how proud we are of how you've been representing. Keep it up!

I also am writing to get your help and guidance. My colleagues (scientists) and I have been thinking of ways to assist in this crisis. I received the message (below) from a good friend and researcher in Boston. Do you know if NIAID would accept this type of information? Or, perhaps the communications department?

Certainly, there are many aspects of federal operations and response that make it different from the state level. But, I was wondering if NIH would accept this voluntary information of people with relevant skills that want to help, and if there was a particular department that would handle it. There may be other initiatives you're of that may be more suitable. Any guidance would be appreciated.

Be Well,

[REDACTED] (b) (6)

National Science Foundation

10400A [REDACTED] (b) (6)

Hey I made a google form and more than 6,000 people responded and now I need to get it into the hands of decision makers. Know anyone at NSF who is trying to get their hands on this info? We have a few states using the database, but nothing yet at the federal level.

<https://tinyurl.com/COVID19SciVolunteers>

<https://tinyurl.com/COVID19SciVolunteersFAQ>

--
[REDACTED] (b) (6)

(b) (6)

Harvard University

(b) (6)

From: Graham, Barney (NIH/VRC) [E]
Sent: Mon, 27 Jan 2020 02:30:54 +0000
To: Bryan White
Cc: Neil King
Subject: Re: coronavirus

All right. I could also take a call around 7am.

Barney

Sent from my iPhone

On Jan 26, 2020, at 9:26 PM, Bryan White <(b) (6)> wrote:

Neil, thank you for the introduction. Barney, I've heard your name more than a dozen times from Neil when he was developing the (b) (4) at the IPD and subsequently at Icosavax. I know you've been a great collaborator.

Let me check with timing and Rob, he is likely in New York but could be London or Hon Kong.

I'll be back soon,

Bryan

From: Graham, Barney (NIH/VRC) [E] (b) (6)>
Sent: Sunday, January 26, 2020 2:41 PM
To: Neil King (b) (6)
Cc: Bryan White (b) (6)
Subject: Re: coronavirus

What time zone is he in? My best time would be driving to the airport tomorrow about 2pm EST.

BG

Sent from my iPhone

On Jan 26, 2020, at 7:23 PM, Neil King (b) (6) wrote:

Hi Barney,

Bryan White (cc'd), who I'm sure you'll meet someday, is on the IPD's Advisory Board and has a friend who has major financial operations in Hong Kong and would like to learn more about the Wuhan Coronavirus (see note below). I know you are crazy busy dealing with this right now, but is there any chance you (or someone in your group) might be able to speak with Rob?

Thanks,
Neil

On Sun, Jan 26, 2020 at 4:06 PM Bryan White <(b) (6)> wrote:
What about someone at the VRC say Barney Graham. They have a large operation in Hong Kong and elsewhere. I suspect he has some basic questions like whether dusk masks are effective and whether you can diagnose it.

On Jan 26, 2020, at 2:03 PM, Neil King <(b) (6)> wrote:

Hi Bryan,

I'd be happy to, but I am not the most knowledgeable person. Depends on how hardcore he wants to get. I can definitely tell him generally how viruses work and how they spread, and about vaccines. But I am not a hardcore Coronavirus expert.

Happy to help,
Neil

On Sun, Jan 26, 2020, 3:54 PM Bryan White <(b) (6)> wrote:
Neil would you have 30-60 minutes to speak to Rob? He is the leader of one of the leading financial firms in the world.

Begin forwarded message:

From: rob granieri <(b) (6)>
Date: January 26, 2020 at 8:38:16 AM HST
To: Bryan White <(b) (6)>
Subject: coronavirus

Hi Bryan.

At Jane Street we're trying to learn more about the coronavirus and how it might spread, and it occurred to me that you may have a suggestion for how to get a more scientific view on what's happening. We're of course happy to pay someone as a consultant if they can give us some advice.

Thanks

From: Graham, Barney (NIH/VRC) [E]
Sent: Thu, 23 Apr 2020 15:54:44 +0000
To: Corbett, Kizzmekia (NIH/VRC) [E]
Cc: Morabito, Kaitlyn (NIH/VRC) [E]
Subject: Re: (b) (6)

As I noted earlier. Goes through Julie first. I'm sure they will be willing to adjust. (b) (5)

Barney

Sent from my iPhone

On Apr 23, 2020, at 11:40 AM, Corbett, Kizzmekia (NIH/VRC) [E]
(b) (6) wrote:

Dr. Graham, can you bring in Martin? And speak about the (b) (5) I am not familiar with anyone in the clinic.

--

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

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

From: Kaitlyn Morabito (b) (6)
Date: Thursday, April 23, 2020 at 11:31 AM
To: Barney Graham (b) (6), Kizzmekia Corbett (b) (6)
Subject: Re: (b) (6)

Yes, for (b) (5).

Did Julie agree to this yet? The clinic is stretched pretty thin right now with COVID-19, (b) (5)

(b) (5)

From: Barney Graham (b) (6) >

Date: Thursday, April 23, 2020 at 11:25 AM

To: Kizzmekia Corbett (b) (6) >

Cc: Kaitlyn Morabito (b) (6)

Subject: RE: (b) (6)

You can email Julie Ledgerwood who might send you to Alicia Widge or Ingelise Gordon.

Barney

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

Sent: Thursday, April 23, 2020 6:51 AM

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

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

Subject: Re: (b) (6)

Who do we discuss (b) (5) with? (b) (5)

I think.

--

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: "Misasi, John (NIH/VRC) [E]" (b) (6) >
Date: Wednesday, April 22, 2020 at 5:42 PM
To: Barney Graham (b) (6) >, Kizzmekia Corbett (b) (6)
Cc: "Chen, Grace (NIH/NIAID) [V]" (b) (6), "Ledgerwood, Julie (NIH/NIAID) [E]" (b) (6)
Subject: Re: (b) (6)

Works for me. I just will need to coordinate (b) (6) with my Zoom meeting schedule.

John Misasi, M.D.
Staff Clinician
NIH/NIAID
Vaccine Research Center
Biodefense Research Section
Rm 2510
40 Convent Drive
Bethesda, MD 20892
(b) (6)
(b) (6)

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

I agree with that schedule if feasible for all.

Barney

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

Good afternoon Dr. Misasi, Thanks for following up.

--

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: "Misasi, John (NIH/VRC) [E]" (b) (6)

Date: Friday, April 17, 2020 at 4:47 PM

To: Kizzmekia Corbett (b) (6)

Subject: (b) (6)

Hey,

(b) (6)

john

John Misasi, M.D.

Staff Clinician

NIH/NIAID

Vaccine Research Center
Biodefense Research Section
Rm 2510
40 Convent Drive
Bethesda, MD 20892

(b) (6)

(b) (6)

From: Graham, Barney (NIH/VRC) [E]
Sent: Fri, 20 Mar 2020 21:55:06 +0000
To: Fisher, Brian (NIH/VRC) [E]
Subject: Re: Receiving shipments during COVID-19 situation

Thanks Brian.

BG

Sent from my iPhone

On Mar 20, 2020, at 5:50 PM, Fisher, Brian (NIH/VRC) [E] <(b) (6)> wrote:

Yea, I have been getting a lot of similar emails from vendors. Ignore them. I'm not sure of their phishing or not but I won't risk it.

B.

From: Graham, Barney (NIH/VRC) [E] <(b) (6)>
Sent: Friday, March 20, 2020 5:47 PM
To: Fisher, Brian (NIH/VRC) [E] <(b) (6)>
Subject: Fwd: Receiving shipments during COVID-19 situation

Hi Brian,

I'm wondering if this is a phishing email but thought I would let you know.

Barney

Sent from my iPhone

Begin forwarded message:

From: Josh Croteau <jcroteau@biolegend.com>
Date: March 20, 2020 at 5:10:43 PM EDT
To: "Graham, Barney (NIH/VRC) [E]" <(b) (6)>
Subject: Receiving shipments during COVID-19 situation
Reply-To: jcroteau@biolegend.com

Hi Barney,

I hope you are doing well.

To make sure we are getting reagents to you during this time, can you please answer the questions below?

- 1) Is your lab still operational?
- 2) Is your institution/company shut down and not receiving shipments?
- 3) Do you need your shipments sent to a different address because your receiving is not available?
- 4) If yes to #2 and #3 (your receiving is closed), and, you still require shipment to your lab, please follow these actions:

Provide detailed receiving instructions to both BioLegend and to the shipping carrier (e.g. FedEx):
FedEx US/Canada: 1.800.GoFedEx (1.800.463.3339).

If you opt in to use a non-standard delivery address, let me know and I'll send you a liability and delivery waiver to sign.

If you have any questions, please let me know. Thank you!

Best wishes,
Josh

Josh Croteau, Ph.D.
Technical Application Scientist II
Mobile: (b) (6)

BioLegend
8999 BioLegend Way
San Diego, CA 92121
United States
<https://www.biolegend.com>

If you would like to stop receiving notification emails, [click here](#).

From: Graham, Barney (NIH/VRC) [E]
Sent: Sat, 22 Feb 2020 20:04:58 +0000
To: Stein, Judy (NIH/VRC) [C]; Morabito, Kaitlyn (NIH/VRC) [E]
Cc: Corbett, Kizzmekia (NIH/VRC) [E]
Subject: RE: Request for SARS-CoV2

Yes, please. Sorry for delayed answer. Not keeping up.

BG

From: Stein, Judy (NIH/VRC) [C] (b) (6) >
Sent: Wednesday, February 19, 2020 3:18 PM
To: Morabito, Kaitlyn (NIH/VRC) [E] (b) (6); Graham, Barney (NIH/VRC) [E]
(b) (6)
Cc: Corbett, Kizzmekia (NIH/VRC) [E] (b) (6)
Subject: RE: Request for SARS-CoV2

Hi Barney,
If it is okay with you, I can send them a SLA today.
Thanks
Judy

From: Morabito, Kaitlyn (NIH/VRC) [E] (b) (6)
Sent: Wednesday, February 19, 2020 3:06 PM
To: Graham, Barney (NIH/VRC) [E] (b) (6) >
Cc: Corbett, Kizzmekia (NIH/VRC) [E] (b) (6) >; Stein, Judy (NIH/VRC) [C]
(b) (6) >
Subject: Re: Request for SARS-CoV2

Should we cc the whole group, as we initiate?

From: Barney Graham (b) (6) >
Date: Wednesday, February 19, 2020 at 12:34 PM
To: "Morabito, Kaitlyn (NIH/VRC) [E]" (b) (6)
Cc: Kizzmekia Corbett (b) (6), Judy Stein (b) (6)
Subject: Fwd: Request for SARS-CoV2

FYI. We should probably send some (b) (5) to India. (b) (5)

BG

Sent from my iPhone

Begin forwarded message:

From: G Kang <(b) (6)>
Date: February 19, 2020 at 12:26:54 PM EST
To: "Handley, Gray (NIH/NIAID) [E]" (b) (6)
Cc: (b) (6) "Graham, Barney (NIH/VRC) [E]" (b) (6),
"Bok, Karin (NIH/VRC) [E]" (b) (6), "Woodson, Sara (NIH/NIAID) [E]"
<(b) (6)>, "Stemple, Kimberly (NIH/NIAID) [E]" (b) (6)>, "Dr. Renu
Swarup" (b) (6), ALKA SHARMA (b) (6), Guruprasad Medigeschi
(b) (6)>, Milan Surjit (b) (6)>, Tripti Shrivastava (b) (6)
"Dr. Dhananjay Tiwary" (b) (6)>, "Embry, Alan (NIH/NIAID) [E]"
(b) (6)>, "Cassetti, Cristina (NIH/NIAID) [E]" (b) (6)
Subject: Re: Request for SARS-CoV2

Hi, Gray and all.

Thank you so much for the rapid response. We had ordered reagents for the CDC protocol and got them today from local suppliers and will set up the assay. Apparently there is an issue with one of the negative controls provided by CDC-that is useful to know and we will be careful with specificity.

As advised by Sara we will initiate the paperwork for the transfer immediately.

Barney, thank you so much. Yes, absolutely, we have both (b) (4)
(b) (4)

Thanks again and regards,

Cherry

On Wed, 19 Feb 2020, 22:48 Handley, Gray (NIH/NIAID) [E], (b) (6) wrote:
Dear Cherry,

As you will have seen in the note from Dr. Sara Woodson, you can access these reagents from the BEI repository which is supported by NIAID. I noted that the question of a need for export license is being resolved. Hopefully this will be settled quickly. We will be happy to facilitate this access if you run into any challenges we can help with.

In addition, Dr. Barney Graham has offered to provide a small amount of (b) (4)
He suggests that THSTI should be able to re-create the CDC PCR.

Please feel free to reach out directly to Barney, Sara or Kimberly Stemple (JoJo) if you have any questions.

Also please let me know if I can be of further assistance.

Gray

F. Gray Handley
Associate Director for International Research Affairs
National Institute of Allergy and Infectious Diseases
National Institute of Health
U.S. Department of Health and Human Services

Tel: (b) (6) 5601 Fishers Lane, Room 1E50
Fax: 301 480 2954 Bethesda, MD 20892-9802
(b) (6)

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From: G Kang (b) (6) >
Sent: Tuesday, February 18, 2020 9:28 PM
To: Handley, Gray (NIH/NIAID) [E] <(b) (6)>
Dr. Renu Swarup (b) (6); ALKA SHARMA (b) (6); Guruprasad Medigeshi
(b) (6); Milan Surjit (b) (6); Tripti Shrivastava (b) (6)
Subject: Request for SARS-CoV2

Dear Gray,

I spoke with Dr. Renu Swarup yesterday and she asked me to reach out directly for reagents that we need for diagnostics for SARS-CoV-2 or COVID-19.

BEI has the virus grown by the CDC listed in its catalog as SARS-Related Coronavirus 2, Isolate USA-WA1/2020, NR-52281.

Is there someone who could help us with the process of getting the virus to India? If helpful, at THSTI, we have been through the agreements with NIAID for the dengue strains from Steve Whitehead. Have not received them yet, but I believe the paperwork is complete.

I know you will be very busy, but if (b) (6) or you could connect us to the right people, we can follow up.

Thanks and regards,

Cherry

गगनदीप कंग / Gagandeep Kang

कार्यकारी नदिशक / Executive Director

ट्रान्सलेशनल स्वास्थ्य वज्जान और प्रौद्योगिकी संस्थान

Translational Health Science and Technology Institute

(भारत सरकार के जैव-प्रौद्योगिकी वभिग का एक स्वायत्त संस्थान)

(An autonomous institute of the Dept of Biotechnology, Govt Of India)

NCR Biotech Science Cluster,

3rd Milestone, Faridabad-Gurgaon Expressway

PO Box#4, Faridabad, Haryana-120001

Phone (b) (6)

Website: www.thsti.res.in

From: Graham, Barney (NIH/VRC) [E]
Sent: Tue, 17 Mar 2020 19:22:18 +0000
To: Ruckwardt, Tracy (NIH/VRC) [E]; Kanekiyo, Masaru (NIH/VRC) [E]
Subject: RE: my thoughts

NIH is going to make parking passes available to those on transshare, (b) (5)

(b) (5)

(b) (5)

BG

From: Ruckwardt, Tracy (NIH/VRC) [E] (b) (6)>
Sent: Tuesday, March 17, 2020 9:59 AM
To: Graham, Barney (NIH/VRC) [E] (b) (6); Kanekiyo, Masaru (NIH/VRC) [E]
(b) (6)
Subject: Re: my thoughts

Hi Barney,

Masaru and I are being asked by people what to do, and did discuss. Some cases are easy, and others are more difficult. (b) (5)

(b) (5)

Not sure if you are having this problem, but I'm being booted out of the GoTo with an indication that a server may be down or overloaded. Not sure if it is a local problem (connection can be difficult sometimes in my neighborhood), or due to the NIH VPN bandwidth as traffic picks up (hopefully not). Maybe I'll have better success with a phone call next time.

Tracy

From: "Kanekiyo, Masaru (NIH/VRC) [E]" <(b) (6)>
Date: Monday, March 16, 2020 at 9:46 PM
To: "Graham, Barney (NIH/VRC) [E]" <(b) (6)>, "Creanga, Adrian (NIH/VRC) [E]" <(b) (6)>
Cc: "Ruckwardt, Tracy (NIH/VRC) [E]" <(b) (6)>
Subject: Re: my thoughts

Adrian,

I agree with the idea of (b) (5)
(b) (5)

I will keep you updated.

Masaru

** Sent from [Outlook](#) mobile app

From: Graham, Barney (NIH/VRC) [E] <(b) (6)>
Sent: Monday, March 16, 2020 9:29 PM
To: Creanga, Adrian (NIH/VRC) [E]
Cc: Kanekiyo, Masaru (NIH/VRC) [E]
Subject: Re: my thoughts

Hi Adrian,

Thank you for sharing your thoughts. Everything you say makes sense, so we need to find the right balance. I hope that by trusting each other and being considerate of each other we will be able to get through this. (b) (5)

We will be reconsidering our situation on a day by day basis.

Barney

Sent from my iPhone

On Mar 16, 2020, at 5:28 PM, Creanga, Adrian (NIH/VRC) [E] <(b) (6)> wrote:

Dear Barney and Masaru,
Sorry to bother you with this.

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

I wrote this message with the best intentions and knowledge I have. I maybe wrong and miss some critical information. I apologize for my confusion.
Thank you for your understanding!
Adrian

From: Graham, Barney (NIH/VRC) [E] (b) (6)
Sent: Monday, March 16, 2020 2:20 PM
To: Ruckwardt, Tracy (NIH/VRC) [E] (b) (6); Kanekiyo, Masaru (NIH/VRC) [E] (b) (6); Corbett, Kizzmekia (NIH/VRC) [E] (b) (6)
Cc: Morabito, Kaitlyn (NIH/VRC) [E] (b) (6); Bok, Karin (NIH/VRC) [E] (b) (6); Alvarado, Gabriela (NIH/VRC) [C] (b) (6); Zhang, Yi (NIH/NIAID) [C] (b) (6); Liu, Catherine (NIH/VRC) [C] (b) (6); Young, Monique (NIH/VRC) [E] (b) (6); Boyoglu-Barnum, Seyhan (NIH/VRC) [E] (b) (6); Creanga, Adrian (NIH/VRC) [E] (b) (6); Gillespie, Rebecca (NIH/VRC) [E] (b) (6); Lederhofer, Julia (NIH/VRC) [F] (b) (6); Dipiazza, Anthony (NIH/VRC) [F] (b) (6); Nair, Deepika (NIH/VRC) [E] (b) (6); Chang, Lauren (NIH/VRC) [F] (b) (6); Phung, Emily (NIH/VRC) [F] (b) (6); Fisher, Brian (NIH/VRC) [E] <(b) (6)>;

Moin, Syed (NIH/VRC) [E] < (b) (6)>; Kumar, Azad (NIH/VRC) [E] < (b) (6)>; Chintalacheruvu, Saavan (NIH/VRC) [F] (b) (6)>; Hutchinson, Geoffrey (NIH/VRC) [F] (b) (6)>; Ziwawo, Cynthia (NIH/VRC) [F] (b) (6)>; Abiona, Olubukola (NIH/VRC) [F] (b) (6)>; Corbett, Kizzmekia (NIH/VRC) [E] (b) (6)>; Derrien-Colemyn, Alexandrine (NIH/VRC) [C] (b) (6)>; Loomis, Rebecca (NIH/VRC) [E] (b) (6)>; Yap, Christina (NIH/VRC) [F] (b) (6)>; Chen, Man (NIH/VRC) [E] (b) (6)>; Krug, Peter (NIH/VRC) [C] (b) (6)>; Chapman, Latanya (NIH/VRC) [C] (b) (6)>; Wang, Lingshu (NIH/VRC) [E] (b) (6)>; Kong, Wing-Pui (NIH/VRC) [E] (b) (6)>

Subject: RE: Lab attendance and duties

FYI

How to kill CoV

<https://www.medrxiv.org/content/10.1101/2020.03.09.20033217v2>

MERS CoV on environmental services – Attached

First trial participant enrolled!

<https://www.niaid.nih.gov/news-events/nih-clinical-trial-investigational-vaccine-covid-19-begins>

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

Sent: Sunday, March 15, 2020 10:49 PM

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

Cc: Morabito, Kaitlyn (NIH/VRC) [E] (b) (6)>; Bok, Karin (NIH/VRC) [E] (b) (6)>; Alvarado, Gabriela (NIH/VRC) [C] (b) (6)>; Young, Monique (NIH/VRC) [E] (b) (6)>; Boyoglu-Barnum, Seyhan (NIH/VRC) [E] (b) (6)>

(b) (6)> Creanga, Adrian (NIH/VRC) [E] (b) (6)>; Gillespie, Rebecca (NIH/VRC) [E] (b) (6)>; Lederhofer, Julia (NIH/VRC) [F] (b) (6)>; Dipiazza, Anthony (NIH/VRC) [F] (b) (6)>; Nair, Deepika (NIH/VRC) [E] (b) (6)>

(b) (6)> Chang, Lauren (NIH/VRC) [F] (b) (6)>; Phung, Emily (NIH/VRC) [F] (b) (6)>; Fisher, Brian (NIH/VRC) [E] (b) (6)>; Moin, Syed (NIH/VRC) [E] (b) (6)>; Kumar, Azad (NIH/VRC) [E] < (b) (6)>; Chintalacheruvu, Saavan (NIH/VRC) [F] (b) (6)>; Hutchinson, Geoffrey (NIH/VRC) [F] (b) (6)>

(b) (6)> Ziwawo, Cynthia (NIH/VRC) [F] (b) (6)>; Abiona, Olubukola (NIH/VRC) [F] (b) (6)>; Corbett, Kizzmekia (NIH/VRC) [E] (b) (6)>

(b) (6)> Derrien-Colemyn, Alexandrine (NIH/VRC) [C] (b) (6)>

(b) (6)> Loomis, Rebecca (NIH/VRC) [E] < (b) (6)>; Yap, Christina (NIH/VRC) [F] (b) (6)>; Chen, Man (NIH/VRC) [E] (b) (6)>; Krug, Peter (NIH/VRC) [C] (b) (6)>; Chapman, Latanya (NIH/VRC) [C] (b) (6)>

Subject: Lab attendance and duties

Dear Lab,

You recently received emails from Dr. Collins and the VRC leadership about what to do during the looming coronavirus pandemic. Let me say a little more about what I expect from you. These are interesting and unprecedented times at least within my lifetime. We have to balance our own personal health against the public health and the functioning of the lab against the functioning of our families. I want this to work out well for everyone and for everyone to stay well. However, it is likely that some of us will eventually encounter the new coronavirus and if that happens we need to be mindful of our own health and the health of others around us. If you think you have been exposed or are developing symptoms, please stay home and contact me and seek medical help if needed.

Although we have been granted liberal telework options, it is important that we find a way to continue the coronavirus work.

(b) (5)

(b) (5)

(b) (5) If you have any

questions about what to do, please talk to the head of your group, either Tracy, Masaru, or Kizzy. You are also welcome to talk with me if needed.

I will be working off site for the next few days, and will be back in the office on Thursday. I am available by email and phone if needed.

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

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Phone: (b) (6)

URL: <https://www.niaid.nih.gov/research/barney-graham-md-phd>

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From: Graham, Barney (NIH/VRC) [E]
Sent: Wed, 29 Apr 2020 00:44:14 +0000
To: Mascola, John (NIH/VRC) [E]
Cc: Koup, Richard (NIH/VRC) [E]; Ledgerwood, Julie (NIH/NIAID) [E]
Subject: Re: NIH Moderna Vaccine Candidate Questions - Reply Required

(b) (4)

Barney

Sent from my iPhone

On Apr 28, 2020, at 7:48 PM, Mascola, John (NIH/VRC) [E] <(b) (6)> wrote:

I wonder (b) (5). . . . ?

From: Sarah Anderson (b) (6)
Sent: Tuesday, April 28, 2020 7:27 PM
To: Mulach, Barbara (NIH/NIAID) [E] (b) (6)>
Cc: Collins, Francis (NIH/OD) [E] (b) (6)>; Mascola, John (NIH/VRC) [E]
(b) (6); Erbelding, Emily (NIH/NIAID) [E] (b) (6)>
Subject: RE: NIH Moderna Vaccine Candidate Questions - Reply Required

Dear Ms. Mulach,

Thank you very much for the courtesy of a prompt and detailed response. It's always appreciated to get reply when engaging with our Government and these are not normal times so Thank You for address my questions/concerns.

I appreciate the detail in your reply with the mention of a number of vaccine candidates you indicate as under evaluation. I'm not sure what the status is of those evaluations so I'd like to focus on current singular US taxpayer investment of \$434 Million in the Moderna mRNA-1273 vaccine. You've indicated NIAID may have some indication of immune response on mice from a prior NIAID funded trial (still in Phase 1 as I seen reported by Moderna) with sufficient mice protection. This seems like pretty early days baseline data for the huge (\$434M) investment for a single option vaccine candidate – my risky “single shot at the goal” concern.

My concern has only been compounded today after seeing the just published results of another US Biotech company (Inovio Pharmaceuticals) for their MERS vaccine in Phase 2. You may be familiar with Inovio as they are the only other US company currently in human trials in the US (and Korea) for a Covid-19 vaccine. Today, Inovio published their MERS INO-4700 (GLS-5300) DNA vaccine demonstrates 100%

binding and 92% neutralizing antibody responses against MERS. Inovio's CoV- INO-4800 DNA vaccine for COVID-19 currently in Phase 1 trial utilizes identical strategy targeting Spike protein and CELLECTRA intradermal delivery. This is a STRONG human response to their MERS vaccine – not mice indications like the Moderna trial so heavily funded by the US Government/NIAID.

<http://ir.inovio.com/news-releases/news-releases-details/2020/INOvio-and-GeneOne-Life-Science-Report-Positive-Phase-1a-Clinical-Data-With-DNA-Vaccine-INO-4700-for-MERS-Coronavirus-at-the-American-Society-of-Gene-Cell-Therapy-ASGCT-Conference/default.aspx>

Inovio's Covid vaccine is currently receiving funding from the Gates Foundation and CEPI. S. Korean government is funding a trial in S. Korea as well. My question for you and the NIH Director is why isn't the US Government also supporting this vaccine candidate that has shown such superior results?? This cannot be a one horse race for a vaccine and it also cannot be a 'who has NIAID worked with in the past' race for a vaccine. The stakes are too high for citizens live and our economy not to support ALL the options that have already shown solid results.

When can I expect to see my Government invest in a company that is already showing strong MERS Covid related results - like Inovio - to help drive for the vaccine we so critically need?? I look forward to seeing another prompt response.

Thank you in advance,
Sarah Anderson
Kirkland WA

From: Mulach, Barbara (NIH/NIAID) [E] - (b) (6)
Sent: Friday, April 24, 2020 9:05 AM
To: (b) (6)
Subject: RE: NIH Moderna Vaccine Candidate Questions - Reply Required

Dear Ms. Anderson,

Thank you for your recent message to staff at the National Institute of Allergy and Infectious Diseases. As the Director of the Office of Scientific Coordination and Program Operations in the Division of Microbiology and Infectious Diseases, I'm pleased to respond.

We very much appreciate you reaching out to NIAID with your questions about vaccines for COVID-19. NIAID scientists collaborated with the biotechnology company Moderna, Inc., to develop the investigational mRNA vaccine (mRNA-1273). The vaccine is currently being evaluated in a Phase 1 clinical trial: <https://clinicaltrials.gov/ct2/show/NCT04283461>. The trial is being funded by NIAID and conducted through the Institute's Infectious Diseases Clinical Research Consortium (IDCRC), a clinical trials network that encompasses NIAID's Vaccine and Treatment Evaluation Units (VTEUs). The Coalition for Epidemic Preparedness Innovations (CEPI) supported the manufacturing of the vaccine candidate for the Phase 1 clinical trial. The immunogenicity of mRNA-1273 has been tested in mice and was found to be similar to that of an mRNA vaccine previously tested for MERS (another coronavirus). That level of immune response was sufficient to protect mice from MERS CoV infection.

In addition to the mRNA vaccine, NIAID is evaluating multiple candidate vaccines for COVID-19, many of which utilize different technologies. For example, scientists at NIAID's Rocky Mountain Laboratories are working on a chimpanzee adenovirus-vectored vaccine, while NIAID-funded investigators are evaluating whether vaccines developed for SARS may be adapted for evaluation against SARS-CoV-2. For more information about NIAID's research on coronaviruses, including SARS-CoV-2, please see: <https://www.niaid.nih.gov/diseases-conditions/coronaviruses>.

NIAID also is working in partnership across government agencies to prioritize the preclinical and clinical testing for numerous other candidate vaccines. This includes collaboration with the Biomedical Advanced Research and Development Authority (BARDA), part of the Health and Human Services Office of the Assistant Secretary for Preparedness and Response (ASPR). BARDA is rapidly establishing partnerships to advance the development of vaccines, therapeutics, diagnostics, and other technologies for COVID-19. Information on those efforts can be found at:

<https://www.medicalcountermeasures.gov/app/barda/coronavirus/COVID19.aspx>. Finally, the National Institutes of Health and the Foundation for the National Institutes recently announced the Accelerating COVID-19 Therapeutic Interventions and Vaccines (ACTIV) partnership. ACTIV brings together more than a dozen leading biopharmaceutical companies, ASPR, the Centers for Disease Control and Prevention, the U.S. Food and Drug Administration and the European Medicines Agency to prioritize vaccine and drug candidates, streamline clinical trials, coordinate regulatory processes and leverage assets among all partners in response to the COVID-19 pandemic. For more information on ACTIV, including the partnership focus areas, please see: <https://www.nih.gov/news-events/news-releases/nih-launch-public-private-partnership-speed-covid-19-vaccine-treatment-options>.

Thank you again for contacting NIAID.

Sincerely,

Barbara Mulach

Barbara L. Mulach, Ph.D.

Director, Office of Scientific Coordination and Program Operations

Division Small Business Coordinator

Division of Microbiology and Infectious Diseases

5601 Fishers Lane, Room 7G61

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From: Sarah Anderson (b) (6) >
Sent: Tuesday, April 21, 2020 12:15 PM
To: Corbett, Kizzmekia (NIH/VRC) [E] (b) (6) >; Mascola, John (NIH/VRC) [E] (b) (6) >; Erbelding, Emily (NIH/NIAID) [E] (b) (6) >
Cc: Collins, Francis (NIH/OD) [E] <(b) (6)>
Subject: NIH Moderna Vaccine Candidate Questions - Reply Required

Dr Erbelding, Dr. Mascola and Dr Corbett,

Let me start by thanking each you for your service and your efforts to fast track a COVID19 vaccine – something we desperately need. THANK YOU!

As many Americans, I'm closely following those vaccine efforts to educate myself on the science and the taxpayer monies invested. Your NIH/Moderna mRNA vaccine has been heavily funded by the US Government (NIH & BARDA) and has a human trial underway. There's a lot of hope (especially by the NIH as it's the only COVID19 vaccine candidate currently NIH funded) for this vaccine. I share that hope as well so when I read this article with its detailed unbiased review of the vaccine and they raise a number of critical questions, I am disturbed both Moderna & the NIH failed to comment. Why is there no comment from the NIH on something this important?

<https://www.clinicaltrialsarena.com/comment/modernas-phase-i-covid-19-mrna-vaccine-has-manufacturing-edge-but-many-obstacles-to-confirm-protection-lay-ahead/>

Additional questions all Americans need answered are: Why is the NIH investing in a single COVID19 vaccine candidate? What is the science that supports the 'one shot at the goal' approach? Were there animal studies on this vaccine prior to human trials? If not, why not? There are a number of other vaccine candidates either in human trial now or ready to proceed now – why is the NIH using taxpayer funding only on a single COVID19 candidate – the Moderna vaccine?

This isn't a private investment decision as the NIH is responsible for the health of the American People and it's never been needed more than at this moment. I expect the NIH to respond to the questions raised by the above article, to be transparent to the American People about your vaccine efforts and to practice good science which doesn't prescribe to a 'one shot at the goal' approach. There are too many lives at risk for the NIH to do otherwise and those lives are responsible for your funding.

As a taxpayer providing your funding, I would appreciate (and actually expect) a reply to my questions. Thank you in advance.

Regards,
Sarah Anderson
Kirkland WA

From: Graham, Barney (NIH/VRC) [E]
Sent: Mon, 20 Apr 2020 13:14:12 +0000
To: Gemma Alderton
Cc: awynn@aaas.org
Subject: RE: Preparing a Perspective for Science ID abb8923
Attachments: Risk-benefit for COVID-19 Science 2020 _final with references.docx

Here is Word version.

Thanks,

BG

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

From: Gemma Alderton <galderton@science-int.co.uk>
Sent: Monday, April 20, 2020 5:48 AM
To: Graham, Barney (NIH/VRC) [E] (b) (6) >
Cc: awynn@aaas.org
Subject: RE: Preparing a Perspective for Science ID abb8923

Thanks Barney! I have uploaded it and will get it to expedited review now. I hope to have feedback for you by the end of the week/early next week. Could you send me the Word (or equivalent) version when you have a moment.

Best wishes,
Gemma

Gemma K. Alderton, PhD
Senior Editor, Science

AAAS Science International, Inc.
E: galderton@science-int.co.uk
www.sciencemag.org
cts.sciencemag.org

Follow me on Twitter: @AldertonBiol

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

From: Graham, Barney (NIH/VRC) [E] (b) (6) >
Sent: 18 April 2020 19:10
To: Gemma Alderton <galderton@science-int.co.uk>
Cc: awynn@aaas.org
Subject: RE: Preparing a Perspective for Science ID abb8923

Here is the referenced perspective. I wasn't able to switch it with the unreferenced version on the web site. Do you have to provide a permission for that?

Best wishes,

Barney

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

From: Gemma Alderton <galderton@science-int.co.uk>
Sent: Friday, April 17, 2020 8:14 AM
To: Graham, Barney (NIH/VRC) [E] <(b) (6)>
Cc: awynn@aaas.org
Subject: RE: Preparing a Perspective for Science ID abb8923

Great, thank you.

Best wishes,
Gemma

Gemma K. Alderton, PhD
Senior Editor, Science

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www.sciencemag.org
cts.sciencemag.org

Follow me on Twitter: @AldertonBiol

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

From: Graham, Barney (NIH/VRC) [E] <(b) (6)>
Sent: 17 April 2020 12:11
To: Gemma Alderton <galderton@science-int.co.uk>
Cc: awynn@aaas.org
Subject: RE: Preparing a Perspective for Science ID abb8923

OK. Glad to add references.

Barney

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

From: Gemma Alderton <galderton@science-int.co.uk>
Sent: Friday, April 17, 2020 2:18 AM
To: Graham, Barney (NIH/VRC) [E] <(b) (6)>
Cc: awynn@aaas.org
Subject: RE: Preparing a Perspective for Science ID abb8923

Dear Barney,

Many thanks for your Perspective - this is great. I'm afraid that I do need you to add references please, a maximum of 15. I know this means picking references out of many, but I cannot proceed with your submission without them. Did you want to add a figure? You do not have to, but it might be helpful to explain some of the concepts in your piece. If you could send me a referenced version, I will get this to expedited review.

Thanks and best wishes,
Gemma

Gemma K. Alderton, PhD

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www.sciencemag.org

cts.sciencemag.org

Follow me on Twitter: [@AldertonBiol](https://twitter.com/AldertonBiol)

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

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

Sent: 16 April 2020 22:52

To: Gemma Alderton <galderton@science-int.co.uk>

Cc: awynn@aaas.org

Subject: RE: Preparing a Perspective for Science ID abb8923

Dear Dr. Alderton,

I have attached the perspective here and I will also go into the web site and submit later tonight.

This short perspective could have had dozens of references, but I have added none. Let me know if you would like me to add references, but it would be hard to add one without all the rest.

Thank you for the opportunity to publish by perspectives.

Best wishes and take care,

Barney

Barney S. Graham, MD, PhD

Senior Investigator

Deputy Director, Vaccine Research Center Chief, Viral Pathogenesis Laboratory National Institute of Allergy and Infectious Diseases, NIH

40 Convent Drive, MSC 3017

Bldg 40, Room 2502

Bethesda, MD 20892-3017

Phone: 301 594-8468

URL: <https://www.niaid.nih.gov/research/barney-graham-md-phd>

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

From: Gemma Alderton <galderton@science-int.co.uk>

Sent: Tuesday, April 14, 2020 9:25 AM

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

Cc: awynn@aaas.org

Subject: RE: Preparing a Perspective for Science ID abb8923

Great, thank you!

Gemma K. Alderton, PhD
Senior Editor, Science

AAAS Science International, Inc.
E: galderton@science-int.co.uk
www.sciencemag.org
cts.sciencemag.org

Follow me on Twitter: @AldertonBiol

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

From: Graham, Barney (NIH/VRC) [E] <(b) (6)>
Sent: 14 April 2020 14:23
To: Gemma Alderton <galderton@science-int.co.uk>
Cc: awynn@aaas.org
Subject: Re: Preparing a Perspective for Science ID abb8923

I should be able to send tomorrow.

Barney


Sent from my iPhone

> On Apr 14, 2020, at 7:42 AM, Gemma Alderton <galderton@science-int.co.uk> wrote:
>
> Dear Barney,
>
> I hope all is well with you. I just want to check that you are going to be able to submit your Perspective tomorrow? Please let me know how you are getting on and if you need more time.
>
> Best wishes,
> Gemma
>
>
> Gemma K. Alderton, PhD
> Senior Editor, Science
>
> AAAS Science International, Inc.
> E: galderton@science-int.co.uk
> www.sciencemag.org
> cts.sciencemag.org
>
> Follow me on Twitter: @AldertonBiol
>
> -----Original Message-----
> From: Anita Wynn <science_editors@aaas.org>
> Sent: 25 March 2020 12:26
> To: (b) (6)
> Cc: awynn@aaas.org; Gemma Alderton <galderton@science-int.co.uk>
> Subject: Preparing a Perspective for Science ID abb8923
>

> 25-Mar-2020
>
> Dear Dr. Graham,
>
> Manuscript number: abb8923
>
> Thank you for agreeing to write a Perspective for Science on SARS-CoV-2 vaccine development.
>
> Your paper is due at Science by 15-Apr-2020. If for some reason you find that you will not be able to meet this deadline, please let us know as soon as possible.
>
> When you are ready to submit your paper, please log in to your account at our Manuscript Submission and Information Portal <https://cts.sciencemag.org>. This solicited manuscript will appear on your task list. You can access the manuscript record by clicking on the Action button to the right of the paper in your task list. Navigate between tabs to complete your manuscript record and upload documents.
>
> I look forward to receiving your manuscript. Please let me know if I can be of assistance.
>
> Sincerely,
>
> Gemma Alderton, Ph.D.
> Senior Editor
> galderton@science-int.co.uk

From: Graham, Barney (NIH/VRC) [E]
Sent: Tue, 31 Mar 2020 12:06:36 +0000
To: Corbett, Kizzmekia (NIH/VRC) [E]
Subject: Re: Sending mRNA-1273 mouse serum to UNC for Nanoluc PRNT assays

(b) (6), (b) (4), (b) (5)




Barney


Sent from my iPhone

On Mar 31, 2020, at 7:37 AM, Corbett, Kizzmekia (NIH/VRC) [E]

(b) (6) wrote:



(b) (6), (b) (4), (b) (5)



Things that I am aware of:

1. [REDACTED] (b) (4), (b) (5)
2. [REDACTED]
3. [REDACTED]
4. [REDACTED]

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: [REDACTED] (b) (6)

Personal: [REDACTED] (b) (6)

Fax: (301) 480-2771

From: Barney Graham [REDACTED] (b) (6)

Date: Tuesday, March 31, 2020 at 7:29 AM

To: Kizzmekia Corbett [REDACTED] (b) (6)

Subject: Re: Sending mRNA-1273 mouse serum to UNC for Nanoluc PRNT assays

Let's review this in more detail. It seems to me that [REDACTED] (b) (4), (b) (5)

[REDACTED]

BG

Sent from my iPhone

On Mar 31, 2020, at 7:21 AM, Corbett, Kizzmekia (NIH/VRC) [E] [REDACTED] (b) (6)> wrote:

Dr. Graham,

[REDACTED] (b) (4) this is what I have been doing.

--

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: Tuesday, March 31, 2020 at 7:20 AM

To: "Stevens, Laura J" (b) (6)

Cc: Kizzmekia Corbett (b) (6), "Martinez, David Rafael"

(b) (6)>, Sunny Himansu (b) (6), "Chappell,

Jim" (b) (6)>, "Hankins, Jody L" (b) (6), Kaitlyn

Morabito (b) (6), "Alvarado, Gabriela (NIH/VRC) [C]"

(b) (6) "Denison, Mark" (b) (6), Ralph Baric

(b) (6)

Subject: Re: Sending mRNA-1273 mouse serum to UNC for Nanoluc PRNT assays

(b) (4)

Barney

Sent from my iPhone

On Mar 31, 2020, at 6:56 AM, Stevens, Laura J (b) (6) wrote:

Kizzy,

(b) (4)

Laura

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

Date: Tuesday, March 31, 2020 at 5:29 AM

To: "Martinez, David Rafael" (b) (6), Sunny Himansu
(b) (6), "Chappell, Jim" <(b) (6)>

Cc: "Stevens, Laura J" (b) (6), "Hankins, Jody L"

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

(b) (6), "Alvarado, Gabriela (NIH/VRC) [C]" (b) (6),

"Denison, Mark" (b) (6), "Graham, Barney (NIH/VRC) [E]"

(b) (6), "Baric, Ralph" (b) (6)

Subject: Re: Sending mRNA-1273 mouse serum to UNC for Nanoluc PRNT assays

(b) (4)

Sent from the mobile device of:

Kizzmekia S. Corbett, PhD

Senior Research Fellow

coVip Scientific Lead

VRC | NIAID | NIH

(b) (6)

From: "Martinez, David Rafael" (b) (6) >

Date: Monday, March 30, 2020 at 8:03:57 PM

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

Cc: "Stevens, Laura J" (b) (6) >, "Hankins, Jody L" (b) (6) > ,

"Morabito, Kaitlyn (NIH/VRC) [E]" (b) (6) >, "Alvarado, Gabriela (NIH/VRC) [C]"

(b) (6) >, "Denison, Mark" (b) (6), "Graham, Barney (NIH/VRC)
[E]" (b) (6) >, "Baric, Ralph" (b) (6) >

Subject: Re: Sending mRNA-1273 mouse serum to UNC for Nanoluc PRNT assays

Hi Kizzy,

(b) (4)

OK on everything else

David

Get [Outlook for iOS](#)

From: Corbett, Kizzmekia (NIH/VRC) [E] <(b) (6)>
Sent: Monday, March 30, 2020 7:04:11 PM
To: Sunny Himansu <(b) (6)>; Chappell, Jim (b) (6);
Martinez, David Rafael (b) (6)
Cc: Stevens, Laura J (b) (6); Hankins, Jody L (b) (6)
Morabito, Kaitlyn (NIH/VRC) [E] (b) (6)>; Alvarado, Gabriela (NIH/VRC) [C]
(b) (6)>; Denison, Mark (b) (6); Martinez, David Rafael
(b) (6); Graham, Barney (NIH/VRC) [E] (b) (6)>; Baric, Ralph S
(b) (6)
Subject: Re: Sending mRNA-1273 mouse serum to UNC for Nanoluc PRNT assays

Hi all,

I am replying here with the following comments:

- Please provide the (b) (4)
(b) (4)
- Please provide (b) (4)
(b) (4)
at the VRC then shipped.

Thank you.

Sent from the mobile device of:

Kizzmekia S. Corbett, PhD
Senior Research Fellow
coVip Scientific Lead
VRC | NIAID | NIH
(b) (6)

From: "Sunny Himansu" (b) (6)
Date: Monday, March 30, 2020 at 8:54:51 AM
To: "Chappell, Jim" (b) (6)
Cc: "Corbett, Kizzmekia (NIH/VRC) [E]" (b) (6), "Stevens, Laura J"
(b) (6)>, "Hankins, Jody L" (b) (6) "Morabito, Kaitlyn
(NIH/VRC) [E]" (b) (6)>, "Alvarado, Gabriela (NIH/VRC) [C]"
(b) (6)>, "Stein, Judy (NIH/VRC) [C]" (b) (6)>, "Denison, Mark"
(b) (6), "Martinez, David Rafael" (b) (6)>, "Graham, Barney
(NIH/VRC) [E]" (b) (6)
Subject: RE: Sending mRNA-1273 mouse serum to UNC for Nanoluc PRNT assays

All,

Here is a signed copy of the agreement. Also, I was told to communicate that I only signed once since am the duly authorized signatory for Moderna.

Sunny

From: Chappell, Jim (b) (6) >
Sent: Sunday, March 29, 2020 9:59 AM
To: Sunny Himansu <(b) (6)>
Cc: Corbett, Kizzmekia (NIH/VRC) [E] (b) (6); Stevens, Laura J (b) (6); Hankins, Jody L (b) (6)
Subject: RE: Sending mRNA-1273 mouse serum to UNC for Nanoluc PRNT assays

Thank you, Sunny.

In addition to Kizzy, I am copying lab member Laura Stevens and Vanderbilt tech. transfer officer, Dr. Jody Hankins.

Jim

From: Sunny Himansu (b) (6)
Sent: Sunday, March 29, 2020 6:25 AM
To: Corbett, Kizzmekia (NIH/VRC) [E] (b) (6); Martinez, David Rafael (b) (6) >
Cc: Graham, Barney (NIH/VRC) [E] (b) (6); Alvarado, Gabriela (NIH/VRC) [C] (b) (6); Morabito, Kaitlyn (NIH/VRC) [E] (b) (6); Baric, Ralph (b) (6); Chappell, Jim (b) (6); Denison, Mark (b) (6); Stein, Judy (NIH/VRC) [C] (b) (6)
Subject: RE: Sending mRNA-1273 mouse serum to UNC for Nanoluc PRNT assays

Hi Kizzy,

Please go ahead and ship the samples on Monday. We have accepted the draft agreement as is so I will and share that shortly

Sunny

From: Corbett, Kizzmekia (NIH/VRC) [E] (b) (6)
Sent: Saturday, March 28, 2020 3:25 AM
To: Martinez, David Rafael (b) (6) >
Cc: Sunny Himansu (b) (6); Graham, Barney (NIH/VRC) [E] (b) (6); Alvarado, Gabriela (NIH/VRC) [C] (b) (6); Morabito, Kaitlyn (NIH/VRC) [E] (b) (6); Baric, Ralph (b) (6); Chappell, Jim (b) (6); Denison, Mark (b) (6); Stein, Judy (NIH/VRC) [C] (b) (6)
Subject: Sending mRNA-1273 mouse serum to UNC for Nanoluc PRNT assays

Good morning Sunny,

(b) (4)

If agreements are apt for each institution, I can ship these (b) (4) out on Monday. Please advise.

Sent from the mobile device of:

Kizzmekia S. Corbett, PhD

Senior Research Fellow

coVip Scientific Lead

VRC | NIAID | NIH

(b) (6)

From: "Martinez, David Rafael" (b) (6) >

Date: Friday, March 27, 2020 at 12:21:49 PM

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

Subject: shipping address

Hi Kizzy,

See below - thanks

VRC

David Martinez

135 Dauer Drive

3109 Michael Hooker Research Center

CHAPEL HILL, NC 27599

US

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From: Graham, Barney (NIH/VRC) [E]
Sent: Mon, 9 Mar 2020 00:53:45 +0000
To: Oplinger, Anne (NIH/NIAID) [E]; Corbett, Kizzmekia (NIH/VRC) [E]
Cc: NIAID COGCORE; NIAID Media Inquiries; Harris, Christina (NIH/NIAID) [E]; Hiatt, Nissa (NIH/VRC) [C]
Subject: RE: Add'l Follow up Qs: Novel Coronavirus (Week of Mar 1)

I have answered the questions below.

Barney

Barney S. Graham, MD, PhD
Senior Investigator
Deputy Director, Vaccine Research Center
Chief, Viral Pathogenesis Laboratory
Vaccine Research Center, NIAID, 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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Reporter: Eric Boodyman

Organization: STAT

Phone #(s): (b) (6) eric.boodyman@globe.com

Subject: Coronavirus, animal model used in testing Moderna candidate vaccine

1. My understanding is that wild type mice are not susceptible to Covid-19 virus. What has been modified in the mice that will be used in the next in vivo step to make them susceptible to the virus?

After the 2003 SARS outbreak transgenic mice were made that express the human ACE2 gene to make them susceptible to infection.

- 2) Do those mice exist already and to what extent do we know how susceptible they are to the virus and what sorts of disease they show?

As noted, those mice exist and had been previously shared with Chinese investigators who have shown the mice can be infected with SARS-CoV-2. Those mice in the U.S. are being bred so that the colony can be enlarged.

3) When will those optimized challenge models be ready?

Those mice will be available for experiments within the next few weeks.

4) Will there be efficacy results from testing mRNA-1273 in optimized challenge models before clinical testing begins in April, as Dr. Fauci has stated it will?

Safety and product integrity are the primary criteria for starting a Phase 1 trials and mRNA has now been used in several clinical trials and shown to be safe and well tolerated. The immunogenicity of mRNA-1273 has been tested in mice and is similar to that of MERS CoV mRNA that has been previously tested. That level of immune response was sufficient to protect mice from MERS CoV infection.

Eric's piece on animal models from today: <https://www.statnews.com/2020/03/05/coronavirus-labs-scramble-to-find-right-animals-for-covid-19-studies/>

Anne A. Oplinger

Office of Communications

National Institute of Allergy and Infectious Diseases

National Institutes of Health

Bldg 31, Rm. 7A17D

Media Line: (301) 402-1663

General Line: (301) 594-3961

(b) (6)

From: Graham, Barney (NIH/VRC) [E]
Sent: Tue, 11 Feb 2020 08:28:23 +0000
To: Corbett, Kizzmekia (NIH/VRC) [E]; Misasi, John (NIH/VRC) [E]; Gall, Jason (NIH/VRC) [C]; Mascola, John (NIH/VRC) [E]
Cc: Morabito, Kaitlyn (NIH/VRC) [E]; Abiona, Olubukola (NIH/VRC) [F]; Loomis, Rebecca (NIH/VRC) [E]
Subject: RE: (b) (5)

Hi Jason,

See note below. (b) (5)

If possible and if there is bandwidth, could the VPP help with making more of this (b) (5)

Barney

From: Corbett, Kizzmekia (NIH/VRC) [E] (b) (6)>
Sent: Monday, February 10, 2020 7:00 PM
To: Misasi, John (NIH/VRC) [E] (b) (6)
Cc: Graham, Barney (NIH/VRC) [E] <(b) (6)>; Morabito, Kaitlyn (NIH/VRC) [E] (b) (6)>; Abiona, Olubukola (NIH/VRC) [F] (b) (6)>; Loomis, Rebecca (NIH/VRC) [E] (b) (6)>
Subject: (b) (5)

Hi John,

I talked with Dr. Graham about the potential of making a large batch (b) (5) given both of our labs' use and it being discontinued commercially. We may go in the direction of having this scaled at the VPP. Maybe you (and/or Olu and/or Rebecca) can comment on the amount you think we'd need moving forward across (b) (5) research activities.

Sent from the mobile device of:

Kizzmekia S. Corbett, PhD
Senior Research Fellow
coVip Scientific Lead
NIH | NIAID | VRC
(b) (6)

From: Graham, Barney (NIH/VRC) [E]
Sent: Mon, 30 Mar 2020 13:51:32 +0000
To: Corbett, Kizzmekia (NIH/VRC) [E]
Cc: Ruckwardt, Tracy (NIH/VRC) [E]; Morabito, Kaitlyn (NIH/VRC) [E]; Alvarado, Gabriela (NIH/VRC) [C]; Bok, Karin (NIH/VRC) [E]
Subject: Re: CoV meeting at 11am

That will be clarified at 11 by me.

BG

Sent from my iPhone

On Mar 30, 2020, at 9:23 AM, Corbett, Kizzmekia (NIH/VRC) [E]

(b) (6) wrote:

Dr. Graham,

I think everyone

(b) (5)

(b) (5)

We need clarity.

--

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: "Ruckwardt, Tracy (NIH/VRC) [E]" (b) (6) >

Date: Sunday, March 29, 2020 at 8:12 PM

To: Barney Graham (b) (6) Kaitlyn Morabito (b) (6)>, Kizzmekia Corbett (b) (6)>
Cc: "Alvarado, Gabriela (NIH/VRC) [C]" (b) (6), "Bok, Karin (NIH/VRC) [E]" (b) (6)>
Subject: Re: CoV meeting at 11am

Hi Barney,

(b) (5)

Tracy

From: "Graham, Barney (NIH/VRC) [E]" (b) (6)>
Date: Sunday, March 29, 2020 at 7:55 PM
To: "Morabito, Kaitlyn (NIH/VRC) [E]" (b) (6) "Corbett, Kizzmekia (NIH/VRC) [E]" (b) (6)
Cc: "Ruckwardt, Tracy (NIH/VRC) [E]" (b) (6), "Alvarado, Gabriela (NIH/VRC) [C]" (b) (6)>, "Bok, Karin (NIH/VRC) [E]" <(b) (6)>
Subject: CoV meeting at 11am

I would like to use most of this time to discuss the (b) (5), (b) (4)
(b) (5), (b) (4)
(b) (5), (b) (4) I'm going to have
some long days on Tues and Wed because I'm supposed to be attending the
virtual SAGE meeting that starts at 4am each day.

Tracy, do we know the status of (b) (5), (b) (4)
(b) (5), (b) (4)

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: Thu, 23 Jan 2020 16:01:52 +0000
To: Marston, Hilary (NIH/NIAID) [E]
Cc: Mascola, John (NIH/VRC) [E]; Cassetti, Cristina (NIH/NIAID) [E]
Subject: RE: CEPI to fund three programmes to develop vaccines against the novel coronavirus, nCoV-2019 <http://bit.ly/37kv7O9>
Attachments: DNA vaccine MERS Lancet ID 2019.pdf

(b) (5) See attachment.

BG

From: Marston, Hilary (NIH/NIAID) [E] (b) (6)
Sent: Thursday, January 23, 2020 10:58 AM
To: Graham, Barney (NIH/VRC) [E] (b) (6)
Cc: Mascola, John (NIH/VRC) [E] (b) (6); Cassetti, Cristina (NIH/NIAID) [E] (b) (6)
Subject: Re: CEPI to fund three programmes to develop vaccines against the novel coronavirus, nCoV-2019 <http://bit.ly/37kv7O9>

(b) (5)

On Jan 23, 2020, at 10:55 AM, Graham, Barney (NIH/VRC) [E] <(b) (6)> wrote:

... (b) (5)

BG

From: Mascola, John (NIH/VRC) [E] (b) (6)
Sent: Thursday, January 23, 2020 10:55 AM
To: Graham, Barney (NIH/VRC) [E] <(b) (6)>
Cc: Marston, Hilary (NIH/NIAID) [E] (b) (6); Cassetti, Cristina (NIH/NIAID) [E] (b) (6)
Subject: FW: CEPI to fund three programmes to develop vaccines against the novel coronavirus, nCoV-2019 <http://bit.ly/37kv7O9>

(b) (5)

From: Folkers, Greg (NIH/NIAID) [E] <(b) (6)>

Sent: Thursday, January 23, 2020 10:14 AM

Subject: CEPI to fund three programmes to develop vaccines against the novel coronavirus, nCoV-2019
<http://bit.ly/37kv7O9>

CEPI to fund three programmes to develop vaccines against the novel coronavirus, nCoV-2019

23 Jan 2020

By CEPI

Middle East Respiratory Syndrome virus particles. Image captured and color-enhanced. Credit: NIAID Share

OSLO, NORWAY. Jan 23, 2020 – CEPI, the Coalition for Epidemic Preparedness Innovations, today announced the initiation of three programmes to develop vaccines against the novel coronavirus, nCoV-2019.

The programmes will leverage rapid response platforms already supported by CEPI as well as a new partnership. The aim is to advance nCoV-2019 vaccine candidates into clinical testing as quickly as possible.

The nCoV-2019 vaccine development efforts will build on existing partnerships with Inovio (Nasdaq: INO) and The University of Queensland (located in Brisbane, Australia). In addition, CEPI today announces a new partnership with Moderna, Inc., (Nasdaq: MRNA) and the U.S. National Institute of Allergy and Infectious Diseases.

All of these are pioneering technologies designed to speed up the development of vaccines against emerging threats such as nCoV-2019.

“

Given the rapid global spread of the nCoV-2019 virus the world needs to act quickly and in unity to tackle this disease. Our intention with this work is to leverage our work on the MERS coronavirus and rapid response platforms to speed up vaccine development. There are no guarantees of success, but we hope this work could provide a significant and important step forward in developing a vaccine for this disease. Our aspiration with these technologies is to bring a new pathogen from gene sequence to clinical testing in 16 weeks – which is significantly shorter than where we are now.

Richard Hatchett
CEO of CEPI

The term “platform technology” broadly refers to systems that use the same basic components as a backbone but can be adapted for use against different pathogens as needed by inserting new genetic or protein sequences.

CEPI has moved with great urgency and in coordination with WHO, who is leading the development of a coordinated international response, to promote the development of new vaccines against the emerging threat of nCoV-2019. The novel coronavirus represents the first new epidemic disease of note to emerge since CEPI’s founding at Davos in 2017, with the express intent that it should be ready to respond to epidemics rapidly and effectively, wherever they emerge.

Inovio | DNA vaccine candidate against Middle East Respiratory Syndrome

CEPI announced a [partnering agreement](#), worth up to US\$56 million, with Inovio in April 2018, to advance DNA vaccine candidates against MERS and another of its priority diseases, Lassa fever, through to Phase 2.

Under the agreement, funding will support the development up to the end of Phase 2, providing clinical safety, immunological data, and the establishment of investigational stockpiles that will be ready for clinical efficacy trial testing during outbreaks.

The MERS DNA vaccine candidate is being developed using Inovio's DNA Medicines platform to deliver optimised synthetic antigenic genes into cells, where they are translated into protein antigens that activate an individual's immune system to generate robust targeted T cell and antibody responses. Inovio's immunotherapies function exclusively in vivo, and have generated an antigen-specific immune response against targeted diseases in all clinical trials to date.

Inovio is advancing its MERS vaccine candidate into Phase 2, in the Middle East where most MERS viral outbreaks have occurred, with the support of its collaborators: The Wistar Institute, Laval University, the NIH's Rocky Mountain Laboratories, U.S. Army Medical Research Institute of Infectious Diseases (USAMRIID), VGXI/GeneOne Life Science and the International Vaccine Institute.

University of Queensland | The molecular clamp platform

CEPI entered a [partnering agreement](#) in January 2019, with University of Queensland, for up to US\$ 10.6 million to develop a "molecular clamp" vaccine platform, a transformative technology that enables targeted and rapid vaccine production against multiple viral pathogens.

The technology works by synthesising viral surface proteins, which attach to host cells during infection, and "clamping" them into shape, making it easier for the immune system to recognise them as the correct antigen. This process requires the sequence of the viral protein which can then be determined from the viral genome. The synthetic antigen can then be purified and rapidly manufactured into a vaccine.

As part of their partnering agreement with CEPI, the University of Queensland will use their molecular-clamp vaccine platform to produce vaccines against known pathogens, including Middle East Respiratory Syndrome coronavirus (MERS-CoV) and will evaluate the safety and immune response of the Influenza and MERS-CoV candidates in a phase 1 clinical trial in humans.

Moderna | mRNA vaccine platform

Under the terms of the agreement with CEPI, Moderna will manufacture an mRNA vaccine against coronavirus, which will be funded by CEPI. Investigational New Drug-enabling studies will be conducted by the Vaccine Research Center (VRC) and a Phase 1 clinical study will be conducted in the U.S. by the Division of Microbiology and Infectious Diseases (DMID). Both VRC and DMID are divisions of the National Institute of Allergy and Infectious Diseases (NIAID), which is an institute of the NIH.

– ENDS –

About the novel coronavirus

[Coronaviruses](#) are a family of viruses that can lead to respiratory illness, [including Middle East Respiratory Syndrome \(MERS-CoV\) and Severe Acute Respiratory Syndrome \(SARS-CoV\)](#). Coronaviruses are transmitted between animals and people and can evolve into strains not previously identified in humans. On January 7, 2020, a novel coronavirus (2019-nCoV) was identified as the cause of pneumonia cases in Wuhan City, Hubei Province of China, and additional cases have been found in a growing number of countries.

About vaccine platform technology

The term "vaccine platform technology" broadly refers to a system that uses the same basic components as a backbone, but can be adapted for use against different pathogens by inserting new sequences.

About "molecular clamp" vaccines

Enveloped viruses, like influenza, have proteins on their surface that fuse to host cells during an infection. Although these surface proteins are antigenic—and therefore elicit an immune response—they are inherently unstable. One approach to vaccine design is to synthesise these proteins on their own such that they elicit an immune response, specifically antibodies, that can kill the virus. Unfortunately, they tend to change shape when expressed on their own, a shape that does not reflect the form of the protein on the virus surface. Consequently, the immune response that is induced with these vaccines does not produce antibodies that efficiently lock on to the virus. The University of Queensland has developed a process that can synthesise these surface proteins while “clamping” them into shape, making it easier for the immune system to induce a response that recognises them on the virus surface.

This synthetic antigen can then be purified and rapidly manufactured into a vaccine, within 16 weeks from pathogen identification.

This vaccine platform technology can be used to develop vaccines against a wide range of enveloped viruses (eg, Influenza, Ebola, MERS, Lassa virus, Measles, Herpes Simplex virus, Rabies).

The Molecular Clamp is patented technology developed by Professor Paul Young, Dr Keith Chappell, and Dr Dan Watterson.

The University of Queensland will be developing this vaccine platform in collaboration with The Commonwealth Scientific and Industrial Research Organisation (CSIRO) and a wider consortium including public sector and private sector partners in Australia, USA, and Asia.

About CEPI

CEPI is an innovative partnership between public, private, philanthropic, and civil organisations, launched at Davos in 2017, to develop vaccines to stop future epidemics. CEPI has reached over US\$750 million of its \$1 billion funding target. CEPI’s priority diseases include Ebola virus, Lassa virus, Middle East Respiratory Syndrome coronavirus, Nipah virus, Rift Valley Fever and Chikungunya virus. CEPI also invests in platform technologies that can be used for rapid vaccine and immunoprophylactic development against unknown pathogens (ie, Disease X). To date, CEPI has committed to investing over \$456 million in vaccine and platform development. Learn more at www.cepi.net. Follow us at [@CEPIvaccines](https://twitter.com/CEPIvaccines).

About Inovio Pharmaceuticals, Inc.

Inovio is taking immunotherapy to the next level in the fight against cancer and infectious diseases. We are the only immunotherapy company that has reported generating CD8+ T cells in vivo in high quantity that are fully functional and whose killing capacity correlates with relevant clinical outcomes with a favorable safety profile. With an expanding portfolio of immune therapies, the company is advancing a growing clinical stage product pipeline, including candidates in Phase 3 and Phase 2. Partners and collaborators include MedImmune, Regeneron, Genentech, The Wistar Institute, University of Pennsylvania, the Parker Institute for Cancer Immunotherapy, DARPA, GeneOne Life Science, Plumblin Life Sciences, ApolloBio Corporation, Drexel University, NIH, HIV Vaccines Trial Network, National Cancer Institute, U.S. Military HIV Research Program, and Laval University. For more information, visit www.inovio.com.

About University of Queensland UQ rates in the global top 50 as measured by the Performance Ranking of Scientific Papers for World Universities and was recently rated 7th in Biotechnology world in the Shanghai Global Rankings of 2017. Professor Paul Young, Dr Keith Chappell, and Dr Dan Watterson have extensive expertise in molecular virology, viral pathogenesis and vaccine research.

About Moderna

Moderna is advancing messenger RNA (mRNA) science to create a new class of transformative medicines for patients. mRNA medicines are designed to direct the body’s cells to produce intracellular, membrane or secreted proteins that have a therapeutic or preventive benefit with the potential to address a broad spectrum of diseases. Moderna’s platform builds on continuous advances in basic and

applied mRNA science, delivery technology and manufacturing, providing the Company the capability to pursue in parallel a robust pipeline of new development candidates. Moderna is developing therapeutics and vaccines for infectious diseases, immuno-oncology, rare diseases and cardiovascular diseases, and autoimmune and inflammatory diseases, independently and with strategic collaborators. Headquartered in Cambridge, Mass., Moderna currently has strategic alliances for development programs with AstraZeneca, Plc. (NASDAQ: AZN) and Merck, Inc. (NASDAQ: MRK), as well as the Defense Advanced Research Projects Agency (NASDAQ: DARPA), an agency of the U.S. Department of Defense and the Biomedical Advanced Research and Development Authority (BARDA), a division of the Office of the Assistant Secretary for Preparedness and Response (ASPR) within the U.S. Department of Health and Human Services (HHS). Moderna has been named a top biopharmaceutical employer by Science for the past five years. To learn more, visit www.modernatx.com.

For media enquiries, please contact:

Rachel Grant, Director of Communications and Advocacy, CEPI

Tel: (b) (6)

Email: (b) (6)

Mario Christodoulou, Communications and Advocacy Manager, CEPI

Tel: (b) (6)

Email: (b) (6)

Jodie Rogers, Communications Officer, CEPI

Tel: (b) (6)

Email: (b) (6)

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From: Graham, Barney (NIH/VRC) [E]
Sent: Thu, 26 Mar 2020 14:20:41 +0000
To: Deckhut, Alison (NIH/NIAID) [E]; Ledgerwood, Julie (NIH/NIAID) [E]; Chen, Grace (NIH/NIAID) [E]; Widge, Alicia (NIH/NIAID) [E]
Cc: Bok, Karin (NIH/VRC) [E]; Golding, Hana (FDA/CBER)
Subject: Re: (b) (5) from COVID-19 patients

I am forwarding to Julie Ledgerwood et al

Barney

Sent from my iPhone

> On Mar 26, 2020, at 10:03 AM, Deckhut, Alison (NIH/NIAID) [E] (b) (6) wrote:
>
> That's my understanding, but I could be wrong
>
> -----Original Message-----
> From: Bok, Karin (NIH/VRC) [E] (b) (6)>
> Sent: Thursday, March 26, 2020 9:57 AM
> To: Deckhut, Alison (NIH/NIAID) [E] (b) (6); Graham, Barney (NIH/VRC) [E]
> (b) (6); Golding, Hana (FDA/CBER) (b) (6)>
> Subject: Re: (b) (5) from COVID-19 patients
>
> Hi Alison!
>
> Just clarifying. Is Tim offering samples?
>
> 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>
>
>
>
>
> On 3/26/20, 9:05 AM, "Deckhut, Alison (NIH/NIAID) [E]" (b) (6)> wrote:
>
> Dear Barney, Karin and Hana:
>
> Please see below for (b) (5) Tim is a very thoughtful investigator with a solid
immunology background.
>
> Hope all is well,
> Alison
>
> -----Original Message-----
> From: Deckhut, Alison (NIH/NIAID) [E]
> Sent: Thursday, March 26, 2020 8:57 AM

> To: Greten, Tim (NIH/NCI) [E] (b) (6)
> Subject: RE: (b) (5) from COVID-19 patients
>
> Hi Tim:
>
> Hana Golding at FDA is looking for samples from COVID-19 infected patients. (b) (5)
(b) (5)
(b) (5) Thoughts?
>
> Alison
>
> -----Original Message-----
> From: Greten, Tim (NIH/NCI) [E] (b) (6)>
> Sent: Wednesday, March 25, 2020 9:43 PM
> To: List IMMUNI-L <IMMUNI-L@list.nih.gov>
> Subject: (b) (5) from COVID-19 patients
>
> All,
>
> I am looking for a collaborator, who could help testing (b) (5)
(b) (5)
> Any advice where and how this could be done is appreciated.
> Tim
>
>

From: Graham, Barney (NIH/VRC) [E]
Sent: Sat, 1 Feb 2020 03:52:43 +0000
To: Corbett, Kizzmekia (NIH/VRC) [E]
Subject: Re: Wuhan virus response, proposal (b) (5)
vaccine

We have let NIAID know how we could spend any available CoV funds.

BG

Sent from my iPhone

On Jan 31, 2020, at 10:13 PM, Corbett, Kizzmekia (NIH/VRC) [E]
(b) (6) wrote:

May they regret it forever. (b) (5)
Sent from the mobile device of:
Kizzmekia S. Corbett, PhD
Senior Research Fellow
NIH | NIAID | VRC
(919) 218-9101

From: "Graham, Barney (NIH/VRC) [E]" (b) (6)>
Date: Friday, January 31, 2020 at 2:46:04 PM
To: "Corbett, Kizzmekia (NIH/VRC) [E]" (b) (6)
Cc: "Bok, Karin (NIH/VRC) [E]" (b) (6)>, "Morabito, Kaitlyn (NIH/VRC) [E]"
(b) (6)>, "Mascola, John (NIH/VRC) [E]" (b) (6)>,
"Ledgerwood, Julie (NIH/NIAID) [E]" (b) (6)>, "Daucher, Marybeth
(NIH/NIAID) [E]" (b) (6)>
Subject: Re: Wuhan virus response, proposal (b) (5)

That would have made them look pretty smart, (b) (6)
BG

Sent from my iPhone

On Jan 31, 2020, at 8:05 PM, Corbett, Kizzmekia (NIH/VRC) [E] (b) (6)
wrote:

Interesting. (b) (6) (b) (6) (b) (6)

(b) (5)

Sent from the mobile device of:

Kizzmekia S. Corbett, PhD

Senior Research Fellow

NIH | NIAID | VRC

(b) (6)

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

Date: Friday, January 31, 2020 at 1:00:50 PM

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

Cc: "Mascola, John (NIH/VRC) [E]" (b) (6), "Ledgerwood, Julie (NIH/NIAID) [E]" (b) (6), "Daucher, Marybeth (NIH/NIAID) [E]" (b) (6)

Subject: FW: Wuhan virus response, proposal (b) (5)

(b) (5) Proposal from LID.

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: Memoli, Matthew (NIH/NIAID) [E] (b) (6)

Sent: Friday, January 31, 2020 11:36 AM

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

Subject: FW: Wuhan virus response, proposal (b) (5)

Hi Hilary,

Just to keep you in the loop I wanted to let you know I sent the attached proposal to Steve Holland and DIR today (see below). Thought you might be interested to know about it.

Matt

--

Matthew J. Memoli, M.D., M.S.
Director, LID Clinical Studies Unit
Laboratory of Infectious Diseases
National Institute of Allergy and Infectious Diseases
National Institutes of Health
MSC 3203 33 North Dr
Bethesda, MD 20892-3203
UNITED STATES

Email: (b) (6)
Phone: (b) (6)
Pager: (b) (6)

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From: "Memoli, Matthew (NIH/NIAID) [E]" <(b) (6)>
Date: Friday, January 31, 2020 at 11:34 AM
To: "Holland, Steven (NIH/NIAID) [E]" <(b) (6)>, "Barron, Karyl (NIH/NIAID) [E]" <(b) (6)>
Cc: Jeffrey Cohen <(b) (6)>, Jeffery Taubenberger <(b) (6)>
Subject: Wuhan virus response, proposal (b) (5)

Good morning,

In response to the current Wuhan virus outbreak, we have developed a proposal for (b) (5)
(b) (5)

(b) (5) Please let me know if you have any questions. We are certainly happy to supply a potential budget if you think this is something you may be able to support.

Thanks,

Matt

--

Matthew J. Memoli, M.D., M.S.
Director, LID Clinical Studies Unit
Laboratory of Infectious Diseases
National Institute of Allergy and Infectious Diseases
National Institutes of Health
MSC 3203 33 North Dr
Bethesda, MD 20892-3203
UNITED STATES

Email: (b) (6)

Phone: (b) (6)

Pager: (b) (6)

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From: Graham, Barney (NIH/VRC) [E]
Sent: Mon, 16 Mar 2020 19:21:35 +0000
To: Abe, Ken (NIH/VRC) [C]
Subject: RE: CoV info

Thanks for letting me know that Ken. I [REDACTED] (b) (6)
[REDACTED]. It is remarkable that those two worlds came together for this.

Best wishes,

Barney

From: Abe, Ken (NIH/VRC) [C] [REDACTED] (b) (6)
Sent: Monday, March 16, 2020 3:16 PM
To: Graham, Barney (NIH/VRC) [E] [REDACTED] (b) (6) >
Subject: RE: CoV info

Hi Dr. Graham,

Thank you for sending the paper, it is very helpful both personally and professionally.

In regard to the trial, though I have not had much of a chance to speak with you directly, I know a lot of people are appreciative of the work that you do, and I just wanted to let you know that. [REDACTED] (b) (6)
[REDACTED] (b) (6) and she is especially appreciative knowing that the first trials are taking place in our area. It is comforting for her to know this in the midst of being asked to work unexpectedly for much longer and unpredictable shifts, as those [REDACTED] (b) (6) are now being asked to not report to work. [REDACTED] (b) (6)
[REDACTED] (b) (6). While I never really expected the professional worlds to collide (VRC [REDACTED] (b) (6)) it has lifted the spirits of many at her work knowing that something is taking place, even though this is only the start of the trial. Finally, thank you for sending the paper on the MERS-CoV, we were just talking about how durable COVID-19 and coronaviruses are in general. She has not received much guidance on protection, and the shortage of PPE is alarming.

Please take care and stay healthy!

Warmest regards,
Ken Abe

Ken Abe, Ph.D.
Senior Scientific Specialist
Vaccine Research Center, NIAID, NIH
office: [REDACTED] (b) (6)
mobile: [REDACTED] (b) (6)
[REDACTED] (b) (6)



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From: Graham, Barney (NIH/VRC) [E] (b) (6)
Sent: Monday, March 16, 2020 2:21 PM
To: VRC Bldg 40 PI Plus <VRCPIPlus@mail.nih.gov>
Subject: CoV info

How to kill CoV

<https://www.medrxiv.org/content/10.1101/2020.03.09.20033217v2>

MERS CoV on environmental services – Attached

First trial participant enrolled about 12:30 EDT!

<https://www.niaid.nih.gov/news-events/nih-clinical-trial-investigational-vaccine-covid-19-begins>

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: (b) (6)
Sent: Wed, 13 Nov 2019 13:23:29 -0500
To: Corbett, Kizzmekia (NIH/VRC) [E]
Subject: Re: [Pathogens, IF 3.405] Special Issue "SARS-CoV Infections" - Invitation to publish a paper for free (PubMed, Scopus and SCIE)

Hi Kizzy,

We could probably (b) (5)

BG

Sent from my iPhone

> On Nov 13, 2019, at 11:59 AM, Corbett, Kizzmekia (NIH/VRC) [E] (b) (6) wrote:

>

> Good morning Dr. Graham,

> So I followed up with Lingshu, and we have a (b) (5)

What are your thoughts there?

>

> --

> 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

>

>

> On 11/6/19, 4:28 PM, "Wang, Lingshu (NIH/VRC) [E]" <(b) (6)> wrote:

>

> I am not sure whether the journal can accept our (b) (5) I need to look into this. Do you have any idea about this?

>

> -----Original Message-----

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

> Sent: Wednesday, November 6, 2019 3:13 PM

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

> Subject: FW: [Pathogens, IF 3.405] Special Issue "SARS-CoV Infections" - Invitation to publish a paper for free

(PubMed, Scopus and SCIE)

>
> Good afternoon,
> Please let me know if this opportunity is useful to you.
>
> --
> 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
>
>

> On 11/2/19, 3:21 PM, "Graham, Barney (NIH/VRC) [E]" (b) (6) wrote:
>

> FYI. Is this helpful to you?
>

> BG
>
>
>

> -----Original Message-----

> From: Vanessa.Bu <vanessa.bu@mdpi.com>
> Sent: Thursday, October 31, 2019 2:32 AM
> To: Graham, Barney (NIH/VRC) [E] (b) (6)
> Cc: Pathogens Editorial Office <pathogens@mdpi.com>; lgralins@email.unc.edu
> Subject: [Pathogens, IF 3.405] Special Issue "SARS-CoV Infections" - Invitation to publish a paper for free
> (PubMed, Scopus and SCIE)
>

> Dear Dr. Graham,
>

> Hope this email finds you well.
>

> The journal Pathogens (ISSN 2076-0817, IF 3.405) is currently running a Special Issue entitled "SARS-CoV Infections". Dr. Lisa Gralinski is serving as the Guest Editor for this issue. According to her recommendation, we kindly invite you to contribute a feature paper to this special issue (**We will waive the full article processing charge

> 1300 CHF if your paper is accepted after peer review**):
>

> For further reading, please follow the link to the Special Issue Website at:
> https://www.mdpi.com/journal/pathogens/special_issues/SARS-CoV_Infections
>

> Pathogens is an international, open access journal of pathogens and pathogen-host interactions published quarterly online by MDPI. Pathogens was covered by PubMed (PMC), Scopus (CiteScore 2018: 3.65 and SCIE
> (http://mjl.clarivate.com/cgi-bin/jrnlst/jlresults.cgi?PC=MASTER&Full=*pathogens)).
>

> We kindly invite you to learn more about our journal at <http://www.mdpi.com/journal/pathogens>.
>

> Dr. Gralinski and I would be very pleased to receive your valuable contribution on the aforementioned topic

for consideration of publication in this Special Issue. We welcome review articles, research articles or any other types.

>

> I am looking forward to hearing from you. If there are any questions or suggestions, please feel free to contact us.

>

> Kind regards,

> Vanessa Bu

> Assistant Editor

>

>

>

>

>

>

From: Graham, Barney (NIH/VRC) [E]
Sent: Wed, 4 Mar 2020 14:02:48 +0000
To: William Dowling
Subject: Accepted: WHO Consultation on SARS-CoV -2 Reagents, Cross reactivity and immune Assays - Wed 3 PM CET

From: Graham, Barney (NIH/VRC) [E]
Sent: Fri, 10 Apr 2020 19:24:52 +0000
To: Corey MD, Larry; Mascola, John (NIH/VRC) [E]; Julie McElrath; Georgia Tomaras, Ph.D.; David Montefiori Ph. D.; Skip Virgin
Cc: Minnich, Beth A
Subject: RE: Lab assays for COVID-19 study

Thanks Larry. Good idea.

BG

From: Corey MD, Larry (b) (6)
Sent: Friday, April 10, 2020 2:17 PM
To: Graham, Barney (NIH/VRC) [E] (b) (6)>; Mascola, John (NIH/VRC) [E] (b) (6); Julie McElrath (b) (6); Georgia Tomaras, Ph.D. (b) (6)>; David Montefiori Ph. D. (b) (6)>; Skip Virgin (b) (6)
Cc: Minnich, Beth A (b) (6)>; Corey MD, Larry (b) (6)>
Subject: Lab assays for COVID-19 study

Dear Colleagues,

The HVTN/HPTN have placed into the field a natural history protocol to evaluate the immune responses post COVID-19 infection.

A draft of the study is enclosed. In short, it's a retrospective study of persons recovered from COVID-19, with 2 subsequent follow ups about 4 weeks apart. A sister prospective study of infected persons is being drafted now and will also be started. This is, in essence, a vaccine preparedness study; looking to develop how do we differentiate vaccination from infection, as well as whether we can define any immune responses that differ by population groups.

This group is to talk about just what assays we should do and prioritize, and who are the best labs to involve in this endeavor. I suspect this discussion should be 90 minutes. I have asked Julie, Georgia and David to throw out a few main ideas to provide some structure to the discussion.

Thanks –

Larry

From: Graham, Barney (NIH/VRC) [E]
Sent: Wed, 8 Apr 2020 21:04:51 +0000
To: Grady, Christine (NIH/CC/BEP) [E]
Cc: Danis, Marion (NIH/CC/BEP) [E]
Subject: RE: seeking your assistance

Here are a few answers below **in red**.

Although you didn't ask, [REDACTED] (b) (5)
[REDACTED] (b) (5)

Barney

From: Grady, Christine (NIH/CC/BEP) [E] [REDACTED] (b) (6)
Sent: Wednesday, April 8, 2020 1:33 PM
To: Graham, Barney (NIH/VRC) [E] [REDACTED] (b) (6) >
Cc: Danis, Marion (NIH/CC/BEP) [E] [REDACTED] (b) (6)
Subject: RE: seeking your assistance

Thank you so much, Barney.
we would appreciate your perspective on these few questions:

[REDACTED] (b) (5)

(b) (5)

If it would be easier to talk by phone, please let me know.
Thank you so much.

Christine

Christine Grady
Chief, Department of Bioethics
NIH Clinical Center

(b) (6)

(b) (6)

From: Graham, Barney (NIH/VRC) [E] (b) (6)>
Sent: Tuesday, April 7, 2020 11:21 AM
To: Grady, Christine (NIH/CC/BEP) [E] (b) (6)>
Cc: Danis, Marion (NIH/CC/BEP) [E] (b) (6)>
Subject: Re: seeking your assistance

Hi Christine,

I'm a clinician and virologist, (b) (5)
(b) (6) I'm glad to help if given those caveats you
think I can.

Take care,

Barney

Sent from my iPhone

On Apr 7, 2020, at 10:53 AM, Grady, Christine (NIH/CC/BEP) [E] <(b) (6)> wrote:

Hi Barney-

I hope you and yours are well and staying safe.

I am writing to see if you or someone else from VRC could help us.

(b) (5)



Thank you very much,
Christine

From: Graham, Barney (NIH/VRC) [E]
Sent: Fri, 17 Jan 2020 02:56:15 +0000
To: Bushar, Nicholas (NIH/NIAID) [E]
Subject: Accepted: PRWG Update - Wuhan Coronavirus Outbreak

From: Graham, Barney (NIH/VRC) [E]
Sent: Sun, 15 Mar 2020 15:04:22 +0000
To: Chris Twitty
Cc: Bernard A. Fox
Subject: RE: (b) (4) COVID-19?

Hi Chris,

(b) (4)

I am willing to talk periodically, but as you can see I may only episodically be able to keep up with emails so scheduling may be challenging.

Barney

From: Chris Twitty (b) (6)
Sent: Thursday, March 12, 2020 2:27 AM
To: Graham, Barney (NIH/VRC) [E] <(b) (6)>
Cc: Bernard A. Fox (b) (6)
Subject: Re: (b) (4) COVID-19?

Hi Barney,

(b) (4)

(b) (4) If there is a short window during your commute or any free moment during your day/night, Bernie and I would really appreciate your feedback on (b) (4)

Best,

Chris

From: Chris Twitty <(b) (6)>
Date: Tuesday, March 10, 2020 at 7:51 AM
To: "Graham, Barney (NIH/VRC) [E]" (b) (6)
Cc: Sandra Aung <(b) (6)>
Subject: Re: (b) (4) COVID-19?

Thank you very much for the details. This should allow us to get up and running

Best,

Chris

From: Graham, Barney (NIH/VRC) [E] <(b) (6)>
Sent: Tuesday, March 10, 2020 3:22:21 AM
To: Chris Twitty <(b) (6)>
Cc: Sandra Aung <(b) (6)>
Subject: Re: (b) (4) COVID-19?

Hi Chris,

(b) (4)

Barney

Sent from my iPhone

On Mar 10, 2020, at 1:37 AM, Chris Twitty (b) (6) wrote:

Hi Barney,

(b) (4)

(b) (4)

(b) (4)- very kind of you.

Best,

Chris

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

Date: Wednesday, March 4, 2020 at 3:01 PM

To: Sandra Aung <(b) (6)>

Cc: Chris Twitty (b) (6)

Subject: Re: (b) (4) COVID-19?

How about now. I am just starting the drive home. You can call me at (b) (6)

Barney

Sent from my iPhone

On Mar 4, 2020, at 5:21 PM, Sandra Aung <(b) (6)> wrote:

Thanks Barney,

I believe Inovia was Oncosec's parent company before Oncosec spun out to focus on oncology and yes I agree, (b) (4)

What time is good for you? I am copying Chris Twitty on this email so that we can all be on the call.

Best,

Sandra

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

Sent: Wednesday, March 4, 2020 2:16 PM

To: Sandra Aung (b) (6)

Subject: Re: (b) (4) COVID-19?

Hi Sandra.

Nice to hear from you. Yes, things are a little more chaotic than usual around here. We've gotten off to a quick start on the new CoV outbreak.

(b) (4)

I come to Scripps periodically. I'll keep this in mind for next time.

Let me know if you want to schedule a call one evening while I'm driving home.

Best wishes,

Barney

Sent from my iPhone

On Mar 4, 2020, at 4:19 PM, Sandra Aung <(b) (6)> wrote:

Hi Barney!

Greetings from the far West! Thank you for the lovely family updates during the holidays, your family is growing so fast and bigger each year! I saw that you are participating in the World Vaccine Congress in Washington, very nice!

Not that I needed an excuse to reach out to you, (b) (4)

(b) (4)

I can imagine how busy you must be with the frenzy around coronavirus but would you have a few minutes to discuss this approach (b) (6)

He would love to hear your feedback (b) (4)

Best,

Sandra

BTW I live in (b) (6) now, will you be visiting this side of the world any time soon? Would love to catch up with you!

This message, together with any attachments, may contain confidential or privileged information. If you think you may have received this message in error, please advise the sender and then delete this message and any attachments immediately. Thank you.

<OncoSec_CORVax_Whitepaper.pdf>

This message, together with any attachments, may contain confidential or privileged information. If you think you may have received this message in error, please advise the sender and then delete this message and any attachments immediately. Thank you.

This message, together with any attachments, may contain confidential or privileged information. If you think you may have received this message in error, please advise the sender and then delete this message and any attachments immediately. Thank you.

This message, together with any attachments, may contain confidential or privileged information. If you think you may have received this message in error, please advise the sender and then delete this message and any attachments immediately. Thank you.

From: Graham, Barney (NIH/VRC) [E]
Sent: Tue, 24 Mar 2020 14:52:05 +0000
To: Corbett, Kizzmekia (NIH/VRC) [E]; Morabito, Kaitlyn (NIH/VRC) [E]; Stein, Judy (NIH/VRC) [C]
Cc: Bok, Karin (NIH/VRC) [E]; Alvarado, Gabriela (NIH/VRC) [C]
Subject: RE: coronavirus (b) (4)

Karin or Gabi,

Could you convey what we suggest as options back to the Duke group? Thanks,

Barney

From: Corbett, Kizzmekia (NIH/VRC) [E] <(b) (6)>
Sent: Tuesday, March 24, 2020 10:45 AM
To: Graham, Barney (NIH/VRC) [E] (b) (6)>; Morabito, Kaitlyn (NIH/VRC) [E] (b) (6)>; Stein, Judy (NIH/VRC) [C] (b) (6)>
Cc: Bok, Karin (NIH/VRC) [E] (b) (6); Alvarado, Gabriela (NIH/VRC) [C] (b) (6)
Subject: Re: coronavirus (b) (4)

(b) (5)

(b) (5). I'll meet in the middle with Dr. Graham's clever suggestion though.

--

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: Tuesday, March 24, 2020 at 10:39 AM
To: Kaitlyn Morabito (b) (6) "Stein, Judy (NIH/VRC) [C]" (b) (6)>

Cc: "Bok, Karin (NIH/VRC) [E]" <(b) (6)>, Kizzmekia Corbett
(b) (6) "Alvarado, Gabriela (NIH/VRC) [C]" (b) (6)>
Subject: RE: coronavirus (b) (4)

One option is letting them do (b) (5), (b) (6) since we have already (b) (4)

Other option would be to ask them to screen (b) (5), (b) (4)

Barney

From: Morabito, Kaitlyn (NIH/VRC) [E] (b) (6)
Sent: Tuesday, March 24, 2020 9:49 AM
To: Stein, Judy (NIH/VRC) [C] <(b) (6)>; Graham, Barney (NIH/VRC) [E]
(b) (6)
Cc: Bok, Karin (NIH/VRC) [E] (b) (6)>; Corbett, Kizzmekia (NIH/VRC) [E]
(b) (6)>; Alvarado, Gabriela (NIH/VRC) [C] (b) (6)>
Subject: Re: coronavirus (b) (4)

Hi VRC team,

In reviewing the research plan that Duke proposed, (b) (5), (b) (4)
(b) (5), (b) (4)

Kaitlyn

From: "David Kordys, Ph.D." (b) (6)>
Date: Friday, March 20, 2020 at 12:08 PM
To: Judy Stein (b) (6)>, Darren Morrow <(b) (6)>, "Cynthia Nagle, Ph.D." (b) (6), "Barton Haynes, M.D." (b) (6)
Cc: "Petrik, Amy (NIH/NIAID) [E]" (b) (6)>, "Morabito, Kaitlyn (NIH/VRC) [E]"
(b) (6)>, Karin Bok (b) (6)>
Subject: RE: coronavirus (b) (4)

Hi Judy,

Thanks for the update. I'm looping in Darren and Cynthia from Duke who are tracking this agreement for our IRB submission.

(b) (4)
We would be happy to use that as a template to amend for additional research tools.

Best regards,

David



David Kordys, Ph.D.
DHVI Research Agreement Manager
Duke University
Office of Corporate Research Collaborations
2200 West Main Street, Suite 910B Durham, NC 27705
For Campus Mail:
P.O. Box 104025, Durham, NC 27710

Tel: (b) (6) (M,T, Th) and (b) (6) W, F

From: Stein, Judy (NIH/VRC) [C] (b) (6)
Sent: Wednesday, March 18, 2020 12:42 PM
To: David Kordys, Ph.D. (b) (6) >
Cc: Petrik, Amy (NIH/NIAID) [E] (b) (6) >; Morabito, Kaitlyn (NIH/VRC) [E] (b) (6) >; Bok, Karin (NIH/VRC) [E] (b) (6)
Subject: RE: coronavirus (b) (4)

Hi David,
I think so – we will review and add our information.
Also, there is an (b) (4) RCA research plan that I was sent and need to read through and merge with our standard RCA template
And, we want to send more materials not covered in the (b) (4). I need to look at that and check with Amy but (b) (4)
(b) (4)

Thanks,
Judy

From: David Kordys, Ph.D. <(b) (6)>
Sent: Wednesday, March 18, 2020 12:16 PM
To: Stein, Judy (NIH/VRC) [C] <(b) (6)>
Cc: Petrik, Amy (NIH/NIAID) [E] <(b) (6)>; Morabito, Kaitlyn (NIH/VRC) [E] (b) (6)
Subject: RE: coronavirus (b) (4)

Hi All,

Hope all is well. I'm sure that each of you are also quite overloaded with COVID related agreements, but I wanted to reach out to see if you are the appropriate contact for the attached Research Collaboration Agreement. On Sunday, Bart sent me the attached agreement for review but did not provide the original email under which the document was provided. Since we all were involved in discussions regarding setting up a RCA between Duke and the NIAID, I thought reaching out to you would be a good start so as to move this process forward. If you would like to set up a time to discuss, please let me know. Email is fine as well.

Best regards,

David



David Kordys, Ph.D.
DHVI Research Agreement Manager
Duke University
Office of Corporate Research Collaborations
2200 West Main Street, Suite 910B Durham, NC 27705
For Campus Mail:
P.O. Box 104025, Durham, NC 27710

Tel: (b) (6) (M,T, Th) and (b) (6) (W, F)

From: Stein, Judy (NIH/VRC) [C] <(b) (6)>
Sent: Thursday, March 5, 2020 1:54 PM
To: David Kordys, Ph.D. (b) (6)>
Cc: Petrik, Amy (NIH/NIAID) [E] (b) (6); Morabito, Kaitlyn (NIH/VRC) [E] (b) (6)>
Subject: RE: coronavirus PMBC samples

Hi David,
How goes it.
I will be gone next week but if Bart sends the research plan then Kaitlyn and Amy can help move this RCA through. It still takes about a week on our side for signatures but if you have any edits to the hRCA, please let us know. That can be finalized concurrent with the research plan.
Thanks,
Judy

From: Barton Haynes, M.D. <(b) (6)>
Sent: Wednesday, March 4, 2020 3:31 PM
To: Graham, Barney (NIH/VRC) [E] <(b) (6)>; Marston, Hilary (NIH/NIAID) [E] (b) (6)>; Ledgerwood, Julie (NIH/NIAID) [E] (b) (6)>
Cc: Degrace, Marciela (NIH/NIAID) [E] (b) (6)>; Gregory Sempowski (b) (6); Thomas Denny (b) (6); Kelly Soderberg (b) (6)>; Mascola, John (NIH/VRC) [E] (b) (6)>; David Kordys,

Ph.D. (b) (6); Stein, Judy (NIH/VRC) [C] (b) (6)>

Subject: RE: coronavirus (b) (4)

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

Just let us know what paper work needs to be done to get the (b) (4)
(b) (4) but if not that many, we can study whatever is available. All the best Bart

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

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

Sent: Tuesday, March 3, 2020 11:41 AM

To: Marston, Hilary (NIH/NIAID) [E] <(b) (6)>; Barton Haynes, M.D.
(b) (6)>; Bozick, Brooke (NIH/OD) [E] (b) (6) Ledgerwood, Julie
(NIH/NIAID) [E] (b) (6)>

Cc: Degrace, Marciela (NIH/NIAID) [E] (b) (6) Gregory Sempowski
(b) (6); Thomas Denny (b) (6); Kelly Soderberg
(b) (6); Mascola, John (NIH/VRC) [E] (b) (6)>

Subject: RE: coronavirus (b) (4)

(b) (4)

Barney

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

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

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

Hi Hilary, John and Barney:

(b) (4)



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

Many thanks for your consideration.

All the very best, Bart

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

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

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

I am only coordinating (b) (4) - Barney, John or Hilary would probably know more about accessing (b) (4) from the VRC.

Brooke

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

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

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

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

(b) (4) I spoke with Barney and John re this as well.

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

All the very best Bart

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

Hi Bart,

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

Thank you,
Brooke Bozick

Brooke A. Bozick, Ph.D.
AAAS Science & Technology Policy Fellow, Health Scientist
Respiratory Diseases Branch
Division of Microbiology and Infectious Diseases
NIAID/NIH/DHHS
5601 Fishers Lane, Room 8A16, Rockville, MD 20852
Phone: (b) (6)

Begin forwarded message:

From: "Barton Haynes, M.D." (b) (6)>
Date: February 17, 2020 at 4:02:18 PM EST
To: "Marston, Hilary (NIH/NIAID) [E]" <(b) (6)>
Cc: "Embry, Alan (NIH/NIAID) [E]" (b) (6), "Degrace, Marciela (NIH/NIAID) [E]" (b) (6)
Subject: RE: coronavirus (b) (4)

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

All the very best Bart

From: Marston, Hilary (NIH/NIAID) [E] (b) (6)
Sent: Monday, February 17, 2020 3:45 PM
To: Barton Haynes, M.D. (b) (6)
Cc: Embry, Alan (NIH/NIAID) [E] (b) (6); Degrace, Marciela (NIH/NIAID) [E]

(b) (6)>

Subject: Re: coronavirus (b) (4)

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

Thanks!

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

Hi Bart. (b) (4). This has been a painful process with so much urgency and so long a wait.

(b) (4)

Best wishes,

Barney

Sent from my iPhone

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

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

I realize most if not all of this is also being done there so more than happy to consider all this a direct collaboration. Our (b) (4) partner is Drew W and Norbert Pardi at Penn.

All the very best Bart

Barton F. Haynes, M.D.
Director, Duke Human Vaccine Institute
Frederic M. Hanes Professor of Medicine and Immunology
2 Genome Court

MSRBII Bldg. Room 4090
DUMC 103020
Duke University Medical Center
Durham, NC 27710
Ph: (b) (6)
Fx: 919-684-5230

(b) (6)

From: Graham, Barney (NIH/VRC) [E]
Sent: Fri, 17 Apr 2020 23:12:28 +0000
To: Hiatt, Nissa (NIH/VRC) [C]
Cc: Routh, Jennifer (NIH/NIAID) [E]; Oplinger, Anne (NIH/NIAID) [E]
Subject: Fwd: Dr. Graham / Scott H. Kennedy Call IMMUNITY

FYI. This sounds like a useful educational project.

Barney

Sent from my iPhone

Begin forwarded message:

From: Scott Kennedy <scott@blackvalleyfilms.com>
Date: April 17, 2020 at 6:48:04 PM EDT
To: "Graham, Barney (NIH/VRC) [E]" (b) (6)>
Cc: Ché Landon <che@blackvalleyfilms.com>
Subject: Dr. Graham / Scott H. Kennedy Call IMMUNITY

Hi Barney,

First and foremost, thank you and your team for your tireless work, you've generated one of our most valuable resources - hope. I also wanted to congratulate you on the headway you and Moderna have made on launching your Covid 19 RNA vaccine trial.

I've been working on a documentary entitled [IMMUNITY](#) about the disconcerting rise of Vaccine Hesitancy and the detrimental ramifications of misinformation for over a year now with Dr. Peter Hotez and Dr. Paul Offit, both of whom speak extremely highly of you. We've also shot with Dr. Fauci and Dr. Nancy Messonnier, who were gracious with their time and expertise.

In light of the current pandemic, our project is more pertinent than ever and it's tantamount that we create media that provides respect for scientific truth, highlights the healing and humanitarian spirit that propels so much of medical advancement and dispels myths that fracture efforts to act communally and responsibly on behalf of the greater global good.

We'd love to set up a quick call to discuss resources, potential involvement and how we can support you now and beyond this pivotal moment in Vaccine History. I've included

a one page with project information below, and also cc'd our Director of Development, Ché Landon, who will be happy to coordinate.

Looking forward to connecting soon about [IMMUNITY](#) and thank you again for your unfathomable dedication.

Best,

Scott

--

Black Valley Films is the production company behind the Academy Award Nominated film, *The Garden*, Hulu's *Food Evolution*, Showtime's *Fame High*, Spirit Award Nominee *OT: our town*, and now *Immunity*.



Support for the importance of IMMUNITY

"Now more than ever we need to convince the public that there is so much at stake regarding the importance of vaccines, the dangers of outbreaks, and how to determine the truth. Documentaries are a wonderful way to do that, and Scott has proven with FOOD EVOLUTION that he is devoted to getting the science right!"



Dr. Paul Offit

PROFESSOR OF PEDIATRICS, DIVISION OF
INFECTIOUS DISEASES, THE CHILDREN'S
HOSPITAL OF PHILADELPHIA

"Scott's brilliant documentary FOOD EVOLUTION confirmed his special talent for communicating sound science in a compelling fashion. In Immunity he will vanquish misconceptions about vaccination with equal dispatch. The need is great. In locales across the country, vaccination refusal and hesitance have led to measles outbreaks. This timely project will save lives."



Kathleen Hall Jamieson, Ph.D.

DIRECTOR, ANNENBERG PUBLIC POLICY CENTER

Immunity's audience just went GLOBAL.

Before Covid-19, the Academy Award Nominated team at Black Valley Films saw the importance and necessity of telling the story of record-breaking global outbreaks, and how much Vaccine Hesitancy and Anti-Vaxxers have influenced not only those rising outbreaks, but how they've corroded many aspects of a long-trusted social contract to protect our communities. And with that, IMMUNITY, was born.

With the emergence of Covid 19 we find ourselves at an unrivaled advantage as filmmakers--having *already* cultivated relationships with top public health experts including the Head of the NIAID, [Dr. Tony Fauci](#), vaccine experts [Dr. Peter Hotez](#) and [Dr. Paul Offit](#), as well as [Dr. Nancy Messonnier](#) and her colleagues at the CDC.

[Black Valley Films](#) has been invited to a coveted seat at the table to capture history as it rapidly unfolds on the frontlines.

We need to ramp up production to track the answers to [IMMUNITY'S](#) most pressing questions: What will win: **Science or disease? Truth or misinformation? The best of human nature or the worst of it?**

[IMMUNITY](#) will highlight avenues of hope, dismantle obstacles to truth, and celebrate all those at the forefront of this pandemic as they courageously blaze the trail to collective recovery.

Black Valley Films needs to hit our \$3 million goal to bring this essential piece of investigative journalism to full fruition. We have two key ways to support: A tax deductible contribution through our 501-(c)(3) sponsor, or as an Investor (including return on investment with interest, and pari passu backed participation with other investors).

Make a Tax Deductible CONTRIBUTION

Connect about INVESTOR options

Watch IMMUNITY Teaser

--
Black Valley Films is the production company behind the Academy Award Nominated film, *The Garden*, Hulu's *Food Evolution*, Showtime's *Fame High*, Spirit Award Nominee *OT: our town*, and now *Immunity*.

blackvalleyfilms.com

From: Graham, Barney (NIH/VRC) [E]
Sent: Thu, 30 Apr 2020 19:54:02 +0000
To: Royal, Thomas (NIH/NIAID) [E]; Bok, Karin (NIH/VRC) [E]
Cc: Young, Monique (NIH/VRC) [E]
Subject: RE: Olu Abiona

You can start there but (b) (6), (b) (5)

Barney

From: Royal, Thomas (NIH/NIAID) [E] (b) (6)
Sent: Thursday, April 30, 2020 3:52 PM
To: Bok, Karin (NIH/VRC) [E] <(b) (6)>
Cc: Graham, Barney (NIH/VRC) [E] (b) (6); Young, Monique (NIH/VRC) [E] (b) (6)
Subject: RE: Olu Abiona

Should we (b) (6), (b) (5)

Thomas E. Royal Jr.
Deputy Chief, VAMB, VRC, NIAID
40 Convent Drive, Bethesda, MD 20892
Phone: (b) (6)

From: Bok, Karin (NIH/VRC) [E] <(b) (6)>
Sent: Thursday, April 30, 2020 3:48 PM
To: Royal, Thomas (NIH/NIAID) [E] (b) (6)
Cc: Graham, Barney (NIH/VRC) [E] (b) (6); Young, Monique (NIH/VRC) [E] (b) (6)
Subject: Re: Olu Abiona

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

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: "Royal, Thomas (NIH/NIAID) [E]" (b) (6) >
Date: Thursday, April 30, 2020 at 3:42 PM
To: Karin Bok <(b) (6)>
Cc: "Graham, Barney (NIH/VRC) [E]" (b) (6), "Young, Monique (NIH/VRC) [E]" (b) (6)
Subject: FW: Olu Abiona

Hi Karin,

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

Thomas E. Royal Jr.
Deputy Chief, VAMB, VRC, NIAID
40 Convent Drive, Bethesda, MD 20892
Phone: (b) (6)

From: Graham, Barney (NIH/VRC) [E] (b) (6)
Sent: Tuesday, April 28, 2020 4:18 PM
To: Royal, Thomas (NIH/NIAID) [E] (b) (6)
Cc: Young, Monique (NIH/VRC) [E] (b) (6)
Subject: Olu Abiona

Hi Thomas,

I would like to (b) (6), (b) (5)

Thanks,

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>

The information in this e-mail and any of its attachments is confidential and may contain sensitive information. It should not be used by anyone who is not the original intended recipient. If you have received this e-mail in error please inform the sender and delete it from your mailbox or any other storage devices. National Institute of Allergy 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: Mon, 23 Mar 2020 15:22:23 +0000
To: Mascola, John (NIH/VRC) [E]
Cc: Corbett, Kizzmekia (NIH/VRC) [E]
Subject: Re: Confidential Spreadsheet for Tracking

(b) (6)

Barney

Sent from my iPhone

On Mar 23, 2020, at 11:10 AM, Mascola, John (NIH/VRC) [E] <(b) (6)> wrote:

thanks

From: Corbett, Kizzmekia (NIH/VRC) [E] (b) (6)
Sent: Monday, March 23, 2020 10:37 AM
To: Mascola, John (NIH/VRC) [E] (b) (6); Graham, Barney (NIH/VRC) [E]
(b) (6)
Subject: Confidential Spreadsheet for Tracking

Confidential.

See attached. I needed this for my own reference, and figured your both did too.

--

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: Graham, Barney (NIH/VRC) [E]
Sent: Tue, 14 Apr 2020 16:39:40 +0000
To: Gershoni, Jonathan
Cc: Morabito, Kaitlyn (NIH/VRC) [E]; Jonathan Gershoni; Corbett, Kizzmekia (NIH/VRC) [E]; Hadi Yassine
Subject: Re: Need some help -- MERS research

Hi Jonathan,

We are still working toward (b) (4)
(b) (4)

Barney

Sent from my iPhone

On Apr 10, 2020, at 3:16 AM, Gershoni, Jonathan <(b) (6)> wrote:

Hi Barney and Kaitlyn
We have completed the construction of our conformer library for (b) (4)
(b) (4)

Please let me know and if so how we can get some,
thanks
Jon

Prof. Jonathan M. Gershoni
Department of Cell Research and Immunology
Tel Aviv University
Tel Aviv 69978 ISRAEL
tel: (b) (6)
fax: 972 3 642 2046

(b) (6)
website: <http://gershoni.wixsite.com/labsite>

From: Graham, Barney (NIH/VRC) [E] (b) (6)
Sent: Sunday, February 24, 2019 12:10
To: Gershoni, Jonathan (b) (6)
Cc: Morabito, Kaitlyn (NIH/VRC) [C] (b) (6); Jonathan Gershoni (b) (6); Corbett, Kizzmekia (NIH/VRC) [E] (b) (6); Hadi

Yassine <[REDACTED] (b) (6)>

Subject: Re: Need some help -- MERS research

Hi Jon,

We are close to the same age, and agree that it feels like there is still quite a bit of life left, God willing.

Good to hear your work is progressing. I've added Dr. Kizzmekia Corbett to the email because she is the scientific lead for our coronavirus work.

We do have [REDACTED]

(b) (4)

(b) (4)

Best wishes,
Barney

Sent from my iPhone

On Feb 24, 2019, at 12:37 AM, Gershoni, Jonathan <[REDACTED] (b) (6)> wrote:

Hi Barney

How are you? Hopefully things are fine and you are happy and healthy!

Amazing to me is the fact that I must [REDACTED] (b) (6)

[REDACTED] However, as far as I am concerned this is just a chronological state and has no impact on my research. The University allows me to continue so long as I can fund my students and research. Thus far I am ok and doing well.

(b) (4)

In any case, I would like to summarize our results and need some help.

(b) (4)

What do you think, who might have some samples that I can get. Alternatively, I could probably send our [REDACTED] (b) (4)

Thanks very much and looking forward to hearing from you,

Many thanks,

Jon

Prof. Jonathan M. Gershoni
Department of Cell Research and Immunology
Tel Aviv University
Tel Aviv 69978 ISRAEL
tel: [REDACTED] (b) (6)
fax: 972 3 642 2046
[REDACTED] (b) (6)

website: <http://gershoni.wixsite.com/labsiteom/labsite>

From: Graham, Barney (NIH/VRC) [E] [REDACTED] (b) (6)
Sent: Thursday, August 18, 2016 16:14
To: Gershoni, Jonathan
Cc: Morabito, Kaitlyn (NIH/VRC) [F]
Subject: Re: Need some help -- MERS research

Hi Jon.
Yes, we will put a package together for you.
Best wishes,
Barney

Sent from my iPhone

On Aug 18, 2016, at 8:44 AM, Gershoni, Jonathan [REDACTED] (b) (6) wrote:

Dear Dr. Graham:

We have met over the years in some of the HIV meetings and hope that you might be able to help me.

We have been studying the antibody - virus interaction in various human viral infections with the specific goal of characterizing the cognate epitopes of neutralizing antibodies. For this we have developed various combinatorial phage display technologies and a panel of computational

algorithms that allow us to predict conformational discontinuous epitopes and most recently analyze disease defining polyclonal sera from infected people.

Recently we have received an Israel Academy grant focused on (b) (4) which as you obviously can appreciate is a serious concern for Israel and the Middle East in general.

I was hoping that we might be able to obtain some of the (b) (4)

Obviously, I will be sure to process any MTA that would be required. Also if you can provide a (b) (4) that would be great.

Thanks very much for your consideration,

Best regards,

Jon

Prof. Jonathan M. Gershoni
Department of Cell Research and Immunology
Tel Aviv University
Tel Aviv 69978 ISRAEL
tel: (b) (6)
fax: 972 3 642 2046
(b) (6)

From: Graham, Barney (NIH/VRC) [E]
Sent: Thu, 23 Apr 2020 15:55:59 +0000
To: Sereti, Irini (NIH/NIAID) [E]
Subject: Re: Live Feedback for Rapid COVID-19 Vaccine Development: An Example of the Prototype Pathogen Approach for Pandemic Preparedness

Was that Jeff Cohen or Jeff Roberts from FDA or another Jeff?

BG

Sent from my iPhone

On Apr 23, 2020, at 11:43 AM, Sereti, Irini (NIH/NIAID) [E] <(b) (6)> wrote:

Dear Barney,

Totally up to you.

The person asking was Nisan Bhattacharyya from NIDCR according to the form.

I was very interested in Jeff's question too about surrogates of protection, if we know.

Thank you again!

From: "Graham, Barney (NIH/VRC) [E]" <(b) (6)>
Date: Thursday, April 23, 2020 at 11:41 AM
To: "Sereti, Irini (NIH/NIAID) [E]" <(b) (6)>
Subject: RE: Live Feedback for Rapid COVID-19 Vaccine Development: An Example of the Prototype Pathogen Approach for Pandemic Preparedness

Hi Irini,

Do you want me to answer this question? Is there a place to send the answer?

BG

From: Sereti, Irini (NIH/NIAID) [E] <(b) (6)>
Sent: Wednesday, April 22, 2020 4:02 PM
To: Graham, Barney (NIH/VRC) [E] <(b) (6)>
Subject: FW: Live Feedback for Rapid COVID-19 Vaccine Development: An Example of the Prototype Pathogen Approach for Pandemic Preparedness

Had no time to ask you this... sorry!

From: "Roberts, Jacqueline (NIH/OD) [E]" (b) (6)
Date: Wednesday, April 22, 2020 at 3:48 PM
To: "Sereti, Irini (NIH/NIAID) [E]" (b) (6)
Cc: "Wanjek, Christopher (NIH/OD) [E]" (b) (6)>
Subject: FW: Live Feedback for Rapid COVID-19 Vaccine Development: An Example of the Prototype Pathogen Approach for Pandemic Preparedness

From: NIH Videocast <videocast@mail.nih.gov>
Date: Wednesday, April 22, 2020 at 3:48 PM
To: "Roberts, Jacqueline (NIH/OD) [E]" (b) (6)
Subject: Live Feedback for Rapid COVID-19 Vaccine Development: An Example of the Prototype Pathogen Approach for Pandemic Preparedness

A message was received from the Videocast website

From	Nisan Bhattacharyya
Email	
Organization	NIDCR
Phone	
Subject	
Message	If the current vaccine will be effective during receptor-independent non-endosomal viral entry or does it neutralize the virus extracellularly?
Received from	(b) (6)
Country	-
City	-
Region	-
ISP	Private IP Address LAN
Browser test	

From: Graham, Barney (NIH/VRC) [E]
Sent: Wed, 18 Mar 2020 22:14:40 +0000
To: Marston, Hilary (NIH/NIAID) [E]; Mascola, John (NIH/VRC) [E]
Cc: Bok, Karin (NIH/VRC) [E]; Gall, Jason (NIH/VRC) [C]
Subject: RE: Background information on Sanofi COVID-19 vaccine

(b) (5)

BG

From: Marston, Hilary (NIH/NIAID) [E] (b) (6) >
Sent: Wednesday, March 18, 2020 5:42 PM
To: Mascola, John (NIH/VRC) [E] (b) (6) >
Cc: Graham, Barney (NIH/VRC) [E] (b) (6) >; Bok, Karin (NIH/VRC) [E]
(b) (6); Gall, Jason (NIH/VRC) [C] (b) (6)
Subject: Re: Background information on Sanofi COVID-19 vaccine

(b) (5)

On Mar 18, 2020, at 9:57 AM, Mascola, John (NIH/VRC) [E] (b) (6) wrote:

Hilary,
FYI and for our tracking. Note, (b) (5)

(b) (5).

John

From: Lewin, Clement /US (b) (6) >
Sent: Wednesday, March 18, 2020 9:52 AM
To: Graham, Barney (NIH/VRC) [E] (b) (6) >; Mascola, John (NIH/VRC) [E]
(b) (6) >; Mascola, John (NIH/VRC) [E] (b) (6) >
Cc: Sagar, Sangeetha /US (b) (6) >; Tartaglia, Jim /US
(b) (6) >
Subject: Background information on Sanofi COVID-19 vaccine

Jim Tartaglia asked me to provide you with a summary of our vaccine program. Please let me know if you have any questions.

Best wishes
Clem

Clement Lewin PhD MBA
Associate Vice President Head BARDA Office & NV Stakeholder Engagement
Sanofi Pasteur
38 Sidney Street, Cambridge MA 02139

Mobile: (b) (6)

Office: (b) (6)

(b) (6)

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<SP One page summary of COVID-19 project 03 18 20 csl.docx>

From: Graham, Barney (NIH/VRC) [E]
Sent: Thu, 16 Apr 2020 11:48:32 +0000
To: Widge, Alicia (NIH/NIAID) [E]
Cc: Ledgerwood, Julie (NIH/NIAID) [E]; Gordon, Ingelise (NIH/VRC) [E]
Subject: RE: COVID+ Samples

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

Thanks,

BG

From: Widge, Alicia (NIH/NIAID) [E] <(b) (6)>
Sent: Thursday, April 16, 2020 7:31 AM
To: Graham, Barney (NIH/VRC) [E] (b) (6)
Cc: Ledgerwood, Julie (NIH/NIAID) [E] (b) (6); Gordon, Ingelise (NIH/VRC) [E]
(b) (6)>
Subject: Re: COVID+ Samples

Ingelise found (b) (6), (b) (5)
(b) (6), (b) (5)

Thanks,
Alicia

From: Widge, Alicia (NIH/NIAID) [E] (b) (6)>
Sent: Wednesday, April 15, 2020 10:56 PM
To: Graham, Barney (NIH/VRC) [E]
Cc: Ledgerwood, Julie (NIH/NIAID) [E]; Gordon, Ingelise (NIH/VRC) [E]
Subject: Re: COVID+ Samples

Thanks, Eli has confirmed that his lab will process the samples.

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

I'm having trouble locating (b) (6) I'll continue to work on it, but in the meantime, could you have them contact Ingelise first thing in the morning at (b) (6)

Thank you,
Alicia

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

Date: Wednesday, April 15, 2020 at 5:18 PM

To: "Widge, Alicia (NIH/NIAID) [E]" <(b) (6)>

Cc: "Ledgerwood, Julie (NIH/NIAID) [E]" (b) (6)>, "Gordon, Ingelise (NIH/VRC) [E]" (b) (6)>

Subject: Re: COVID+ Samples

(b) (6)

and I will look into biosafety and sample processing.

BG

Sent from my iPhone

On Apr 15, 2020, at 3:39 PM, Widge, Alicia (NIH/NIAID) [E] (b) (6)> wrote:

Hi Barney,

We are working to

(b) (5)
(b) (5)

(b) (5) you can call or text me their name (b) (6) or they can call Ingelise directly at (b) (6)

Thank you,
Alicia

--

Alicia Widge M.D., M.S.

Clinical Trials Program

Vaccine Research Center | NIAID, NIH

Phone: (b) (6)

Cell: (b) (6)