

**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Thu, 30 Apr 2020 18:00:24 +0000  
**To:** Corbett, Kizzmekia (NIH/VRC) [E]; Wang, Lingshu (NIH/VRC) [E]; Ruckwardt, Tracy (NIH/VRC) [E]; Morabito, Kaitlyn (NIH/VRC) [E]  
**Cc:** Shi, Wei (NIH/VRC) [E]; Mascola, John (NIH/VRC) [E]  
**Subject:** RE: immunized mice

You should work with (b) (5)

Barney

---

**From:** Corbett, Kizzmekia (NIH/VRC) [E] (b) (6)  
**Sent:** Thursday, April 30, 2020 1:58 PM  
**To:** Wang, Lingshu (NIH/VRC) [E] <(b) (6)>; Morabito, Kaitlyn (NIH/VRC) [E] (b) (6)  
**Cc:** Shi, Wei (NIH/VRC) [E] (b) (6); Graham, Barney (NIH/VRC) [E] (b) (6); Mascola, John (NIH/VRC) [E] (b) (6)>  
**Subject:** Re: immunized mice

Hi Lingshu,  
Sure This is a great idea. (b) (5)  
(b) (5)

Let me know if you need anything else.

--

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

Building 40 Room 2608  
40 Convent Drive  
Bethesda MD 20892

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

---

**From:** "Wang, Lingshu (NIH/VRC) [E]" <(b) (6)>  
**Date:** Thursday, April 30, 2020 at 12:49 PM  
**To:** Kizzmekia Corbett (b) (6)>, Kaitlyn Morabito  
(b) (6)

**Cc:** "Shi, Wei (NIH/VRC) [E]" (b) (6)>, Barney Graham <(b) (6)>,  
"Mascola, John (NIH/VRC) [E]" (b) (6)  
**Subject:** immunized mice

Hi Kizzy and all,  
From our work to help (b) (5),  
(b) (5)

Thanks,  
lingshu

**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Sun, 16 Feb 2020 21:53:15 +0000  
**To:** Jason McLellan  
**Cc:** Corbett, Kizzmekia (NIH/VRC) [E]  
**Subject:** Re: other paper comments

Perfect.

BG

Sent from my iPhone

On Feb 16, 2020, at 3:59 PM, Jason McLellan (b) (6) > wrote:

Thanks, (b) (4)

For acknowledgements, is this ok:

This work was supported in part by an NIH/NIAID grant awarded to J.S.M. (R01-AI127521) and by intramural funding from the National Institute of Allergy and Infectious Diseases (B.S.G).

For the patent, I think we need to be more specific. How about the following:

"N.S.W., K.S.C., B.S.G, and J.S.M are inventors on US patent application No. 62/412,703 (Prefusion Coronavirus Spike Proteins and Their Use) and D.W., N.S.W., K.S.C., O.A., B.S.G, and J.S.M are inventors on US patent application No. 62/972,886 (2019-nCoV Vaccine).

Daniel and Olu are both on the recent patent application.

Let me know if that works

Jason

---

**From:** Graham, Barney (NIH/VRC) [E] (b) (6) >  
**Sent:** Sunday, February 16, 2020 2:46 PM  
**To:** Jason McLellan (b) (6)  
**Cc:** Corbett, Kizzmekia (NIH/VRC) [E] (b) (6) >  
**Subject:** other paper comments

Good answer back to Michael Farzan.

In the author forms, I indicated two things that I was supposed to tell you.

1. In acknowledgements or funding section could you add, "This work was supported in part by intramural funding from the National Institute of Allergy and Infectious Diseases."
2. B.S.G and K.S.C. are inventors on patent applications describing the design of coronavirus vaccines.

BG

\*\*\*\*\*

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

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**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Wed, 11 Mar 2020 13:01:00 +0000  
**To:** Buchanan, Wendy (NIH/NIAID) [E]  
**Cc:** Bennett Hamilton;Sun Wellington;Morabito, Kaitlyn (NIH/VRC) [E];Ledgerwood, Julie (NIH/NIAID) [E];Roberts, Chris (NIH/NIAID) [E];Pikaart-Tautges, Rhonda (NIH/NIAID) [E];Beigel, John (NIH) [E];Makhene, Mamodikoe (NIH/NIAID) [E];Elsafy, Mohamed (NIH/NIAID) [C]  
**Subject:** Re: FDA non-hold comments for 20-0003

I think the paragraph on [REDACTED] (b) (4). Thanks for all the work that went into this.

Barney

Sent from my iPhone

On Mar 10, 2020, at 6:30 PM, Buchanan, Wendy (NIH/NIAID) [E] <[REDACTED] (b) (6)> wrote:

[REDACTED] (b) (4) attached.

Wendy L Buchanan, BSN, MS  
Nurse Consultant  
Respiratory Diseases Branch  
DMID/NIAID/NIH/DHHS  
5601 Fishers Lane  
Room 8E38, MSC 9825  
Bethesda, Maryland 20892-9825  
(courier/FedEx/UPS: Rockville, Maryland 20852)  
Tel: [REDACTED] (b) (6)  
Fax: 301-496-8030  
Mobile: [REDACTED] (b) (6)  
Email: [REDACTED] (b) (6)

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**From:** Roberts, Chris (NIH/NIAID) [E] (b) (6)>  
**Sent:** Monday, March 9, 2020 5:19 PM  
**To:** Bennett Hamilton (b) (6); Graham, Barney (NIH/VRC) [E] (b) (6); Sun Wellington <(b) (6)>  
**Cc:** Corbett, Kizzmekia (NIH/VRC) [E] (b) (6); Pikaart-Tautges, Rhonda (NIH/NIAID) [E] (b) (6); Buchanan, Wendy (NIH/NIAID) [E] (b) (6); Beigel, John (NIH) [E] <(b) (6)>; Makhene, Mamodikoe (NIH/NIAID) [E] (b) (6); Morabito, Kaitlyn (NIH/VRC) [E] <(b) (6)>; Elsafy, Mohamed (NIH/NIAID) [C] <(b) (6)>; Andrea Carfi (b) (6)>; Arega, Janice (NIH/NIAID) [E] (b) (6); Hoang, Binh (NIH/NIAID) [E] (b) (6); Corbett, Kizzmekia (NIH/VRC) [E] (b) (6); Mascola, John (NIH/VRC) [E] (b) (6)  
**Subject:** RE: FDA non-hold comments for 20-0003

We would prefer to have it by tomorrow noon. (b) (4)

Chris

---

**From:** Hamilton Bennett <(b) (6)>  
**Sent:** Monday, March 9, 2020 5:04 PM  
**To:** Graham, Barney (NIH/VRC) [E] (b) (6); Sun Wellington (b) (6)  
**Cc:** Roberts, Chris (NIH/NIAID) [E] (b) (6); Corbett, Kizzmekia (NIH/VRC) [E] <(b) (6)>; Pikaart-Tautges, Rhonda (NIH/NIAID) [E] (b) (6); Buchanan, Wendy (NIH/NIAID) [E] (b) (6); Beigel, John (NIH) [E] (b) (6); Makhene, Mamodikoe (NIH/NIAID) [E] (b) (6); Morabito, Kaitlyn (NIH/VRC) [E] (b) (6); Elsafy, Mohamed (NIH/NIAID) [C] <(b) (6)>; Andrea Carfi (b) (6); Arega, Janice (NIH/NIAID) [E] (b) (6); Hoang, Binh (NIH/NIAID) [E] (b) (6); Corbett, Kizzmekia (NIH/VRC) [E] (b) (6); Mascola, John (NIH/VRC) [E] (b) (6)>  
**Subject:** RE: FDA non-hold comments for 20-0003

Chris and John,

Could you please clarify your preferred timing for (b) (4)

(b) (4)

(b) (4)

Thank you,

**Hamilton Bennett**

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

---

**From:** Graham, Barney (NIH/VRC) [E] <(b) (6)>  
**Sent:** Monday, March 9, 2020 10:19 AM  
**To:** Wellington Sun <(b) (6)>  
**Cc:** Roberts, Chris (NIH/NIAID) [E] (b) (6)>; Corbett, Kizzmekia (NIH/VRC) [E] <(b) (6)>; Pikaart-Tautges, Rhonda (NIH/NIAID) [E] (b) (6)>; Buchanan, Wendy (NIH/NIAID) [E] (b) (6)>; Beigel, John (NIH) [E] (b) (6)>; Makhene, Mamodikoe (NIH/NIAID) [E] (b) (6)>; Hamilton Bennett (b) (6)>; Morabito, Kaitlyn (NIH/VRC) [E] <(b) (6)>; Elsafty, Mohamed (NIH/NIAID) [C] (b) (6)>; Andrea Carfi (b) (6)>; Arega, Janice (NIH/NIAID) [E] (b) (6)>; Hoang, Binh (NIH/NIAID) [E] (b) (6)>; Corbett, Kizzmekia (NIH/VRC) [E] <(b) (6)>; Mascola, John (NIH/VRC) [E] (b) (6)>  
**Subject:** RE: FDA non-hold comments for 20-0003

(b) (4)

Barney

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**From:** Wellington Sun <(b) (6)>  
**Sent:** Monday, March 9, 2020 9:51 AM  
**To:** Graham, Barney (NIH/VRC) [E] <(b) (6)>  
**Cc:** Roberts, Chris (NIH/NIAID) [E] (b) (6)>; Pikaart-Tautges, Rhonda (NIH/NIAID) [E] <(b) (6)>; Buchanan, Wendy (NIH/NIAID) [E] <(b) (6)>; Beigel, John (NIH) [E] (b) (6)>; Makhene, Mamodikoe (NIH/NIAID) [E] (b) (6)>; Bennett Hamilton (b) (6)>; Morabito, Kaitlyn (NIH/VRC) [E] <(b) (6)>; Elsafty, Mohamed (NIH/NIAID) [C] (b) (6)>; Andrea Carfi (b) (6)>; Arega, Janice (NIH/NIAID) [E] (b) (6)>; Hoang, Binh (NIH/NIAID) [E] (b) (6)>; Corbett, Kizzmekia (NIH/VRC) [E] <(b) (6)>; Mascola, John (NIH/VRC) [E] (b) (6)>  
**Subject:** RE: FDA non-hold comments for 20-0003

May I use that information (b) (4)

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**From:** Graham, Barney (NIH/VRC) [E] <(b) (6)>  
**Sent:** Monday, March 9, 2020 9:39 AM  
**To:** Wellington Sun <(b) (6)>  
**Cc:** Roberts, Chris (NIH/NIAID) [E] (b) (6)>; Pikaart-Tautges, Rhonda (NIH/NIAID) [E] <(b) (6)>; Buchanan, Wendy (NIH/NIAID) [E] (b) (6)>; Beigel, John (NIH) [E] (b) (6)>; Makhene, Mamodikoe (NIH/NIAID) [E] (b) (6)>; Hamilton Bennett (b) (6)>; Morabito, Kaitlyn (NIH/VRC) [E] <(b) (6)>; Elsafty, Mohamed (NIH/NIAID) [C] <(b) (6)>; Andrea

Carfi (b) (6)>; Arega, Janice (NIH/NIAID) [E] (b) (6)>; Hoang, Binh (NIH/NIAID) [E] (b) (6) Corbett, Kizzmekia (NIH/VRC) [E] (b) (6); Mascola, John (NIH/VRC) [E] (b) (6)

**Subject:** Re: FDA non-hold comments for 20-0003

(b) (4)

Barney

Sent from my iPhone

On Mar 9, 2020, at 9:22 AM, Wellington Sun <(b) (6)> wrote:

Hi Barney,

Thanks for this excellent summary.

(b) (4)

(b) (4)

Thanks,  
Wellington

---

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

**Sent:** Saturday, March 7, 2020 10:21 AM

**To:** Roberts, Chris (NIH/NIAID) [E] (b) (6)>; Pikaart-Tautges, Rhonda (NIH/NIAID) [E] (b) (6)>; Buchanan, Wendy (NIH/NIAID) [E] (b) (6)>; Beigel, John (NIH) [E] (b) (6)>; Makhene, Mamodikoe (NIH/NIAID) [E] (b) (6)>; Hamilton Bennett <(b) (6)>; Wellington Sun

(b) (6); Morabito, Kaitlyn (NIH/VRC) [E] (b) (6)>; Elsafy, Mohamed (NIH/NIAID) [C] (b) (6)

**Cc:** Arega, Janice (NIH/NIAID) [E] (b) (6); Hoang, Binh (NIH/NIAID) [E]

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

**Subject:** RE: FDA non-hold comments for 20-0003

This is the updated document I promised

(b) (4)

(b) (4)

Barney

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**From:** Roberts, Chris (NIH/NIAID) [E] < (b) (6)>

**Sent:** Friday, March 6, 2020 4:55 PM

**To:** Pikaart-Tautges, Rhonda (NIH/NIAID) [E] < (b) (6)>; Buchanan, Wendy (NIH/NIAID) [E] < (b) (6)>; Beigel, John (NIH) [E] < (b) (6)>; Makhene, Mamodikoe (NIH/NIAID) [E] < (b) (6)>; Bennett Hamilton < (b) (6)>; Sun Wellington < (b) (6)>; Morabito, Kaitlyn (NIH/VRC) [E]

< (b) (6)>; Graham, Barney (NIH/VRC) [E] < (b) (6)>; Elsafy, Mohamed (NIH/NIAID) [C] < (b) (6)>

**Cc:** Arega, Janice (NIH/NIAID) [E] < (b) (6)>; Hoang, Binh (NIH/NIAID) [E] < (b) (6)>

**Subject:** RE: FDA non-hold comments for 20-0003

Hi Hamilton, Wellington

I assume you can draft some language

(b) (4)

(b) (4)

Chris

---

**From:** Pikaart-Tautges, Rhonda (NIH/NIAID) [E] < (b) (6)>

**Sent:** Friday, March 6, 2020 2:31 PM

**To:** Roberts, Chris (NIH/NIAID) [E] < (b) (6)>; Buchanan, Wendy (NIH/NIAID) [E] < (b) (6)>; Beigel, John (NIH) [E] < (b) (6)>; Makhene, Mamodikoe (NIH/NIAID) [E] < (b) (6)>; Bennett Hamilton < (b) (6)>;

Sun Wellington <(b) (6)>; Morabito, Kaitlyn (NIH/VRC) [E]  
(b) (6)>; Graham, Barney (NIH/VRC) [E] (b) (6)>; Elsafy,  
Mohamed (NIH/NIAID) [C] (b) (6)  
**Cc:** Arega, Janice (NIH/NIAID) [E] (b) (6)>; Hoang, Binh (NIH/NIAID) [E]  
(b) (6)

**Subject:** FDA non-hold comments for 20-0003

**Importance:** High

Hi all,

We just received the non-hold comments from the FDA.

(b) (4)

Rhonda

(b) (4)

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**From:** Pikaart-Tautges, Rhonda (NIH/NIAID) [E]  
**Sent:** Monday, March 2, 2020 3:48 PM  
**To:** Roberts, Chris (NIH/NIAID) [E] (b) (6)>; Buchanan, Wendy (NIH/NIAID) [E] (b) (6); Beigel, John (NIH) [E] (b) (6)>; Makhene, Mamodikoe (NIH/NIAID) [E] (b) (6); Hamilton Bennett (b) (6); Wellington Sun (b) (6); Morabito, Kaitlyn (NIH/VRC) [E] (b) (6); Graham, Barney (NIH/VRC) [E] (b) (6)>; Elsafty, Mohamed (NIH/NIAID) [C] (b) (6)>  
**Cc:** Arega, Janice (NIH/NIAID) [E] (b) (6); Susan Wong (b) (6)>; Hoang, Binh (NIH/NIAID) [E] (b) (6)>  
**Subject:** Just received the safe to proceed call from the FDA for 20-0003  
**Importance:** High

Hi all,

The FDA just called, we are safe to proceed.

Non-hold comments will be assembled and will come later.

Rhonda

Rhonda Pikaart-Tautges  
Sr. Regulatory Affairs Manager, COR III  
Office of Regulatory Affairs, DMID, NIAID, NIH, DHHS  
5601 Fishers Lane, Rm 7F58, MSC 9826  
Bethesda, MD 20892-9826 (Courier/Express Mail: Rockville, MD 20852)  
Branch phone: (b) (6)  
Direct phone and voice mail (b) (6)  
Telework: Tuesday, Friday  
IM Skype  
e-mail: (b) (6)

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(b) (4)

**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Wed, 18 Mar 2020 15:46:37 +0000  
**To:** Routh, Jennifer (NIH/NIAID) [E]; Hiatt, Nissa (NIH/VRC) [C]; Corbett, Kizzmekia (NIH/VRC) [E]  
**Cc:** Oplinger, Anne (NIH/NIAID) [E]; Deatrick, Elizabeth (NIH/NIAID) [C]; Pekoc, Ken (NIH/NIAID) [E]; Lavelle, Judith (NIH/NIAID) [E]; Stover, Kathy (NIH/NIAID) [E]  
**Subject:** RE: Request for help - Forbes article correction. mRNA-1273 vaccine - animal work already done?

Looks good to me.

BG

---

**From:** Routh, Jennifer (NIH/NIAID) [E] (b) (6)  
**Sent:** Wednesday, March 18, 2020 10:13 AM  
**To:** Hiatt, Nissa (NIH/VRC) [C] (b) (6)>; Graham, Barney (NIH/VRC) [E] (b) (6)  
(b) (6) Corbett, Kizzmekia (NIH/VRC) [E] (b) (6)>  
**Cc:** Oplinger, Anne (NIH/NIAID) [E] (b) (6)>; Deatrick, Elizabeth (NIH/NIAID) [C] (b) (6)>; Pekoc, Ken (NIH/NIAID) [E] (b) (6)>; Lavelle, Judith (NIH/NIAID) [E] <(b) (6)>; Stover, Kathy (NIH/NIAID) [E] (b) (6)>  
**Subject:** FW: Request for help - Forbes article correction. mRNA-1273 vaccine - animal work already done?

Hello – please see the request below from Forbes. I would propose that we respond with a statement that can be attributed to NIAID, using some of the language we developed over the weekend. If this looks OK to VRC, I will send to the reporter:

(b) (5)

Thanks,  
Jen

Jennifer Routh [E]  
News and Science Writing Branch  
Office of Communications and Government Relations  
National Institute of Allergy and Infectious Diseases (NIAID)

NIH/HHS  
31 Center Drive Room 7A17C  
Bethesda, MD 20892

Direct: (b) (6)

(b) (6)

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**From:** Victoria Forster (b) (6)

**Sent:** Wednesday, March 18, 2020 9:19 AM

**To:** Billet, Courtney (NIH/NIAID) [E] (b) (6); Stover, Kathy (NIH/NIAID) [E]

(b) (6)

**Subject:** Request for help - Forbes article correction. mRNA-1273 vaccine - animal work already done?

Dear Ms Billet and Ms Stover,

My name is Vicky and I'm a contributing writer for Forbes Health. I wrote an article about the first patient to be injected with the NIH/Moderna developed vaccine in Seattle. In [the article](#) I mention that the approval of the vaccine for the phase I trial did not involve mouse work as is standard due to the urgency of the situation. However, after following one of your scientists (Dr Corbett) on Twitter, this appears not to be the case, but I am struggling from her tweets to find out exactly what mouse work has been done on the vaccine and I can't find any published data involving this work (understandable considering the short timescale of the vaccine development).

I understand that this is an unprecedented situation, but I am keen to make sure my article is not misleading and would like to correct it to make sure it is accurate about the mouse work that has been done (even if perhaps this has not been done in quite the way it normally would). I messaged Dr Corbett over twitter late last night, but haven't heard back from her (I'm sure she and all of the other researchers on the project are very busy indeed!).

Is this something you can help me with? I don't need to interview the researchers necessarily, but I would very much appreciate clarification on what mouse work has been done or is in progress so that I can correct my article.

Thank you for your help and very best wishes at what is undoubtedly a busy and trying time for you,

Vicky Forster

**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Sat, 22 Feb 2020 11:30:18 +0000  
**To:** Kanekiyo, Masaru (NIH/VRC) [E]  
**Cc:** Corbett, Kizzmekia (NIH/VRC) [E]; Stein, Judy (NIH/VRC) [C]; Gall, Jason (NIH/VRC) [C]; Mascola, John (NIH/VRC) [E]  
**Subject:** Fwd: questions for Dr. Graham's lab

Hi Masaru,

As we discussed yesterday, (b) (4)  
(b) (4)

Barney

Sent from my iPhone

Begin forwarded message:

**From:** "Corbett, Kizzmekia (NIH/VRC) [E]" (b) (6) >  
**Date:** February 21, 2020 at 10:50:31 PM EST  
**To:** Michael Malison (b) (6) >  
**Cc:** "Graham, Barney (NIH/VRC) [E]" (b) (6) "  
(b) (6) >,  
"Morabito, Kaitlyn (NIH/VRC) [E]" (b) (6)  
(b) (6), "Stein, Judy (NIH/VRC) [C]" (b) (6)  
**Subject: Re: questions for Dr. Graham's lab**

An update on one item per Judy Stein, cc'ed here...

(b) (4)

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

---

**From:** "Michael Malison" <(b) (6)>  
**Date:** Friday, February 21, 2020 at 5:06:32 PM  
**To:** "Corbett, Kizzmekia (NIH/VRC) [E]" <(b) (6)>  
**Cc:** "Graham, Barney (NIH/VRC) [E]" <(b) (6)>  
(b) (6)  
(b) (6)  
(b) (6)  
(b) (6), "Stein, Judy (NIH/VRC) [C]" <(b) (6)>  
**Subject:** Re: questions for Dr. Graham's lab

Dear Kizzmekia,  
Thanks so much for your detailed responses. I will follow-up with the lab team in Taiwan tonight to make sure they receive this. If they have any further questions or need a clarification, we'll be in touch.  
Please make sure the packing list is updated to reflect any additions to the contents and make sure to send us a copy of the final list once the package is shipped so we can clear it through customs.

Michael D. Malison, M.D., MPA

On Feb 21, 2020, at 2:54 PM, Corbett, Kizzmekia (NIH/VRC) [E]  
<(b) (6)> wrote:

Hi all,  
My answers to your inquiries are below. Let me know if you need anything else.

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

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

---

**From:** Barney Graham <(b) (6)>  
**Date:** Friday, February 21, 2020 at 1:38 PM  
**To:** Kizzmekia Corbett <(b) (6)>

**Cc:** Kaitlyn Morabito [REDACTED] (b) (6)>

**From:** Michael Malison <[REDACTED] (b) (6)>

**Date:** February 21, 2020 at 9:29:14 AM EST

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

**Cc:** Charles Chen <[REDACTED] (b) (6)>, MeeiYun Lim [REDACTED] (b) (6)

**Subject:** Fwd: questions for Dr. Graham's lab

Thanks for taking my call this morning. Here's the list of technical questions from Medigen that I referenced. [REDACTED] (b) (4)

[REDACTED]. Your continued support is much appreciated.

If anything below needs clarification, just let me know. We can also arrange a conference call if you think that might be a more efficient way to address these items.

M. Malison

Begin forwarded message:

**From:** MeeiYun [REDACTED] (b) (6)

**Date:** February 20, 2020 at 9:25:25 PM CST

**To:** "Michael D. Malison" [REDACTED] (b) (6)>

**Cc:** Charles <[REDACTED] (b) (6)>, 郭村勇 [REDACTED] (b) (6)

**Subject:** questions for Dr. Graham's lab

Dear Dr. Malison,

Could you please ask Dr. Graham to share the following information with us? Thank you.

[REDACTED] (b) (4)



Best Regards,

Meei

(b) (4)



**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Tue, 24 Mar 2020 13:51:54 +0000  
**To:** Corbett, Kizzmekia (NIH/VRC) [E]; Embry, Alan (NIH/NIAID) [E]  
**Cc:** Stemmy, Erik (NIH/NIAID) [E]  
**Subject:** RE: seasonal coronaviruses

(b) (5)

Barney

---

**From:** Corbett, Kizzmekia (NIH/VRC) [E] <(b) (6)>  
**Sent:** Tuesday, March 24, 2020 9:49 AM  
**To:** Embry, Alan (NIH/NIAID) [E] (b) (6)>  
**Cc:** Stemmy, Erik (NIH/NIAID) [E] (b) (6)>; Graham, Barney (NIH/VRC) [E]  
(b) (6)>  
**Subject:** Re: seasonal coronaviruses

(b) (5)

Cc'ing him here.

--

**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:** "Embry, Alan (NIH/NIAID) [E]" (b) (6)>  
**Date:** Tuesday, March 24, 2020 at 9:47 AM  
**To:** Kizzmekia Corbett (b) (6)  
**Cc:** "Stemmy, Erik (NIH/NIAID) [E]" (b) (6)>  
**Subject:** seasonal coronaviruses

Hi Kizzmekia,

We have had a number of people asking if anyone has access to mAbs to seasonal coronaviruses or pseudotypes with seasonal spikes. [REDACTED] (b) (5)

[REDACTED] I can give you more info if helpful.

Thanks,  
Alan

Alan Embry, Ph.D.  
Chief, Respiratory Diseases Branch  
Division of Microbiology and Infectious Diseases, NIAID, NIH  
5601 Fishers Lane, Room 8E31  
Rockville, MD 20892

[REDACTED] (b) (6)

[REDACTED] (b) (6)

**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Thu, 23 Jan 2020 01:23:35 +0000  
**To:** Bok, Karin (NIH/VRC) [E]  
**Subject:** Fwd: (b) (4) follow-up

FYI.

BG

Sent from my iPhone

Begin forwarded message:

**From:** "Graham, Barney (NIH/VRC) [E]" <(b) (6)>  
**Date:** January 22, 2020 at 8:20:29 PM EST  
**To:** "Kanekiyo, Masaru (NIH/VRC) [E]" <(b) (6)>  
**Cc:** (b) (6) "Morabito, Kaitlyn (NIH/VRC) [E]"  
(b) (6)>  
**Subject: Re:** (b) (4) follow-up

Ok. (b) (4).  
BG

Sent from my iPhone

On Jan 22, 2020, at 7:09 PM, Kanekiyo, Masaru (NIH/VRC) [E] <(b) (6)>  
wrote:

Barney,  
I need some (b) (5)  
(b) (6)  
Masaru  
\*\* Sent from [Outlook](#) mobile app  
**From:** Graham, Barney (NIH/VRC) [E] (b) (6)>  
**Sent:** Wednesday, January 22, 2020 6:22:36 PM  
**To:** (b) (4), (b) (6) k (b) (4)  
(b) (4)  
**Cc:** (b) (4), (b) (6) Morabito, Kaitlyn (NIH/VRC) [E]  
(b) (6); Kanekiyo, Masaru (NIH/VRC) [E] (b) (6)>  
**Subject: RE:** (b) (4) follow-up

Thank you on both counts. We will communicate and connect you to (b) (4)

(b) (4)

We are very busy with the new Wuhan CoV, but don't have many reagents yet. We might have protein by next week, so by Feb 4<sup>th</sup> we might know whether we already have cross-reactive mAbs and a better idea of timeline for when Wuhan samples would be available for screening.

Best wishes,

Barney

---

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

**Sent:** Wednesday, January 22, 2020 6:12 PM

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

**Cc:** (b) (4), (b) (6)

**Subject:** (b) (4) follow-up

Hi Barney and Karen- Hope all is well with you. I wanted to follow-up with you about the (b) (4)

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

opportunity to talk in more detail on the upcoming meeting here at AZ (Feb 4<sup>th</sup>), but as sometimes the paperwork here is a bit slow I thought it would be a good thing to get a jump on it (b) (4)

(b) (4)

(b) (4) Looking

forward to talking more at the upcoming meeting

On a separate note, I was thinking you and your lab are probably quite busy working with this new coronavirus trying to find cross-reactive mAbs and vaccine constructs. (b) (4)

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

Page appears blank in original

**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Fri, 20 Mar 2020 19:17:16 +0000  
**To:** Renee Ireton  
**Subject:** Accepted: Neurtralizing Antibody Assay COVID-19 trial-  
[REDACTED] (b) (4)

**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Thu, 23 Apr 2020 13:51:00 +0000  
**To:** Khanthan, Suganya  
**Cc:** Bevacqua, Daun; Bok, Karin (NIH/VRC) [E]; Young, Monique (NIH/VRC) [E]  
**Subject:** Re: MMR SIE conference postponed to a later date this year. [Confidential]

Ok. Let me know when you reschedule.

Barney

Sent from my iPhone

On Apr 23, 2020, at 9:39 AM, Khanthan, Suganya (b) (6) wrote:

**Confidential**

Dear Dr. Graham,

I hope this email finds you well. We would like to inform you that due to the COVID19 developments we have decided to postpone the **MMR-SIE** that was being planned for July 2020 in Philadelphia, PA. The team will evaluate rescheduling this meeting and get back to you at a later date.

Please confirm your receipt of this message. We appreciate your flexibility and understanding as we exercise caution around travel and in person meetings. MSD remains committed to the health and safety of all meeting attendees.

Kind Regards,  
Suganya

**Suganya Khanthan**

Global Professional Engagement Coordinator, GEMS (PRA)

Providing support to Merck GMAC

North Wales, PA (Eastern Time) • USA • (b) (6)

A

---

**From:** Graham, Barney (NIH/VRC) [E] <(b) (6)>  
**Sent:** Wednesday, March 18, 2020 11:59 AM  
**To:** Khanthan, Suganya (b) (6)  
**Cc:** Bevacqua, Daun (b) (6); Bok, Karin (NIH/VRC) [E] (b) (6)>

**Subject:** RE: Follow Up- Please save the date- MMR SIE conference in Philadelphia, PA - May 31, 2020 to June 1, 2020. [Confidential]

**EXTERNAL EMAIL** – Use caution with any links or file attachments.

Is it virtual or in person. I can't make any travel plans at the moment because we are dealing with the COVID-19 crisis.

Barney

---

**From:** Khanthan, Suganya (b) (6) >

**Sent:** Wednesday, March 18, 2020 11:45 AM

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

**Cc:** Bevacqua, Daun (b) (6) >

**Subject:** Follow Up- Please save the date- MMR SIE conference in Philadelphia, PA - May 31, 2020 to June 1, 2020. [Confidential]

**Confidential**

Dear Dr. Graham,

I hope this email finds you well. I wanted to follow up with you to the prior email I have sent you on March 5, 2020. I am reaching out to you to see if you are available to attend the MMR- SIE conference tentatively scheduled for June 1, 2020 in Philadelphia, PA. In addition to this we have added a new date to make it convenient for the experts while they are traveling.

Out of the 2 dates, which date would work for better for you **(June 1, 2020 OR June 8, 2020)**. I look forward to hearing back from you as I am trying to finalize the logistics for this upcoming MMR- SIE conference.

If you are able to attend the conference, **kindly please send a copy of your CV to**

(b) (6)

Kind Regards,

Suganya

**Suganya Khanthan**

**Global Professional Engagement Coordinator, (PRA) GPE**

Providing support to Merck GMAC

North Wales, PA (Eastern Time) • USA • (b) (6)

A

---

**From:** Khanthan, Suganya

**Sent:** Thursday, March 5, 2020 1:09 PM

**To:** (b) (6)

**Cc:** Bevacqua, Daun <(b) (6)>

**Subject:** Please save the date- MMR SIE conference in Philadelphia, PA - May 31, 2020 to June 1, 2020.  
[Confidential]

**Confidential**

Dear Dr. Graham,

Please allow me to introduce myself. My name is Suganya Khanthan and I am the Global Expert Engagement Coordinator that supports Merck Research Laboratories (MRL). In my role, I oversee Scientific Input Engagement Meetings regarding a variety of scientific topics.

The purpose of this communication is to provide you with advance notification that we are planning a Scientific Input Engagement (SIE) meeting on **MMR Vaccine** from **May 31 to June 1, 2020** (1.5 day meeting)

- **The purpose of the meeting is to explore modern strategies for viral vaccine manufacturing.**
- **Explore virological, antigenic and genetic characteristics of wild type measles, mumps and rubella virus**
- **Ascertain the stability of genetic characteristics and immunological response in human hosts from wild type infections**
- **Explore the potential for changes in genetic characteristics that might occur using modern manufacturing processes**
- **Explore public perceptions to vaccine manufacturing**

Please let me know your interest and availability on **May 31, to June 1, 2020** at your earliest convenience;

1. If you will NOT be able to attend this meeting, please let us know by return e-mail.
2. If you are available and interested in participating, please notify Suganya Khanthan at (b) (6), **kindly send a copy of your CV**, and we will move forward accordingly.
3. An official invitation to the meeting will only be possible when the required evaluations, (see below), are completed.

Prior to issuing a formal invitation and contract to you for this event, Merck must conduct internal reviews to ensure that engaging you for this program is permissible based, in part, on the applicable laws and regulations of the United States and your country of employment. In order to assist with this evaluation, kindly inform us if you are or will be serving in an advisory capacity to any reimbursement committee, pricing committee, drug approval committee, formulary or similar committee where Merck products may be under review or discussion.

Once our evaluation is complete and it is appropriate to engage you for this program, an official invitation will be sent to you, along with a letter of agreement for your review. The additional communication will provide you with further information regarding the scope of services, compensation, meeting logistical details and information on how to arrange travel.

Please do not hesitate to contact me if you have any questions regarding this activity or would like additional information.

Thank you for your consideration.

Best Regards,

Suganya

### **Suganya Khanthan**

**Global Professional Engagement Coordinator, (PRA) GPE**

Providing support to Merck GMAC

North Wales, PA (Eastern Time) • USA • (b) (6)

A

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**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Mon, 16 Mar 2020 17:56:15 +0000  
**To:** dr cynthia (b) (6); Graham, Daniel (CCI-Atlanta); Daniel Jr. Graham (b) (6); Eboné Graham  
**Subject:** Vaccine trial is started.

<https://www.niaid.nih.gov/news-events/nih-clinical-trial-investigational-vaccine-covid-19-begins>

Love from Bebop

\*\*\*\*\*

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

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**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Tue, 31 Mar 2020 09:28:50 +0000  
**To:** sczsmh  
**Subject:** RE: Hi

Thanks Changzhou,

Thank you for your concern. (b) (6) and working hard towards trying to advance a vaccine. The Moderna mRNA vaccine was designed by our lab and is ~2 weeks in.

I will let Cynthia know that you reached out. She still remembers your excellent care when we visited in 2007.

Best wishes,

Barney

**From:** sczsmh (b) (6) >  
**Sent:** Tuesday, March 31, 2020 2:06 AM  
**To:** Graham, Barney (NIH/VRC) [E] (b) (6)  
**Subject:** Hi

Hi, Barney,

I am Changzhou Shao, a Chinese worker under your supervision 10 years ago. I've been missing you for 10 years. During this outbreak of COVID-19, especially the outbreak in the United States, I worried about your health. I don't know how you are in the near future. Thank you for your care before. Welcome to Shanghai.

Best Regards

Changzhou Shao

**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Sat, 28 Mar 2020 12:41:01 +0000  
**To:** Corbett, Kizzmekia (NIH/VRC) [E]  
**Subject:** RE: Investor call on Covid-19

(b) (5)

BG

---

**From:** Corbett, Kizzmekia (NIH/VRC) [E] (b) (6)  
**Sent:** Saturday, March 28, 2020 4:02 AM  
**To:** Graham, Barney (NIH/VRC) [E] (b) (6)  
**Subject:** Fwd: Investor call on Covid-19

(b) (5)

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

---

**From:** "Biren Amin" (b) (6)  
**Date:** Thursday, March 19, 2020 at 9:14:14 AM  
**To:** "Corbett, Kizzmekia (NIH/VRC) [E]" (b) (6)>  
**Cc:** "Young, Monique (NIH/VRC) [E]" (b) (6)  
**Subject:** RE: Investor call on Covid-19

Hi Kizzmekia

I understand the NIAID is working on a subunit vaccine for COVID-19. I know a company that holds development rights to QS-21 adjuvant (FDA approved and used in Shingrix vaccine). I am happy to make the connection if it helps your development efforts in this area, and am sure they can provide this adjuvant to you for testing. Thanks.

Biren

---

**From:** Corbett, Kizzmekia (NIH/VRC) [E] <(b) (6)>  
**Sent:** Wednesday, March 18, 2020 8:25 PM  
**To:** Biren Amin <(b) (6)>  
**Cc:** Young, Monique (NIH/VRC) [E] <(b) (6)>  
**Subject:** Re: Investor call on Covid-19

Sorry. She is cc'ed now.

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

---

**From:** "Biren Amin" <(b) (6)>  
**Date:** Wednesday, March 18, 2020 at 7:57:36 PM  
**To:** "Corbett, Kizzmekia (NIH/VRC) [E]" <(b) (6)>  
**Subject:** RE: Investor call on Covid-19

Hi Kizzmekia

Thanks for the reply. I don't think Monique was cc'd. Thanks.

Biren

---

**From:** Corbett, Kizzmekia (NIH/VRC) [E] <(b) (6)>  
**Sent:** Wednesday, March 18, 2020 7:22 PM  
**To:** Biren Amin <(b) (6)>  
**Subject:** Re: Investor call on Covid-19

[External Message]

Thanks for the intro. I am cc'ing Monique Young who can help us navigate ethical approval.

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

---

**From:** "Biren Amin" <(b) (6)>

**Date:** Sunday, March 15, 2020 at 2:54:01 PM

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

**Subject:** Investor call on Covid-19

Hello Dr. Corbett,

As a brief intro, I am an equity research analyst focused on biotechnology. Given the recent epidemic globally, there is a lot of worry and anxiety around Covid-19. I wanted to get an expert such as yourself to do an investor call regarding the virus, and prospects of a treatment – last Friday I hosted a call with Dr. Michael Farzan from Scripps. I think getting your perspective would help investors think about the current situation. Please let me know if you're available to do such a call. We would provide honoraria for your time. The call would last about 45-60 minutes. We can accommodate the call according to your schedule. Thanks.

Best Regards,  
Biren

Biren Amin | Managing Director | Biotechnology

Jefferies LLC | (b) (6) | Cell (b) (6) | Fax (646) 786-5231 | (b) (6)

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**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Tue, 28 Apr 2020 14:41:15 +0000  
**To:** Mascola, John (NIH/VRC) [E]; Stein, Judy (NIH/VRC) [C]  
**Subject:** RE: David Ho [REDACTED] (b) (4)

I think so, [REDACTED] (b) (5)

BG

---

**From:** Mascola, John (NIH/VRC) [E] [REDACTED] (b) (6) >  
**Sent:** Tuesday, April 28, 2020 10:38 AM  
**To:** Stein, Judy (NIH/VRC) [C] <[REDACTED] (b) (6)>  
**Cc:** Graham, Barney (NIH/VRC) [E] <[REDACTED] (b) (6)>  
**Subject:** RE: David Ho [REDACTED] (b) (4)

Thanks Judy – very good to know.

Barney – David Ho [REDACTED] (b) (5)

Should I ask David to send?

John

---

**From:** Stein, Judy (NIH/VRC) [C] <[REDACTED] (b) (6)>  
**Sent:** Tuesday, April 28, 2020 10:21 AM  
**To:** Mascola, John (NIH/VRC) [E] [REDACTED] (b) (6)  
**Subject:** RE: David Ho [REDACTED] (b) (4)

Hi John,

[REDACTED] (b) (5)

Thanks,  
Judy

---

**From:** Mascola, John (NIH/VRC) [E] <[REDACTED] (b) (6)>  
**Sent:** Tuesday, April 28, 2020 9:43 AM  
**To:** Stein, Judy (NIH/VRC) [C] [REDACTED] (b) (6) >  
**Subject:** RE: David Ho [REDACTED] (b) (4)

[REDACTED] (b) (5)

Thanks,  
John

---

**From:** Stein, Judy (NIH/VRC) [C] (b) (6)  
**Sent:** Tuesday, April 28, 2020 9:42 AM  
**To:** Mascola, John (NIH/VRC) [E] <(b) (6)>  
**Subject:** RE: David Ho (b) (4)

Thanks John.

---

**From:** Mascola, John (NIH/VRC) [E] (b) (6)  
**Sent:** Tuesday, April 28, 2020 9:35 AM  
**To:** Stein, Judy (NIH/VRC) [C] (b) (6)>  
**Subject:** RE: David Ho (b) (4)

Hi Judy,

This looks good. (b) (5)

Fine to send.

Best,  
John

---

**From:** Stein, Judy (NIH/VRC) [C] (b) (6)>  
**Sent:** Tuesday, April 28, 2020 8:40 AM  
**To:** Mascola, John (NIH/VRC) [E] (b) (6)  
**Subject:** David Ho (b) (4)

Hi John,

(b) (4)

Carol will be handling this.

Thanks,  
Judy

**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Sun, 8 Mar 2020 07:18:18 +0000  
**To:** Corbett, Kizzmekia (NIH/VRC) [E]; Morabito, Kaitlyn (NIH/VRC) [E]; Ruckwardt, Tracy (NIH/VRC) [E]; Kanekiyo, Masaru (NIH/VRC) [E]  
**Subject:** paper to consider  
**Attachments:** SARS Spike Ab and ERD JCI 2019.pdf

Would you all please look over this paper critically and see if you understand how to interpret it?

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>

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**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Wed, 29 Jan 2020 10:40:51 +0000  
**To:** Gershoni, Jonathan  
**Cc:** Jonathan Gershoni  
**Subject:** RE: Hope your flight was fine  
**Attachments:** Gershoni DRAFT + refs CONFIDENTIAL\_BG.docx

Thanks Jonathan,

I've tracked some suggested edits and comments. I think Seth Scanlon and Priscilla Kelly are the likely editors for this.

(b) (4)

Best wishes,

Barney

---

**From:** Gershoni, Jonathan <(b) (6)>  
**Sent:** Tuesday, January 28, 2020 10:41 AM  
**To:** Graham, Barney (NIH/VRC) [E] (b) (6)>  
**Cc:** Jonathan Gershoni (b) (6)  
**Subject:** Re: Hope your flight was fine

Oooops, I guess I am tired, here are the attachments

J

---

**From:** Gershoni, Jonathan (b) (6)>  
**Sent:** Tuesday, January 28, 2020 17:40  
**To:** Graham, Barney (NIH/VRC) [E] (b) (6)  
**Cc:** Jonathan Gershoni (b) (6)>  
**Subject:** Hope your flight was fine

Hi

Hope that your flight was uneventful and (b) (6)

(b) (4)

Thanks again,

Best,

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:** Monday, January 27, 2020 19:57

**To:** Gershoni, Jonathan (b) (6)

**Cc:** Jonathan Gershoni (b) (6)

**Subject:** Re: Any thoughts?

Hi Jonathan. I am swamped over here with meetings, calls, emails, interviews, etc. I'll getting on a plane (b) (6) later this evening and may be able to look it over then. (b) (4)

Barney

Sent from my iPhone

On Jan 27, 2020, at 12:21 PM, Gershoni, Jonathan <(b) (6)> wrote:

Hi Barney,

(b) (4)

Many 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:** Tuesday, January 21, 2020 03:24

**To:** Gershoni, Jonathan (b) (6)

**Subject:** Re: Can we chat?

I can look for a time this week early in my morning. You are 7 hours ahead and I would be calling about 7 am. Which day would work best for you.

Barney

Sent from my iPhone

On Jan 17, 2020, at 5:49 AM, Gershoni, Jonathan (b) (6) > wrote:

Hi Barney

I would like to chat with you about the new Coronavirus in China.

Please send me your mobile and a time that is convenient for you,

I am in Israel as you know so we need to coordinate times,

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]  
**Sent:** Mon, 6 Apr 2020 20:20:06 +0000  
**To:** Mascola, John (NIH/VRC) [E]  
**Subject:** RE: Potential Coronavirus treatment - recombinant ACE2-Ig protein

(b) (5).

BG

---

**From:** Mascola, John (NIH/VRC) [E] (b) (6)  
**Sent:** Monday, April 6, 2020 11:07 AM  
**To:** Graham, Barney (NIH/VRC) [E] (b) (6)  
**Subject:** RE: Potential Coronavirus treatment - recombinant ACE2-Ig protein

Hi Barney,

(b) (5)

John

---

**From:** Graham, Barney (NIH/VRC) [E] (b) (6)>  
**Sent:** Monday, April 6, 2020 10:25 AM  
**To:** Mascola, John (NIH/VRC) [E] (b) (6)  
**Subject:** FW: Potential Coronavirus treatment - recombinant ACE2-Ig protein

Hi John,

(b) (5)

Barney

---

**From:** Berger, Edward (NIH/NIAID) [V] <(b) (6)>  
**Sent:** Sunday, April 5, 2020 8:57 PM

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

**Cc:** Farzan-Michael (b) (6)>

**Subject:** Potential Coronavirus treatment - recombinant ACE2-Ig protein

Hello Barney and John (and Mike),

I am writing to inquire whether serious consideration is being given to the therapeutic potential of the recombinant antibody-based protein designated ACE2-Ig. I spoke briefly about this with Barney earlier this evening.

(b) (4)

I hope that serious consideration will be given to this approach, at a time when therapeutic intervention is so urgently needed.

Best regards,

Ed

Edward A. Berger, Ph.D.  
Scientist Emeritus

Laboratory of Viral Diseases, NIAID  
National Institutes of Health  
Bethesda, MD 20892

(b) (6) Phone

301-435-1269 FAX

(b) (6)

**From:** (b) (6)  
**Sent:** Mon, 10 Feb 2020 11:55:53 -0500  
**To:** Morabito, Kaitlyn (NIH/VRC) [E]  
**Cc:** Corbett, Kizzmekia (NIH/VRC) [E]  
**Subject:** Re: (b) (4)  
(b) (6) [EXTERNAL]

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

BG

Sent from my iPhone

On Feb 10, 2020, at 10:23 AM, Morabito, Kaitlyn (NIH/VRC) [E] <(b) (6)> wrote:

Hi Barney,

Just want to point out, (b) (5)

Kaitlyn

---

**From:** Barney Graham <(b) (6)>  
**Date:** Wednesday, February 5, 2020 at 8:06 PM  
**To:** Judy Stein <(b) (6)>  
**Cc:** "Petrik, Amy (NIH/NIAID) [E]" (b) (6), "Morabito, Kaitlyn (NIH/VRC) [E]" (b) (6), Karin Bok (b) (6), Kizzmekia Corbett (b) (6)  
**Subject:** Re: (b) (4)  
(b) (6) [EXTERNAL]

Sounds fine.

BG

Sent from my iPhone

On Feb 5, 2020, at 6:47 PM, Stein, Judy (NIH/VRC) [C] (b) (6) > wrote:

Hi Barney,

(b) (4)

Thanks,  
Judy

---

**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)>;

Stein, Judy (NIH/VRC) [C] (b) (6) >; 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 Judy Stein who can help (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)

(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: (b) (6)

(b) (6)

---

**From:** Barney Graham (b) (6) >

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

**To:** Ofer Levy <(b) (6)>

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

**\* External Email - Caution \***

Hi Ofer,

Sorry for delay. I have not been able to keep up. (b) (4)

(b) (4)

Barney

Sent from my iPhone

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

Cell: [REDACTED] (b) (6)

E-mail: [REDACTED] (b) (6)

Twitter: [REDACTED] (b) (6)

[REDACTED] (b) (6)

**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Thu, 26 Mar 2020 12:55:50 +0000  
**To:** Bok, Karin (NIH/VRC) [E]  
**Subject:** RE: VRC Staff Plan for COVID-19 and Missions Critical Work (Graham)

Thanks Karin

BG

---

**From:** Bok, Karin (NIH/VRC) [E] (b) (6) >  
**Sent:** Wednesday, March 25, 2020 5:54 PM  
**To:** Royal, Thomas (NIH/NIAID) [E] <(b) (6)>; Graham, Barney (NIH/VRC) [E] (b) (6) >  
**Cc:** Kanekiyo, Masaru (NIH/VRC) [E] <(b) (6)>; Ruckwardt, Tracy (NIH/VRC) [E] (b) (6); Corbett, Kizzmekia (NIH/VRC) [E] (b) (6) >  
**Subject:** Re: VRC Staff Plan for COVID-19 and Missions Critical Work (Graham)

Thomas,

Here is the worksheet as it stands right now. This is an evolving situation, so we might need to update the worksheet with changes to this schedule in the future.  
Thanks, and let me know if we can help with anything else,

Karin.

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

---

**From:** "Royal, Thomas (NIH/NIAID) [E]" (b) (6) >  
**Date:** Wednesday, March 25, 2020 at 10:41 AM  
**To:** "Graham, Barney (NIH/VRC) [E]" <(b) (6)>  
**Cc:** Karin Bok (b) (6) >, "Kanekiyo, Masaru (NIH/VRC) [E]" (b) (6), "Ruckwardt, Tracy (NIH/VRC) [E]" (b) (6)  
**Subject:** VRC Staff Plan for COVID-19 and Missions Critical Work (Graham)

Good morning,

I have attached the staff list for those under your area. Can you fill it out and return it to me no later than 2pm? Thanks

Thomas E. Royal Jr.  
Deputy Chief, VAMB, VRC, NIAID  
40 Convent Drive, Bethesda, MD 20892  
Phone: (b) (6)

**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Fri, 17 Apr 2020 19:32:40 +0000  
**To:** Auchincloss, Hugh (NIH/NIAID) [E]  
**Subject:** Tentative: NIAID COVID-19 Division Directors Sync

**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Mon, 30 Mar 2020 12:27:55 +0000  
**To:** Pierre GSELL  
**Subject:** Tentative: Webex meeting invitation: [COVID-19] 6th TC Animal Models Expert Group

**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Sat, 4 Apr 2020 21:03:19 +0000  
**To:** [REDACTED] (b) (6)  
**Subject:** FW: Immunity - Invitation to write a short Primer

Hi Jason,

I don't think I can do this. Too much going on and the next two weeks is critical for the trial. Feel free if you want to do this with Morgan or others.

BG

---

**From:** Scranton, Kavitha (ELS-CMA) <kscranton@cell.com>  
**Sent:** Friday, April 3, 2020 11:18 AM  
**To:** Graham, Barney (NIH/VRC) [E] [REDACTED] (b) (6)  
**Subject:** Immunity - Invitation to write a short Primer

Dear Barney and Jason,

I hope that you, your families, and colleagues are safe and well. I am getting in touch to see if you are interested in working with us on a short "Primer" related to the SARS-CoV-2 and COVID-19 outbreak. More details are below.

With the SARS-CoV-2 outbreak, immunology and virology have come to the forefront within the scientific community and among the larger public. At *Immunity*, we have been discussing how we could contribute during this crisis, and we felt that it might be useful to publish a set of short "Primers" that would discuss key, basic immunological concepts that are relevant when thinking/talking about COVID-19. For example, we're thinking of topics such as "Understanding Herd Immunity", "Principles of Vaccine Design", "What Happens During Respiratory Virus Infections", "What is a Cytokine Storm", etc. The goal of these Primers is for the content to be relevant to those with immunology/virology backgrounds, but also accessible to scientists beyond the biological sciences, and perhaps even to the lay person.

We were hoping that you might be interested in writing one of these primers. We were thinking of something along the lines of "Principles of Vaccine Design", which would focus broadly on the concept of vaccines, what they are, what they do, etc., with a section specifically on what we know about SARS-CoV-2 and COVID-19. I'm happy to discuss the topic in more detail with you if you're interested, and to get your thoughts on the scope. We feel that your expertise and perspective would be very valuable to the community.

In terms of format, Primers are short articles intended to provide an overview of an immunological concept or process to a broad scientific audience. They should be about 2500-3000 words max, with 1-2 figures (we can provide illustrator help with this). Given the introductory and educational nature of Primers, these should be accompanied by a recommended reading list (up to 10-15 cited items), as

opposed to references in the traditional sense. As you can see, this is not intended to be a deep dive into the topic, but more of an overview to provide some background for people to better understand the main concepts. Given the urgency of getting this information out, we're thinking of a timeline of ~2 weeks to write the piece.

I know that you are both very busy, so I will understand if you can't help us with this. Please let me know what you think and if you'd like to discuss further. Due to the short timeline, I would appreciate it if you could get back to us quickly on whether or not you are interested. I look forward to hearing from you.

Best wishes,  
Kavitha

Kavitha Scranton, Ph.D. | Senior Scientific Editor, **Immunity** | 50 Hampshire Street, 5th Floor, Cambridge, MA 02139, USA | Tel: (b) (6) | Email: [kscranton@cell.com](mailto:kscranton@cell.com) | Website: [www.cell.com/immunity](http://www.cell.com/immunity) | Twitter: [@ImmunityCP](https://twitter.com/ImmunityCP) [@KavithaSci](https://twitter.com/KavithaSci)

**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Fri, 13 Mar 2020 14:42:49 +0000  
**To:** Perfetto, Steve (NIH/VRC) [E]  
**Cc:** Roederer, Mario (NIH/VRC) [E]; Hutchinson, Geoffrey (NIH/VRC) [F]; Ambrozak, David (NIH/VRC) [E]; Nguyen, Richard (NIH/VRC) [E]; Fisher, Brian (NIH/VRC) [E]; Corbett, Kizzmekia (NIH/VRC) [E]  
**Subject:** Re: Scheduling request for B cell sorting  
**Attachments:** image001.jpg

Thanks Steve. I've asked Brian to forward the document.

Just for clarification, [REDACTED] (b) (5)

Barney

Sent from my iPhone

On Mar 13, 2020, at 10:31 AM, Perfetto, Steve (NIH/VRC) [E] [REDACTED] (b) (6)  
wrote:

Barney,

[REDACTED] (b) (5)

*Thanks*  
*SP*

<image001.jpg>

Stephen P. Perfetto, MS.,MT. (ASCP)  
Chief, Core Flow Cytometry Facility  
Vaccine Research Center,  
NIH Building 40  
40 Convent Dr., Room 5507  
Bethesda, MD 20892-3015

email: (b) (6)

Phone: (b) (6)

Cell: (b) (6)

---

**From:** "Hutchinson, Geoffrey (NIH/VRC) [F]" (b) (6)  
**Date:** Tuesday, March 10, 2020 at 1:50 PM  
**To:** David Ambrozak <(b) (6)>, "Perfetto, Steve (NIH/VRC) [E]" (b) (6)>  
**Subject:** Re: Scheduling request for B cell sorting

Hi Steve,

I'm submitting a registration to sort B cells (b) (5)

Thanks,

Geoff

---

**From:** "Ambrozak, David (NIH/VRC) [E]" (b) (6)>  
**Date:** Tuesday, March 10, 2020 at 7:26 AM  
**To:** "Hutchinson, Geoffrey (NIH/VRC) [F]" <(b) (6)>  
**Cc:** "Perfetto, Steve (NIH/VRC) [E]" (b) (6)  
**Subject:** Re: Scheduling request for B cell sorting

Don't worry about the last few questions about sort training and using sorters. Those are mainly for individuals who are wanting to do there own sorting. If you could try and get an HPRD# for this study (Barney should have one) and then send the form to Steve Perfetto he will take it from there.

David

---

**From:** "Hutchinson, Geoffrey (NIH/VRC) [F]" (b) (6)  
**Date:** Monday, March 9, 2020 at 3:18 PM  
**To:** "Boyoglu-Barnum, Seyhan (NIH/VRC) [E]" <(b) (6)>, "Wang, Lingshu (NIH/VRC) [E]" (b) (6), "Ambrozak, David (NIH/VRC) [E]" (b) (6)  
**Cc:** "Corbett, Kizzmekia (NIH/VRC) [E]" (b) (6)  
**Subject:** Re: Scheduling request for B cell sorting

I've some information in, but since I won't be doing the sorting or operating the flow, would it make more sense for someone else to fill in some of this information?

Geoff

---

**From:** "Ambrozak, David (NIH/VRC) [E]" (b) (6) >  
**Date:** Monday, March 9, 2020 at 8:04 AM  
**To:** "Boyoglu-Barnum, Seyhan (NIH/VRC) [E]" (b) (6),  
"Hutchinson, Geoffrey (NIH/VRC) [F]" (b) (6) >  
**Cc:** "Corbett, Kizzmekia (NIH/VRC) [E]" (b) (6), "Wang, Lingshu  
(NIH/VRC) [E]" (b) (6)  
**Subject:** Re: Scheduling request for B cell sorting

Good morning,

I'm sending you this sort registration form which will need to be filled out (as best as you can) and then emailed to Steve Perfetto. It is mainly to get the HPRD# for the project and he will do a risk assessment to determine the precautions we will take while sorting your samples. You should only have to do this once to get things started. If you have any specific questions please ask Steve.

Thanks,  
David

David Ambrozak, MS.,MT. (ASCP)  
Vaccine Research Center, NIH  
Building 40  
40 Convent Dr., Room 3614B  
Bethesda, MD 20892-3015

Phone: (b) (6)

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**From:** "Boyoglu-Barnum, Seyhan (NIH/VRC) [E]" <(b) (6)>  
**Date:** Thursday, March 5, 2020 at 3:47 PM  
**To:** "Ambrozak, David (NIH/VRC) [E]" <(b) (6)>, "Hutchinson, Geoffrey  
(NIH/VRC) [F]" (b) (6)  
**Cc:** "Corbett, Kizzmekia (NIH/VRC) [E]" (b) (6), "Wang, Lingshu

(NIH/VRC) [E]" <wangling@niaid.nih.gov>

**Subject:** RE: Scheduling request for B cell sorting

Thank you.

Seyhan

---

**From:** Ambrozak, David (NIH/VRC) [E] (b) (6)>

**Sent:** Thursday, March 5, 2020 3:35 PM

**To:** Boyoglu-Barnum, Seyhan (NIH/VRC) [E] (b) (6)>; Hutchinson, Geoffrey (NIH/VRC) [F] <(b) (6)>

**Cc:** Corbett, Kizzmekia (NIH/VRC) [E] (b) (6)>; Wang, Lingshu (NIH/VRC) [E] (b) (6)>

**Subject:** Re: Scheduling request for B cell sorting

I'll book it

David Ambrozak, MS.,MT. (ASCP)  
Vaccine Research Center, NIH  
Building 40  
40 Convent Dr., Room 3614B  
Bethesda, MD 20892-3015

Phone: (b) (6)

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**From:** "Boyoglu-Barnum, Seyhan (NIH/VRC) [E]" <(b) (6)>

**Date:** Thursday, March 5, 2020 at 3:00 PM

**To:** "Ambrozak, David (NIH/VRC) [E]" (b) (6)>, "Hutchinson, Geoffrey (NIH/VRC) [F]" (b) (6)

**Cc:** "Corbett, Kizzmekia (NIH/VRC) [E]" (b) (6), "Wang, Lingshu (NIH/VRC) [E]" (b) (6)

**Subject:** RE: Scheduling request for B cell sorting

That will be fine. We can be ready around 11am? Will that work for you David?

Thank you.

Seyhan

---

**From:** Ambrozak, David (NIH/VRC) [E] (b) (6)  
**Sent:** Thursday, March 5, 2020 2:46 PM  
**To:** Hutchinson, Geoffrey (NIH/VRC) [F] (b) (6)>  
**Cc:** Corbett, Kizzmekia (NIH/VRC) [E] (b) (6)>; Wang, Lingshu (NIH/VRC) [E] (b) (6) Boyoglu-Barnum, Seyhan (NIH/VRC) [E] (b) (6)>  
**Subject:** Re: Scheduling request for B cell sorting

I have (or might have) jury duty that day. How about the next day (17<sup>th</sup>)?? What time do you think you could have cells processed and ready to sort?

---

**From:** "Hutchinson, Geoffrey (NIH/VRC) [F]" (b) (6)  
**Date:** Thursday, March 5, 2020 at 2:42 PM  
**To:** "Ambrozak, David (NIH/VRC) [E]" (b) (6)  
**Cc:** "Corbett, Kizzmekia (NIH/VRC) [E]" (b) (6)>, "Wang, Lingshu (NIH/VRC) [E]" (b) (6)>, "Boyoglu-Barnum, Seyhan (NIH/VRC) [E]" (b) (6)  
**Subject:** Re: Scheduling request for B cell sorting

Is the following Monday (16<sup>th</sup>) available? (b) (5)

Thanks,  
Geoff

---

**From:** "Ambrozak, David (NIH/VRC) [E]" (b) (6)  
**Date:** Thursday, March 5, 2020 at 2:38 PM  
**To:** "Hutchinson, Geoffrey (NIH/VRC) [F]" (b) (6)>  
**Cc:** "Corbett, Kizzmekia (NIH/VRC) [E]" (b) (6), "Wang, Lingshu (NIH/VRC) [E]" (b) (6) "Boyoglu-Barnum, Seyhan (NIH/VRC) [E]" (b) (6)>  
**Subject:** Re: Scheduling request for B cell sorting

No problem at all....How about this Monday at 1 PM or this coming Thursday (anytime). I don't mind when we start sorting but the earlier in the day the better for me. If you need more dates just let me know what works for you and I'll check the schedule.

David

---

**From:** "Hutchinson, Geoffrey (NIH/VRC) [F]" (b) (6)>  
**Date:** Thursday, March 5, 2020 at 11:22 AM  
**To:** "Ambrozak, David (NIH/VRC) [E]" (b) (6)>  
**Cc:** "Corbett, Kizzmekia (NIH/VRC) [E]" (b) (6)>, "Wang, Lingshu

(NIH/VRC) [E]" (b) (6), "Boyoglu-Barnum, Seyhan (NIH/VRC) [E]"

(b) (6)>

**Subject:** Scheduling request for B cell sorting

Hi David,

(b) (5)

(b) (5). Do you have time in the next couple of weeks to help with this?

Thanks,

Geoff

<20200309\_Sort Registration Form.xlsx>



**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Thu, 13 Feb 2020 14:45:30 +0000  
**To:** [REDACTED] (b) (6)  
**Subject:** Accepted: Invitation: Call with Micheal about SARS-CoV-2 Proteins @ Thu Feb 13, 2020 5pm - 5:30pm (EST) [REDACTED] (b) (6)

**From:** (b) (6)  
**Sent:** Fri, 31 Jan 2020 15:40:44 +0100  
**To:** Deatrick, Elizabeth (NIH/NIAID) [C]  
**Subject:** Re: Interview request: AP, coronavirus vaccine development

May be closer to noon her time, but will try to call earlier.

BG

Sent from my iPhone

On Jan 31, 2020, at 3:29 PM, Deatrick, Elizabeth (NIH/NIAID) [C]

<(b) (6)> wrote:

Hi Dr. Graham,

Lauran is pretty eager to speak with you, so this should be fine... but I'll let her know you might not be able to call her right at 11:00. If she has conflicts, I'll let you know.

Best,  
Elizabeth

---

**From:** Graham, Barney (NIH/VRC) [E] (b) (6)>  
**Sent:** Friday, January 31, 2020 9:26 AM  
**To:** Deatrick, Elizabeth (NIH/NIAID) [C] (b) (6)>  
**Cc:** Hiatt, Nissa (NIH/VRC) [C] (b) (6)>; Prince, Tasheema (NIH/VRC) [C] (b) (6)  
**Subject:** Re: Interview request: AP, coronavirus vaccine development

Ok. Do you think it is OK to be 30-60 minutes late? I may not be quite available at 1 EST.

BG

Sent from my iPhone

On Jan 31, 2020, at 3:24 PM, Deatrick, Elizabeth (NIH/NIAID) [C] (b) (6)> wrote:

Hi all,

Slight update—Lauran Neergaard would actually prefer if you could call her at her home number: (b) (6)

(b) (6)

Best,  
Elizabeth

---

**From:** Graham, Barney (NIH/VRC) [E] <(b) (6)>  
**Sent:** Friday, January 31, 2020 7:43 AM  
**To:** Deatrick, Elizabeth (NIH/NIAID) [C] <(b) (6)>; Hiatt, Nissa (NIH/VRC) [C]  
(b) (6)>  
**Cc:** Prince, Tasheema (NIH/VRC) [C] (b) (6)  
**Subject:** RE: Interview request: AP, coronavirus vaccine development

OK. Will do. That works for me.

BG

---

**From:** Deatrick, Elizabeth (NIH/NIAID) [C] (b) (6)>  
**Sent:** Thursday, January 30, 2020 5:35 PM  
**To:** Hiatt, Nissa (NIH/VRC) [C] <(b) (6)>  
**Cc:** Graham, Barney (NIH/VRC) [E] <(b) (6)>; Prince, Tasheema (NIH/VRC) [C]  
(b) (6)>  
**Subject:** Re: Interview request: AP, coronavirus vaccine development

Hi Dr. Graham,

Just FYI, Lauran would prefer if you could call around [11am](#) ET, if that works for you. She plans to be at (b) (6).

Best,  
Elizabeth

Sent from my iPhone

On Jan 30, 2020, at 4:12 PM, Hiatt, Nissa (NIH/VRC) [C] <(b) (6)> wrote:

Hi Elizabeth,

Thanks for the heads up on clearance for Dr. Graham to speak to Lauren Neergaard with the AP on Friday, Jan. 31. I am looping him in to this thread so that you can share contact information for him to get in touch with Lauren, AP.

Thanks!  
Nissa

**Nissa Hiatt**  
Communications  
Vaccine Research Center, NIAID, NIH  
40 Convent Drive, Bldg 40, Room 1107  
Bethesda, MD 20892

(b) (6)

---

**From:** Hiatt, Nissa (NIH/VRC) [C]  
**Sent:** Wednesday, January 29, 2020 3:06 PM  
**To:** Deatrick, Elizabeth (NIH/NIAID) [C] (b) (6); Prince, Tasheema (NIH/VRC) [C]  
(b) (6)  
**Subject:** RE: Interview request: AP, coronavirus vaccine development

Hi Elizabeth,

Sounds good!

Best,  
Nissa

**Nissa Hiatt**  
Communications  
Vaccine Research Center, NIAID, NIH  
40 Convent Drive, Bldg 40, Room 1107  
Bethesda, MD 20892

(b) (6)

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**From:** Deatrick, Elizabeth (NIH/NIAID) [C] (b) (6)  
**Sent:** Wednesday, January 29, 2020 3:05 PM  
**To:** Hiatt, Nissa (NIH/VRC) [C] <(b) (6)>; Prince, Tasheema (NIH/VRC) [C]  
(b) (6)>  
**Subject:** RE: Interview request: AP, coronavirus vaccine development

Hi Nissa,

I don't think Luran has spoken to anybody else at NIAID for this particular story yet; she may wind up speaking to Dr. Fauci if he has availability. She initially asked if she could bring a camera crew to film on the NIH campus, but all things considered, we're asking her to postpone that for at least a couple weeks.

I'll get this cleared and will send you her info shortly!

Best,  
Elizabeth

---

**From:** Hiatt, Nissa (NIH/VRC) [C] (b) (6)>  
**Sent:** Wednesday, January 29, 2020 2:42 PM  
**To:** Deatrick, Elizabeth (NIH/NIAID) [C] <(b) (6)>; Prince, Tasheema (NIH/VRC) [C]  
(b) (6)>  
**Subject:** RE: Interview request: AP, coronavirus vaccine development

Hi Elizabeth,

Dr. Graham is available on Friday to talk to Lauren Neergaard. Is she speaking with Dr. Fauci or others from NIAID as well?

Best,  
Nissa

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

---

**From:** Hiatt, Nissa (NIH/VRC) [C]  
**Sent:** Wednesday, January 29, 2020 1:56 PM  
**To:** Deatrick, Elizabeth (NIH/NIAID) [C] (b) (6)>; Prince, Tasheema (NIH/VRC) [C]  
(b) (6)  
**Subject:** RE: Interview request: AP, coronavirus vaccine development

Hi Elizabeth,

Checking now. Likely Dr. Graham -will keep you posted.

Best,  
Nissa

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

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**From:** Deatrck, Elizabeth (NIH/NIAID) [C] (b) (6)>  
**Sent:** Wednesday, January 29, 2020 1:44 PM  
**To:** Hiatt, Nissa (NIH/VRC) [C] (b) (6)>; Prince, Tasheema (NIH/VRC) [C]  
(b) (6)>  
**Subject:** Interview request: AP, coronavirus vaccine development

Hi Nissa,

Good afternoon! We've had another interview request for you... Lauren Neergaard, from the AP, is writing a piece on coronavirus vaccines. She's requested a phone interview with a VRC expert sometime in the next couple of days, and we're thinking either Dr. Graham or Dr. Corbett might be good. She'd be available for a phone call tomorrow after 2:00, or all day on Friday. Would either of them like to do this? If so, I can send for clearance and put you in touch.

Best,  
Elizabeth Deatrck  
*Scientific Communications Editor*  
*Employee of Cape Fox Shared Services*  
*Contracted to work for the National Institute of Allergy and Infectious Diseases (NIAID)*

(b) (6)

*Please note that I am not a spokesperson for NIAID and should not be quoted as such.*

**From:** [REDACTED] (b) (6)  
**Sent:** Sat, 11 Jan 2020 15:41:34 -0500  
**To:** Corbett, Kizzmekia (NIH/VRC) [E]; Shi, Wei (NIH/VRC) [E]; Kong, Wing-Pui (NIH/VRC) [E]; Morabito, Kaitlyn (NIH/VRC) [E]; Wang, Lingshu (NIH/VRC) [E]; Abiona, Olubukola (NIH/VRC) [F]; Ziwawo, Cynthia (NIH/VRC) [F]; Geoffrey Hutchinson  
**Cc:** Ruckwardt, Tracy (NIH/VRC) [E]; Kanekiyo, Masaru (NIH/VRC) [E]; Bok, Karin (NIH/VRC) [E]; Mascola, John (NIH/VRC) [E]  
**Subject:** Initial genome release of novel coronavirus - Novel 2019 coronavirus - Virological

FYL. [REDACTED] (b) (5)

BG

<http://virological.org/t/initial-genome-release-of-novel-coronavirus/319>

Sent from my iPhone

**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Fri, 10 Apr 2020 13:26:41 +0000  
**To:** Fisher, Brian (NIH/VRC) [E]; Corbett, Kizzmekia (NIH/VRC) [E]; Sunny Himansu  
**Cc:** Seder, Robert (NIH/VRC) [E]  
**Subject:** RE: Control mRNA for IBC Registration

I like the (b) (4) control idea.

BG

---

**From:** Fisher, Brian (NIH/VRC) [E] (b) (6) >  
**Sent:** Friday, April 10, 2020 8:29 AM  
**To:** Corbett, Kizzmekia (NIH/VRC) [E] (b) (6) >; Sunny Himansu <(b) (6)>  
**Cc:** Seder, Robert (NIH/VRC) [E] (b) (6) >; Graham, Barney (NIH/VRC) [E] (b) (6)  
**Subject:** Re: Control mRNA for IBC Registration

(b) (4) would be best cause we are already registered for it.

B.

---

**From:** Corbett, Kizzmekia (NIH/VRC) [E] (b) (6) >  
**Sent:** Friday, April 10, 2020 8:20:06 AM  
**To:** Sunny Himansu (b) (6) >  
**Cc:** Seder, Robert (NIH/VRC) [E] <(b) (6)>; Fisher, Brian (NIH/VRC) [E] (b) (6) >; Graham, Barney (NIH/VRC) [E] (b) (6)  
**Subject:** Re: Control mRNA for IBC Registration

(b) (4)

--

**Kizzmekia S. Corbett, PhD**

**Senior Research Fellow | Scientific Lead**

**Coronavirus Vaccines & Immunopathogenesis (coVip) Team**

Viral Pathogenesis Laboratory | Vaccine Research Center

National Institutes of Allergy and Infectious Diseases

National Institutes of Health

Building 40 Room 2608

40 Convent Drive

Bethesda MD 20892

Laboratory: (b) (6)

Personal: (b) (6)

Fax: (301) 480-2771

---

**From:** Kizzmekia Corbett (b) (6) >

**Date:** Friday, April 10, 2020 at 7:57 AM

**To:** Sunny Himansu (b) (6) >

**Cc:** "Seder, Robert (NIH/VRC) [E]" (b) (6) >, "Fisher, Brian (NIH/VRC) [E]"

(b) (6) >, Barney Graham (b) (6)

**Subject:** Control mRNA for IBC Registration

Good morning Sunny,

We need to have the control mRNA that you are sending to (b) (4)

(b) (6). Can you work with Brian Fisher, cc'ed here, to get him the information that he needs.

--

**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, 3 Mar 2020 22:52:01 +0000  
**To:** Routh, Jennifer (NIH/NIAID) [E]  
**Cc:** Hiatt, Nissa (NIH/VRC) [C]; Pekoc, Ken (NIH/NIAID) [E]  
**Subject:** Re: Interview with the New Yorker?

Thanks Jen.

Barney

Sent from my iPhone

On Mar 3, 2020, at 5:50 PM, Routh, Jennifer (NIH/NIAID) [E] (b) (6) > wrote:

Looping in Ken, who may be able to handle clearance for this this evening but I can't guarantee it. I am heading out now.

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:** Tuesday, March 3, 2020 5:45 PM  
**To:** Hiatt, Nissa (NIH/VRC) [C] (b) (6); Routh, Jennifer (NIH/NIAID) [E]  
(b) (6) >; Oplinger, Anne (NIH/NIAID) [E] (b) (6) >  
**Subject:** Fwd: Interview with the New Yorker?

FYI. I don't mind talking about this if they can communicate the rationale.

Barney

Sent from my iPhone

Begin forwarded message:

**From:** "Kormann, Carolyn" <[carolyn\\_kormann@newyorker.com](mailto:carolyn_kormann@newyorker.com)>  
**Date:** March 3, 2020 at 5:04:36 PM EST  
**To:** "Graham, Barney (NIH/VRC) [E]" (b) (6)>  
**Subject:** Interview with the New Yorker?

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)

**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Thu, 19 Mar 2020 21:07:39 +0000  
**To:** Valentine, Hannah (NIH/OD) [E]  
**Subject:** Re: Follow-up on Meeting Re: Kizzmekia Corbett

Can I call you this evening? I'm on calls until 6:30.

Barney

Sent from my iPhone

On Mar 19, 2020, at 3:39 PM, Valentine, Hannah (NIH/OD) [E] <(b) (6)> wrote:

Hi Barney,  
Can we talk sometime? Id like to update you on my efforts and hear about the status of things your end.  
Hannah

---

**From:** "Graham, Barney (NIH/VRC) [E]" <(b) (6)>  
**Date:** Sunday, February 16, 2020 at 7:47 PM  
**To:** "Valentine, Hannah (NIH/OD) [E]" <(b) (6)>  
**Cc:** "Corbett, Kizzmekia (NIH/VRC) [E]" <(b) (6)>  
**Subject:** RE: Follow-up on Meeting Re: Kizzmekia Corbett

Hi Hannah,

Yes, please call (b) (6) I'll just be getting off another call, so may not answer on first ring.

Barney

---

**From:** Valentine, Hannah (NIH/OD) [E] <(b) (6)>  
**Sent:** Sunday, February 16, 2020 6:58 PM  
**To:** Graham, Barney (NIH/VRC) [E] <(b) (6)>  
**Cc:** Corbett, Kizzmekia (NIH/VRC) [E] <(b) (6)>  
**Subject:** Re: Follow-up on Meeting Re: Kizzmekia Corbett

Can we confirm 8 AM on Tuesday? Please let me know the best # to call.

H

Hannah Valentine  
Chief Officer Scientific Work Force Diversity  
Office of NIH Director  
Senior Investigator NHLBI

On Feb 16, 2020, at 18:18, Graham, Barney (NIH/VRC) [E] [REDACTED] (b) (6)> wrote:

Thanks for your help. I could speak between 8 and 10 am on Tuesday the 18th. [REDACTED] (b) (5)

Barney

Sent from my iPhone

On Feb 16, 2020, at 1:08 PM, Valentine, Hannah (NIH/OD) [E] <[REDACTED] (b) (6)> wrote:

Hi Kizzmekia,

[REDACTED] (b) (6), (b) (5)

[REDACTED] (b) (6), (b) (5). Can you and I schedule a call to speak soon? Please let me know your availability.

Best,  
Hannah

Hannah Valantine  
Chief Officer Scientific Work Force Diversity  
Office of NIH Director  
Senior Investigator NHLBI

On Feb 12, 2020, at 01:05, Corbett, Kizzmekia (NIH/VRC) [E] <[REDACTED] (b) (6)>  
wrote:

Good evening Dr. Valantine,  
Thanks again for meeting with me today. [REDACTED] (b) (6), (b) (5)  
[REDACTED] (b) (6), (b) (5)  
[REDACTED] (b) (6), (b) (5) Please don't hesitate to let me know if you need anything else.

--

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

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

[REDACTED] (b) (6)>

**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Wed, 8 Apr 2020 17:58:04 +0000  
**To:** Moore, Ian (NIH/NIAID) [E]  
**Cc:** Corbett, Kizzmekia (NIH/VRC) [E]  
**Subject:** RE: (b) (5)

We will write out a prioritized list of requests and indicate which ones would be needed for the initial paper and which ones would be for future papers.

Will try to get this to you before end of day tomorrow.

Barney

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

From: Moore, Ian (NIH/NIAID) [E] (b) (6) >  
Sent: Wednesday, April 8, 2020 1:42 PM  
To: Graham, Barney (NIH/VRC) [E] (b) (6)  
Cc: Corbett, Kizzmekia (NIH/VRC) [E] (b) (6)  
Subject: RE: (b) (5)

Hi Barney (Kizzmekia),

Hope all is well. (b) (5)  
I have one technician in the lab at the moment and one waiting for me to call her back in, based on your responses, I can give you a more complete timeline. Look forward to hearing from both of you soon.

Ian

Ian N. Moore, DVM, PhD, Dipl., ACVP  
National Institutes of Health  
Veterinary Pathologist  
Chief, Infectious Disease Pathogenesis Section (IDPS) NIAID/DIR/CMB  
Lab/office: (b) (6)  
12735 Twinbrook Parkway,  
Rockville, MD 20852-1770  
(b) (6)

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

From: Graham, Barney (NIH/VRC) [E] (b) (6)  
Sent: Wednesday, April 8, 2020 1:16 PM  
To: Moore, Ian (NIH/NIAID) [E] (b) (6)  
Cc: Corbett, Kizzmekia (NIH/VRC) [E] (b) (6)  
Subject: (b) (5)

Hi Ian,

(b) (5)

we need to submit a paper so we wanted to coordinate with you on the timeline for processing. Maybe Kizzmekia and I could schedule a time to talk later in the week.

Best wishes,

Barney

Sent from my iPhone

**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Wed, 15 Apr 2020 21:03:03 +0000  
**To:** (b) (6)  
**Subject:** Re: Our influenza review

Not much under control, but we are still in the game.

Barney

Sent from my iPhone

On Apr 15, 2020, at 3:25 PM, (b) (6) wrote:

Thank you, Barney.  
I'm glad to see this finalized.  
We are well and getting by so far.  
I hope you are well, and that VRC has the coronavirus situation under control (as usual).  
I have referred a few CoVid19 positive individuals to the CTP (Kate Houser had sent me materials to recruit for VRC200). Hopefully some will be eligible.  
Michelle

On Apr 7, 2020, at 15:55, Graham, Barney (NIH/VRC) [E] (b) (6) wrote:

Hi Michelle,  
In case you haven't already downloaded this, here is a copy of the influenza review.  
Hope you are well and weathering the storm.  
Barney

Sent from my iPhone

Begin forwarded message:

**From:** "Nabel, Gary /US" <(b) (6)>  
**Date:** April 7, 2020 at 3:32:59 PM EDT  
**To:** "Mascola, John (NIH/VRC) [E]" (b) (6), "Graham, Barney (NIH/VRC) [E]" (b) (6), "Shiver, John /US" <(b) (6)>  
**Cc:** "Wei, Chih-Jen /US" (b) (6)  
**Subject:** Our influenza review

Hi All,

After all your work, I wanted to share a copy of our influenza review that was just published this month in Nature Reviews. It has all of the corrections we discussed and is now available on line.

Thanks again for your effort. Barney, perhaps your office could forward it to Michelle as well?

The urgency of influenza has receded from everyone's memory during our challenge with COVID, but I expect it will one day again be considered a priority. Hope this will help the cause...

Best

Gary

<Wei et al., Influenza Vaccines Review Nature Rev. 2020.pdf>

**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Sun, 26 Jan 2020 13:19:22 +0000  
**To:** Corbett, Kizzmekia (NIH/VRC) [E]  
**Cc:** Routh, Jennifer (NIH/NIAID) [E]; Hiatt, Nissa (NIH/VRC) [C]  
**Subject:** Re: INTERVIEW: Regarding Wuhan coronavirus

I pointed her to Nancy Messonnier at CDC who is point person there under Dr. Redfield.

Barney

Sent from my iPhone

On Jan 26, 2020, at 2:52 AM, Corbett, Kizzmekia (NIH/VRC) [E]  
(b) (6) wrote:

Good morning,  
Please see my responses in line below:  
Sent from the mobile device of:  
Kizzmekia S. Corbett, PhD  
Senior Research Fellow  
NIH | NIAID | VRC  
(b) (6)

---

**From:** "Routh, Jennifer (NIH/NIAID) [E]" (b) (6) >  
**Date:** Saturday, January 25, 2020 at 11:10:55 PM  
**To:** "Corbett, Kizzmekia (NIH/VRC) [E]" (b) (6) >  
**Cc:** "Hiatt, Nissa (NIH/VRC) [C]" (b) (6) >  
**Subject:** Re: INTERVIEW: Regarding Wuhan coronavirus

Thanks for sharing! Ok to talk to her - as you probably know she originally reached out to Dr. Fauci, who passed it on to Dr. Graham. This one was a little different due to the referral chain, but in the future, you can just forward a reporter's original note to us, we can advise and then you can respond back to schedule.

Thank you, moving this procedure to my folder called "press/media" and will proceed that way if anything comes up.

When she says "ID'ing the new virus" - what is VRC's role there?

The VRC did not have a role in ID'ing the new virus. His chain of questions seemed to suggest he meant our role in taking the virus sequence and rapidly identifying mutations for vaccine antigen design.

And is VRC involved in developing diagnostics?

The VRC is not developing diagnostics. I will point out that the CDC holds expertise in surveillance & diagnostics, and that the NIAID/VRC is developing tools to look at people's immune responses following infection or vaccination.

I assume she is speaking with CDC too.

Assumingly, among the 10s of other usual suspects.

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

**Sent:** Saturday, January 25, 2020 8:59 PM

**To:** Sheikh, Knvul

**Cc:** Routh, Jennifer (NIH/NIAID) [E]; Hiatt, Nissa (NIH/VRC) [C]

**Subject:** Re: INTERVIEW: Regarding Wuhan coronavirus

Thanks for the kind email. I would love the opportunity to talk to you. I am cc'ing the Jennifer and Nissa who can assist in clearing this interview with the agency.

--

**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

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**From:** "Sheikh, Knvul" <knvul.sheikh@nytimes.com>

**Date:** Saturday, January 25, 2020 at 8:56 PM

**To:** Kizzmekia Corbett (b) (6)

**Subject:** INTERVIEW: Regarding Wuhan coronavirus

Dear Dr. Corbett,

My name is Knvul Sheikh and I'm a science reporter at The New York Times. I'm interested in understanding the human backstory of how U.S. scientists got involved in ID'ing the new coronavirus out of Wuhan and/or developing a test to diagnose the virus. I just got off a call with Dr. Barney Graham and he recommended I speak with you about the process.

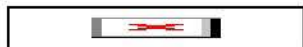
Please let me know if you might have time to speak over the phone tomorrow or early Monday morning. I'm on a tight deadline, trying to get some context for a story by Monday morning, Jan. 27.

Thanks and best regards,  
Knvul

---

**Knvul Sheikh**

(Pronunciation: kah-vl shake)  
Science & Health Reporter



620 Eighth Avenue  
New York, NY 10018  
212-556-2092  
[knvul.sheikh@nytimes.com](mailto:knvul.sheikh@nytimes.com)

**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Thu, 30 Apr 2020 18:14:18 +0000  
**To:** Rojas, Cynthia (NIH/NIAID) [E]; Hiatt, Nissa (NIH/VRC) [C]; Roberts, Chris (NIH/NIAID) [E]; Erbelding, Emily (NIH/NIAID) [E]; Cassetti, Cristina (NIH/NIAID) [E]; Beigel, John (NIH) [E]; Gill, Ranjodh (NIH/NIAID) [E]; Kim, Sonnie (NIH/NIAID) [E]; Nayak, Seema (NIH/NIAID) [E]; Lee, Marina (NIH/NIAID) [E]  
**Subject:** RE: CNN follow up - RE: BY COB TODAY - CNN inquiry -- questions for NIH -- story about Moderna

The study will use serological assays to distinguish between immune responses to infection vs. vaccination and will evaluate sera from day 0 to determine whether subjects were previously infected.

Barney

---

**From:** Rojas, Cynthia (NIH/NIAID) [E] <(b) (6)>  
**Sent:** Thursday, April 30, 2020 2:08 PM  
**To:** Hiatt, Nissa (NIH/VRC) [C] (b) (6); Roberts, Chris (NIH/NIAID) [E] (b) (6); Graham, Barney (NIH/VRC) [E] (b) (6); Erbelding, Emily (NIH/NIAID) [E] (b) (6); Cassetti, Cristina (NIH/NIAID) [E] (b) (6); Beigel, John (NIH) [E] (b) (6); Gill, Ranjodh (NIH/NIAID) [E] (b) (6); Kim, Sonnie (NIH/NIAID) [E] (b) (6); Nayak, Seema (NIH/NIAID) [E] (b) (6); Lee, Marina (NIH/NIAID) [E] (b) (6)  
**Subject:** FW: CNN follow up - RE: BY COB TODAY - CNN inquiry -- questions for NIH -- story about Moderna

Good Afternoon,

We have drafted the following response to a CNN inquiry. We were initially going to include the following sentence in the statement: (b) (5)  
(b) (5)

Could you send us some language that can be shared publicly explaining why testing for SARS-CoV-2 was not included in the clinical trial protocol and why it's not scientifically necessary nor does it compromise the validity of the trial?

Nissa, please share with others in VRC for review as needed.

**Proposed NIAID Response:** (b) (5)  
(b) (5)

**Reporter's questions:**

- Were any of the volunteers in Seattle tested for Covid-19? If the volunteers were not tested for Covid-19, why is that?
- How are clinicians detecting whether any volunteers might be Covid-positive but asymptomatic? If an asymptomatic person is a positive case for Covid-19, would it show up in the blood sample taken prior to vaccination? And if so, did any of the volunteers test positive in this way?
- If participants were not tested for Covid-19, was it because of the unique emergency posed by this particular pandemic?
- If volunteers were not tested for Covid-19, could this impact the reliability of the clinical trial? Why or why not? Under normal circumstances, are trial participants tested – prior to vaccination – for whatever pathogen that the vaccine candidate is targeting? (So if the trial is testing a flu vaccine, are candidates first tested to determine whether they have the flu?)

Thank you,  
Cynthia Rojas

Cynthia M. Rojas, MPH  
Communications Health Specialist  
Office of Scientific Coordination and Program Operations  
Division of Microbiology and Infectious Diseases  
National Institute of Allergy and Infectious Diseases  
National Institutes of Health  
5601 Fishers Lane, Room 7G74  
Rockville, MD 20892  
Phone: (b) (6)  
Email: (b) (6)

---

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

**Date:** Wednesday, April 29, 2020 at 11:31 AM

To: NIAID BUGS <[BUGS@niaid.nih.gov](mailto:BUGS@niaid.nih.gov)>

Cc: "Routh, Jennifer (NIH/NIAID) [E]" (b) (6)

Subject: CNN follow up - RE: BY 4PM TODAY - CNN inquiry -- questions for NIH -- story about Moderna

Rob Kuznia

CNN.com

[Robert.Kuznia@turner.com](mailto:Robert.Kuznia@turner.com)

Subject: COVID-19 testing in Phase 1 Moderna vaccine trial

Deadline: 4:30PM today, 4/29

Hello BUGS,

CNN has followed up about COVID-19 testing in the Moderna trial. How would you like to respond?

Thanks!

Judy

Rob Kuznia

CNN.com

[Robert.Kuznia@turner.com](mailto:Robert.Kuznia@turner.com)

Subject: Moderna profile/deep dive

Deadline: 4pm today, 4/27

**Reporter's questions:** You mentioned that "volunteers are screened for any indication of illness." Does that mean each was tested to determine if they were positive or negative for Covid-19? In short: **Were any of the volunteers in Seattle tested for Covid-19?** Were any of the volunteers not tested for Covid-19? (The participant we spoke to said that he was not.) You mention that volunteers will not be enrolled if they have signs of any active infection. The follow-up question is: How are clinicians detecting whether any volunteers might be Covid-positive but asymptomatic? **If an asymptomatic person is a positive case for Covid-19, would it show up in the blood sample taken prior to vaccination? And if so, did any of the volunteers test positive in this way? If the volunteers were not tested for Covid-19, why is that?** Here is what the volunteer who spoke with us said: "The reason that was told to me by the clinical staff is that ... at the time that the study plan was written, coronavirus wasn't a significant problem in the United States and it certainly wasn't a significant problem in Seattle. And so they didn't really anticipate how large spread this thing would be." Is that accurate? If participants were not tested for Covid-19, was it because of the unique emergency posed by this particular pandemic? **If volunteers were not tested for Covid-19, could this impact the reliability of the clinical trial? Why or why not?** Under normal circumstances, **are trial participants tested – prior to vaccination – for whatever pathogen that the vaccine candidate is targeting?** (So if the trial is testing a flu vaccine, are candidates first tested to determine whether they have the flu?)

**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Sun, 15 Mar 2020 14:23:14 +0000  
**To:** Routh, Jennifer (NIH/NIAID) [E]; Oplinger, Anne (NIH/NIAID) [E]  
**Cc:** Hiatt, Nissa (NIH/VRC) [C]  
**Subject:** FW: Philip Ball, Prospect (Skype: philcball)  
**Attachments:** coronavirus vaccine\_BG.docx

FYI. This was one of the better written articles and he seems to care about accuracy.

BG

---

**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Sunday, March 15, 2020 10:22 AM  
**To:** Philip Ball (b) (6)  
**Subject:** RE: Philip Ball, Prospect (Skype: (b) (6))

Thank you for sharing this. It is a very written article. One of the best I've seen. Will be very good for public education.

I made a few comments. I don't think its possible to give an entire immunology primer in an article like this, but I pointed out a few areas you may want to reconsider.

Barney

---

**From:** Philip Ball (b) (6) >  
**Sent:** Friday, March 13, 2020 8:18 AM  
**To:** Graham, Barney (NIH/VRC) [E] (b) (6) >  
**Subject:** Re: Philip Ball, Prospect (Skype: (b) (6))

Dear Dr Graham,

I am immensely grateful to you for the time you gave to speaking with me about the coronavirus vaccine. I am hoping to speak with Mark Denison soon, and am seeking some comment from Moderna and Gilead, but my draft of the article is basically now done, and I am attaching it here. If you have time to take a look at it in the next week and let me know if there are any errors, I should be still further indebted to you. But of course I will understand too if you won't have the time for that.

Thanks again.

Best wishes,  
Phil Ball

On Tuesday, 10 March 2020, 21:36:35 GMT, Graham, Barney (NIH/VRC) [E] (b) (6) > wrote:

Page appears blank in original

**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Wed, 11 Mar 2020 13:02:33 +0000  
**To:** Kathleen Neuzil  
**Subject:** Fwd: FDA non-hold comments for 20-0003  
**Attachments:** Doc 2 20-0003 Informed Consent Form V2.0 3-10-20.pdf, ATT00001.htm

FYI

I indicated that I thought the [REDACTED] (b) (4)

BG

Sent from my iPhone

Begin forwarded message:

**From:** "Buchanan, Wendy (NIH/NIAID) [E]" <[REDACTED] (b) (6)>  
**Date:** March 10, 2020 at 6:30:06 PM EDT  
**To:** Bennett Hamilton <[REDACTED] (b) (6)>, Sun Wellington  
<[REDACTED] (b) (6)>, "Morabito, Kaitlyn (NIH/VRC) [E]"  
[REDACTED] (b) (6)>, "Graham, Barney (NIH/VRC) [E]" [REDACTED] (b) (6)>,  
"Ledgerwood, Julie (NIH/NIAID) [E]" [REDACTED] (b) (6)>  
**Cc:** "Roberts, Chris (NIH/NIAID) [E]" [REDACTED] (b) (6)>, "Pikaart-Tautges, Rhonda  
(NIH/NIAID) [E]" [REDACTED] (b) (6)>, "Beigel, John (NIH) [E]"  
[REDACTED] (b) (6)>, "Makhene, Mamodikoe (NIH/NIAID) [E]"  
[REDACTED] (b) (6)>, "Elsafy, Mohamed (NIH/NIAID) [C]"  
[REDACTED] (b) (6)  
**Subject: RE: FDA non-hold comments for 20-0003**

[REDACTED] (b) (4) attached.

Wendy L Buchanan, BSN, MS  
Nurse Consultant  
Respiratory Diseases Branch  
DMID/NIAID/NIH/DHHS  
5601 Fishers Lane  
Room 8E38, MSC 9825  
Bethesda, Maryland 20892-9825  
(courier/FedEx/UPS: Rockville, Maryland 20852)

Tel: (b) (6)  
Fax: 301-496-8030  
Mobile: (b) (6)  
Email: (b) (6)

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---

**From:** Roberts, Chris (NIH/NIAID) [E] (b) (6) >  
**Sent:** Monday, March 9, 2020 5:19 PM  
**To:** Bennett Hamilton <(b) (6)>; Graham, Barney (NIH/VRC) [E] (b) (6) >; Sun Wellington <(b) (6)>  
**Cc:** Corbett, Kizzmekia (NIH/VRC) [E] (b) (6) >; Pikaart-Tautges, Rhonda (NIH/NIAID) [E] (b) (6) >; Buchanan, Wendy (NIH/NIAID) [E] (b) (6) >; Beigel, John (NIH) [E] (b) (6) >; Makhene, Mamodikoe (NIH/NIAID) [E] (b) (6) >; Morabito, Kaitlyn (NIH/VRC) [E] (b) (6) >; Elsafy, Mohamed (NIH/NIAID) [C] (b) (6) >; Andrea Carfi <(b) (6)>; Arega, Janice (NIH/NIAID) [E] (b) (6) >; Hoang, Binh (NIH/NIAID) [E] (b) (6) >; Corbett, Kizzmekia (NIH/VRC) [E] (b) (6) >; Mascola, John (NIH/VRC) [E] (b) (6) >  
**Subject:** RE: FDA non-hold comments for 20-0003

We would prefer to have it by tomorrow noon. (b) (4)

Chris

---

**From:** Hamilton Bennett (b) (6)  
**Sent:** Monday, March 9, 2020 5:04 PM  
**To:** Graham, Barney (NIH/VRC) [E] (b) (6) >; Sun Wellington (b) (6)  
**Cc:** Roberts, Chris (NIH/NIAID) [E] (b) (6) >; Corbett, Kizzmekia (NIH/VRC) [E] (b) (6) >; Pikaart-Tautges, Rhonda (NIH/NIAID) [E] (b) (6) >; Buchanan, Wendy (NIH/NIAID) [E] (b) (6) >; Beigel, John (NIH) [E] (b) (6) >; Makhene, Mamodikoe (NIH/NIAID) [E] (b) (6) >; Morabito, Kaitlyn (NIH/VRC) [E] (b) (6) >; Elsafy, Mohamed (NIH/NIAID) [C] (b) (6) >; Andrea Carfi (b) (6) >; Arega, Janice (NIH/NIAID) [E] (b) (6) >; Hoang, Binh (NIH/NIAID) [E] (b) (6) >; Corbett, Kizzmekia (NIH/VRC) [E] (b) (6) >; Mascola, John (NIH/VRC) [E] (b) (6) >  
**Subject:** RE: FDA non-hold comments for 20-0003

Chris and John,

Could you please clarify your preferred timing for the (b) (4)

Also, could you please share the (b) (4) for reference?

Thank you,

**Hamilton Bennett**

Director, Vaccine Access and Partnerships | Moderna

Tel: (b) (6) | Cell: (b) (6) [modernatx.com](mailto:modernatx.com)

---

**From:** Graham, Barney (NIH/VRC) [E] (b) (6)  
**Sent:** Monday, March 9, 2020 10:19 AM  
**To:** Wellington Sun <(b) (6)>  
**Cc:** Roberts, Chris (NIH/NIAID) [E] (b) (6)>; Corbett, Kizzmekia (NIH/VRC) [E] (b) (6)>; Pikaart-Tautges, Rhonda (NIH/NIAID) [E] (b) (6)>; Buchanan, Wendy (NIH/NIAID) [E] (b) (6)>; Beigel, John (NIH) [E] (b) (6)>; Makhene, Mamodikoe (NIH/NIAID) [E] <(b) (6)>; Hamilton Bennett <(b) (6)>; Morabito, Kaitlyn (NIH/VRC) [E] (b) (6)>; Elsafy, Mohamed (NIH/NIAID) [C] <(b) (6)>; Andrea Carfi <(b) (6)>; Arega, Janice (NIH/NIAID) [E] (b) (6)>; Hoang, Binh (NIH/NIAID) [E] (b) (6)>; Corbett, Kizzmekia (NIH/VRC) [E] (b) (6)>; Mascola, John (NIH/VRC) [E] (b) (6)>  
**Subject:** RE: FDA non-hold comments for 20-0003

(b) (4)

Barney

---

**From:** Wellington Sun <(b) (6)>  
**Sent:** Monday, March 9, 2020 9:51 AM  
**To:** Graham, Barney (NIH/VRC) [E] (b) (6)>  
**Cc:** Roberts, Chris (NIH/NIAID) [E] (b) (6)>; Pikaart-Tautges, Rhonda (NIH/NIAID) [E] (b) (6)>; Buchanan, Wendy (NIH/NIAID) [E] (b) (6)>; Beigel, John (NIH) [E] (b) (6)>; Makhene, Mamodikoe (NIH/NIAID) [E] (b) (6)>; Bennett Hamilton <(b) (6)>; Morabito, Kaitlyn (NIH/VRC) [E] (b) (6)>; Elsafy, Mohamed (NIH/NIAID) [C] <(b) (6)>; Andrea Carfi <(b) (6)>; Arega, Janice (NIH/NIAID) [E] <(b) (6)>; Hoang, Binh (NIH/NIAID) [E] (b) (6)>; Corbett, Kizzmekia (NIH/VRC) [E] (b) (6)>

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

**Subject:** RE: FDA non-hold comments for 20-0003

May I use that information in (b) (4)

---

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

**Sent:** Monday, March 9, 2020 9:39 AM

**To:** Wellington Sun <(b) (6)>

**Cc:** Roberts, Chris (NIH/NIAID) [E] (b) (6)>; Pikaart-Tautges, Rhonda (NIH/NIAID) [E] (b) (6)>; Buchanan, Wendy (NIH/NIAID) [E] (b) (6)>; Beigel, John (NIH) [E] (b) (6)>; Makhene, Mamodikoe (NIH/NIAID) [E] (b) (6); Hamilton Bennett (b) (6); Morabito, Kaitlyn (NIH/VRC) [E] (b) (6)>; Elsafy, Mohamed (NIH/NIAID) [C] (b) (6)>; Andrea Carfi (b) (6)>; Arega, Janice (NIH/NIAID) [E] <(b) (6)>; Hoang, Binh (NIH/NIAID) [E] (b) (6); Corbett, Kizzmekia (NIH/VRC) [E] (b) (6); Mascola, John (NIH/VRC) [E] (b) (6)>

**Subject:** Re: FDA non-hold comments for 20-0003

(b) (4)

Barney

Sent from my iPhone

On Mar 9, 2020, at 9:22 AM, Wellington Sun <(b) (6)> wrote:

Hi Barney,

Thanks for this excellent summary. (b) (4)

(b) (4)

Thanks,  
Wellington

---

**From:** Graham, Barney (NIH/VRC) [E] (b) (6)>  
**Sent:** Saturday, March 7, 2020 10:21 AM  
**To:** Roberts, Chris (NIH/NIAID) [E] (b) (6)>; Pikaart-Tautges, Rhonda (NIH/NIAID) [E] (b) (6)>; Buchanan, Wendy (NIH/NIAID) [E] (b) (6)>; Beigel, John (NIH) [E] (b) (6)>; Makhene, Mamodikoe (NIH/NIAID) [E] <(b) (6)>; Hamilton Bennett (b) (6)>; Wellington Sun (b) (6)>; Morabito, Kaitlyn (NIH/VRC) [E] <(b) (6)>; Elsafy, Mohamed (NIH/NIAID) [C] (b) (6)  
**Cc:** Arega, Janice (NIH/NIAID) [E] <(b) (6)>; Hoang, Binh (NIH/NIAID) [E] (b) (6)>; Corbett, Kizzmekia (NIH/VRC) [E] (b) (6)>; Mascola, John (NIH/VRC) [E] (b) (6)>  
**Subject:** RE: FDA non-hold comments for 20-0003

This is the updated document I promised (b) (4)  
(b) (4)

Barney

---

**From:** Roberts, Chris (NIH/NIAID) [E] <(b) (6)>  
**Sent:** Friday, March 6, 2020 4:55 PM  
**To:** Pikaart-Tautges, Rhonda (NIH/NIAID) [E] (b) (6)>; Buchanan, Wendy (NIH/NIAID) [E] (b) (6)>; Beigel, John (NIH) [E] <(b) (6)>; Makhene, Mamodikoe (NIH/NIAID) [E] (b) (6)>; Bennett Hamilton (b) (6)>; Sun Wellington <(b) (6)>; Morabito, Kaitlyn (NIH/VRC) [E] (b) (6)>; Graham, Barney (NIH/VRC) [E] (b) (6)>; Elsafy, Mohamed (NIH/NIAID) [C] (b) (6)>  
**Cc:** Arega, Janice (NIH/NIAID) [E] (b) (6)>; Hoang, Binh (NIH/NIAID) [E] (b) (6)>  
**Subject:** RE: FDA non-hold comments for 20-0003

Hi Hamilton, Wellington

(b) (4)

Chris

---

**From:** Pikaart-Tautges, Rhonda (NIH/NIAID) [E] <(b) (6)>  
**Sent:** Friday, March 6, 2020 2:31 PM  
**To:** Roberts, Chris (NIH/NIAID) [E] (b) (6)>; Buchanan, Wendy (NIH/NIAID) [E] (b) (6)>; Beigel, John (NIH) [E] (b) (6)>; Makhene, Mamodikoe (NIH/NIAID) [E] (b) (6)>; Bennett Hamilton (b) (6)>; Sun Wellington (b) (6)>; Morabito, Kaitlyn (NIH/VRC) [E] (b) (6)>; Graham, Barney (NIH/VRC) [E] (b) (6)>; Elsafy, Mohamed (NIH/NIAID) [C] (b) (6)>  
**Cc:** Arega, Janice (NIH/NIAID) [E] (b) (6)>; Hoang, Binh (NIH/NIAID) [E] (b) (6)>  
**Subject:** FDA non-hold comments for 20-0003  
**Importance:** High

Hi all,

We just received the non-hold comments from the FDA.

(b) (4)

Rhonda

(b) (6)

---

**From:** Pikaart-Tautges, Rhonda (NIH/NIAID) [E]  
**Sent:** Monday, March 2, 2020 3:48 PM  
**To:** Roberts, Chris (NIH/NIAID) [E] (b) (6)>; Buchanan, Wendy (NIH/NIAID) [E] (b) (6); Beigel, John (NIH) [E] (b) (6)>; Makhene, Mamodikoe (NIH/NIAID) [E] (b) (6); Hamilton Bennett (b) (6); Wellington Sun (b) (6); Morabito, Kaitlyn (NIH/VRC) [E] (b) (6); Graham, Barney (NIH/VRC) [E] (b) (6)>; Elsafy, Mohamed (NIH/NIAID) [C] (b) (6)>  
**Cc:** Arega, Janice (NIH/NIAID) [E] (b) (6); Susan Wong (b) (6)>; Hoang, Binh (NIH/NIAID) [E] (b) (6)>  
**Subject:** Just received the safe to proceed call from the FDA for 20-0003  
**Importance:** High

Hi all,

The FDA just called, we are safe to proceed.

Non-hold comments will be assembled and will come later.

Rhonda

Rhonda Pikaart-Tautges  
 Sr. Regulatory Affairs Manager, COR III  
 Office of Regulatory Affairs, DMID, NIAID, NIH, DHHS  
 5601 Fishers Lane, Rm 7F58, MSC 9826  
 Bethesda, MD 20892-9826 (Courier/Express Mail: Rockville, MD 20852)  
 Branch phone: (b) (6)  
 Direct phone and voice mail: (b) (6)  
 Telework: Tuesday, Friday  
 IM Skype  
 e-mail: (b) (6)

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(b) (4)

**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Wed, 18 Mar 2020 15:46:42 +0000  
**To:** Teitzel, Gail M. (ELS-CMA)  
**Subject:** RE: confidential request for your help with a manuscript for Cell Reports

I'm sorry, but I cant help with this at the moment.

BG

---

**From:** Teitzel, Gail M. (ELS-CMA) <gteitzel@cell.com>  
**Sent:** Wednesday, March 18, 2020 10:11 AM  
**To:** Graham, Barney (NIH/VRC) [E] <[REDACTED] (b) (6)>  
**Subject:** confidential request for your help with a manuscript for Cell Reports

Dear Dr. Graham,

I am reaching out today to see if I could request your help with a manuscript at Cell Reports. We have received a short report on cross-reactivity in antibody binding to SARS-CoV-2 and SARS-CoV as well as cross-neutralization by Chris Mok and colleagues (I've included the title and abstract below). Because of the relevance of this work to the current coronavirus pandemic we would like to expedite peer-review of this manuscript. Would you be willing to review this manuscript for us and be able to do this within two business days?

I appreciate that you have many commitments and that this is quite rapid but hope that you would be willing to help us in this instance. Thank you in advance for considering this request.

Best wishes,  
Gail

Gail Teitzel, PhD  
Deputy Editor, *Cell Reports*

[gteitzel@cell.com](mailto:gteitzel@cell.com)  
<https://www.cell.com/cell-reports/home>

**Title:** *Cross-reactive antibody response between SARS-CoV-2 and SARS-CoV infections*

**Abstract:** The World Health Organization has recently declared the ongoing outbreak of COVID-19, which is caused by a novel coronavirus SARS-CoV-2, as pandemic. There is currently a lack of knowledge in the antibody response elicited from SARS-CoV-2 infection. One major immunological question is concerning the antigenic differences between SARS-CoV-2 and SARS-CoV. We address this question by using plasma from patients infected by SARS-CoV-2 or SARS-CoV, and plasma obtained from infected or immunized mice. Our results show that while cross-reactivity in antibody binding to the spike protein is common, cross-neutralization of the live

viruses is rare, indicating the presence of non-neutralizing antibody response to conserved epitopes in the spike. Whether these non-neutralizing antibody responses will lead to antibody-dependent disease enhancement needs to be addressed in the future. Overall, this study not only addresses a fundamental question regarding the antigenicity differences between SARS-CoV-2 and SARS-CoV, but also has important implications in vaccine development.

**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Tue, 24 Mar 2020 14:05:01 +0000  
**To:** Corbett, Kizzmekia (NIH/VRC) [E]  
**Cc:** Morabito, Kaitlyn (NIH/VRC) [E]  
**Subject:** RE: Potential Mechanistic Studies

We can just list the studies that you want to do as primary investigator and let them know that you would appreciate their help to get these done, and would be supportive of any additional studies they wanted to do. It will be to our advantage to get them involved.

(b) (5)

Barney

---

**From:** Corbett, Kizzmekia (NIH/VRC) [E] (b) (6)  
**Sent:** Tuesday, March 24, 2020 9:58 AM  
**To:** Graham, Barney (NIH/VRC) [E] (b) (6) >  
**Cc:** Morabito, Kaitlyn (NIH/VRC) [E] (b) (6)  
**Subject:** FW: Potential Mechanistic Studies

Many of these studies are copy and paste of our plans so I think the reply should come from your voice.

--

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

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

---

**From:** "Seder, Robert (NIH/VRC) [E]" (b) (6)  
**Date:** Monday, March 23, 2020 at 6:44 PM

**To:** Barney Graham (b) (6)>, Kizzmekia Corbett (b) (6)>  
**Subject:** Potential Mechanistic Studies

Hi Barney and Kizzie,

As you know, there has been an “all hands” effort by the VRC to utilize our collective expertise to help with the current COVID crisis. (b) (5)

(b) (5)

(b) (5). I have attached a large list of studies for your review. Clearly, there would need to be prioritization and discussion of what vaccines are available to do the studies.

I look forward to hearing your feedback. I can then discuss this later this week at PI meeting. Mario and Rick have reviewed it.

Best,

Bob

Robert A. Seder, M.D.  
Chief, Cellular Immunology Section  
Vaccine Research Center, NIAID, NIH  
40 Convent Drive  
Bethesda, Maryland 20892  
Office phone: (b) (6)

**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Fri, 20 Mar 2020 19:33:41 +0000  
**To:** Gall, Jason (NIH/VRC) [C]; Corbett, Kizzmekia (NIH/VRC) [E]  
**Subject:** RE: Sequence

Great. I'm excited about the idea that [REDACTED] (b) (5)

BG

---

**From:** Gall, Jason (NIH/VRC) [C] [REDACTED] (b) (6)  
**Sent:** Friday, March 20, 2020 3:29 PM  
**To:** Graham, Barney (NIH/VRC) [E] [REDACTED] (b) (6); Corbett, Kizzmekia (NIH/VRC) [E]  
[REDACTED] (b) (6)  
**Subject:** Re: Sequence

We went through the sequences and we are [REDACTED] (b) (5)  
[REDACTED] (b) (5) [REDACTED] (b) (4), (b) (5)

Jason

---

**From:** "Graham, Barney (NIH/VRC) [E]" <[REDACTED] (b) (6)>  
**Date:** Friday, March 20, 2020 at 1:28 PM  
**To:** "Gall, Jason (NIH/VRC) [C]" [REDACTED] (b) (6), "Corbett, Kizzmekia (NIH/VRC) [E]"  
[REDACTED] (b) (6)>  
**Subject:** RE: Sequence

The version we sent you has a [REDACTED] (b) (5)  
[REDACTED] (b) (5)

BG

---

**From:** Gall, Jason (NIH/VRC) [C] [REDACTED] (b) (6)  
**Sent:** Friday, March 20, 2020 1:26 PM  
**To:** Graham, Barney (NIH/VRC) [E] <[REDACTED] (b) (6)>; Corbett, Kizzmekia (NIH/VRC) [E]  
[REDACTED] (b) (6)>  
**Subject:** Re: Sequence

Thank you. We will assess asap and get back to you with any questions. (b) (5)

I think the (b) (5)

(b) (5)

Jason

---

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

**Date:** Friday, March 20, 2020 at 1:22 PM

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

(b) (6)

**Subject:** RE: Sequence

(b) (5)

Let me know if any of this is unclear.

Barney

---

**From:** Gall, Jason (NIH/VRC) [C] (b) (6)>

**Sent:** Friday, March 20, 2020 12:57 PM

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

(b) (6)>

**Subject:** Re: Sequence

Thank you.

Jason

---

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

**Date:** Friday, March 20, 2020 at 12:47 PM

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

**Cc:** "Gall, Jason (NIH/VRC) [C]" (b) (6)

**Subject:** Sequence

Here is the sequence, Dr. Graham. Please double check and then I will fill out the form for VPP transfer.

--

**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:** Thu, 23 Apr 2020 14:04:14 +0000  
**To:** Ruth Karron  
**Cc:** Openshaw, Peter J M (b) (6); Buchholz, Ulla (NIH/NIAID) [E]; Polack, Fernando P; McLellan, Jason; Karron, Ruth; Smyth, Rosalind; Stein, Renato; Munywoki, Patrick K.; Williams, John; Zheng, ZiZheng; Falsey, Ann; Ultan  
**Power;** (b) (6)  
**Subject:** Re: RSV 2020 conference postponed

Do you think there would be interest in arranging a few virtual sessions? Or should we just wait?

Barney

Sent from my iPhone

On Apr 23, 2020, at 9:56 AM, Ruth Karron <(b) (6)> wrote:

Understood, Peter. Hoping that you are all well and safe and looking forward to the time when we can meet again.

Ruth

Ruth A. Karron, M.D.  
Professor, International Health  
Director, Center for Immunization Research  
Director, Johns Hopkins Vaccine Initiative  
Bloomberg School of Public Health  
Johns Hopkins University

(b) (6)  
email: (b) (6)  
Asst: (b) (6)  
email (b) (6)

---

**From:** "Openshaw, Peter J M" (b) (6)  
**Date:** Thursday, April 23, 2020 at 9:47 AM  
**To:** "Bont, L.J." (b) (6); "Buchholz, Ulla (NIH/NIAID) [E]" (b) (6); "Barney Graham" (b) (6); "Polack, Fernando P"

(b) (6)>, "McLellan, Jason" (b) (6), Ruth  
Karron (b) (6)>, "Smyth, Rosalind" (b) (6), Renato Stein  
(b) (6), "Munywoki, Patrick K." (b) (6) "Williams,  
John" (b) (6), "Zheng, ZiZheng" (b) (6)  
Cc: "Falsey, Ann" <(b) (6)>, Ultan Power (b) (6),  
(b) (6)  
(b) (6)  
(b) (6)

**Subject:** RSV 2020 conference postponed

## To: Members of the International Steering Committee (RSV-ISC)

Friends,

We regret to tell you that it seems necessary to postpone our planned meeting in Belfast, planned for the 9<sup>th</sup> to 12<sup>th</sup> September this year. Many of us are working full-time on COVID-19 related activities and the possibility of again meeting together so soon seems remote.

We are very grateful to the committee and to ISIRV for all the preparations to date and will let you know once we have firm plans in place again.

We do hope that it will be possible to meet again face to face next year.

Warmest regards

Peter and Ultan

---

**Prof. Peter JM Openshaw** FRCP PhD FRSB FMedSci  
*Professor of Experimental Medicine and Senior College Consul*  
National Heart & Lung Institute  
Imperial College London (St. Mary's Campus)  
Norfolk Place, Paddington, London W2 1PG, UK  
Direct: (b) (6)  
Mobile: (b) (6)  
Personal assistant: (b) (6)  
Administrator: (b) (6)  
Clinical PA: (b) (6)

(b) (6)  
<http://www.imperial.ac.uk/people/p.openshaw>

### Professor Ultan F. Power PhD

Professor of Molecular Virology  
WWIEM Associate Director for Postgraduate Education & Training  
Chair, 12<sup>th</sup> International RSV Symposium (@RSV2020)  
Wellcome Wolfson Institute for Experimental Medicine  
School of Medicine, Dentistry and Biomedical Sciences  
Medical Biology Centre  
97 Lisburn Road  
Belfast BT9 7BL  
Northern Ireland

Tel: (b) (6)

Email: (b) (6)

<https://pure.qub.ac.uk/en/persons/ultan-power>

**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Tue, 17 Mar 2020 18:47:53 +0000  
**To:** (b) (6); Young, Monique (NIH/VRC) [E]  
**Cc:** 'Carol Baeriswyl'  
**Subject:** RE: ADVAC alumni webinar 2 April

Yes, I should be available. Will you send calendar invite?

Barney

---

**From:** (b) (6)  
**Sent:** Tuesday, March 17, 2020 11:56 AM  
**To:** Graham, Barney (NIH/VRC) [E] (b) (6) >  
**Cc:** 'Carol Baeriswyl' (b) (6)  
**Subject:** RE: ADVAC alumni webinar 2 April

Dear Graham,

Could you kindly confirm if you would also be available for the webinar?

I realize that you must be utterly busy these days.

With kind regards,

Philippe

---

**De :** Melanie Saville <(b) (6)>  
**Envoyé :** jeudi 12 mars 2020 14:05  
**À :** (b) (6); 'Graham, Barney (NIH/VRC) [E]' (b) (6) >  
**Cc :** 'Carol Baeriswyl' (b) (6) >; Shanni Dhoofer (b) (6) >;  
Oyeronke Oyeibanji (b) (6)  
**Objet :** RE: ADVAC alumni webinar 2 April

Dear Philippe,  
It would be a pleasure. Kind regards  
Melanie

**MELANIE SAVILLE**

Director of Vaccine Research & Development

**CEPI** New vaccines  
for a safer world

---

(b) (6)

(b) (6)

Visiting address: Gibbs building, 215 Euston Rd, Bloomsbury, London NW1 2BE, UK

Postal address: P.O. BOX 123, Torshov, 0412 Oslo, Norway

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**From:** (b) (6)  
**Sent:** 12 March 2020 10:37  
**To:** Melanie Saville (b) (6); 'Graham, Barney (NIH/VRC) [E]' (b) (6)>  
**Cc:** 'Carol Baeriswyl' (b) (6)  
**Subject:** ADVAC alumni webinar 2 April

Dear both,

Thanks for having accepted to present during our ADVAC alumni webinar

Melanie would present on vaccine development platforms and application to the COVID-19 (15-20 minutes)

Barney would then present an update on the coronavirus vaccine development: progress and challenges (15-20 minutes)

This would be followed by a discussion with participants. We are likely to use Zoom for the webinar and we could moderate the questions to make it easier for you and so that you are not inundated. We could leave about 50 minutes of time for the discussion, making it for a total of 1.5 hours webinar.

In view of the rearrangements for the virtual SAGE meeting and with consideration of the best timing for ADVAC alumni around the world, we propose to set this webinar on April 2 at 14:30-16:00 Geneva time.

Before we make the announcement, could you kindly confirm that this time slot works for both of you.

With kind regards,

Philippe

**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Tue, 31 Mar 2020 09:36:09 +0000  
**To:** Moshe Levi  
**Subject:** RE: Greetings from Georgetown University

Dr. Levi,

We have [REDACTED] (b) (4),  
[REDACTED] (b) (4)

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: [REDACTED] (b) (6)  
URL: <https://www.niaid.nih.gov/research/barney-graham-md-phd>

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**From:** Moshe Levi <[REDACTED] (b) (6)>  
**Sent:** Monday, March 30, 2020 11:46 PM  
**To:** Graham, Barney (NIH/VRC) [E] [REDACTED] (b) (6)  
**Subject:** Greetings from Georgetown University

Dear Dr. Graham:

I am contacting you upon referral from Tony Fauci.

I wanted to find out if

(b) (4)

(b) (4)

Thank you,

Moshe

--

Moshe Levi, MD  
Dean for Research  
Professor of Biochemistry and Molecular & Cellular Biology  
Georgetown University  
3900 Reservoir Road  
Med Dent NW 105  
Washington, DC 20057  
Office: (b) (6)  
E-mail: (b) (6)

**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Sun, 19 Apr 2020 20:19:16 +0000  
**To:** Leist, Sarah Rebecca; Baric, Ralph  
**Cc:** Corbett, Kizzmekia (NIH/VRC) [E]; Alexandra Schaefer; Dinnon, Kenneth Harold III; Martinez, David Rafael  
**Subject:** RE: Update on SARS-CoV-2 mRNA study

Thanks Sarah,

I'm assuming that the [REDACTED] (b) (4)

[REDACTED]

[REDACTED] (b) (4).

Thanks,

---

**From:** Leist, Sarah Rebecca [REDACTED] (b) (6) >  
**Sent:** Saturday, April 18, 2020 6:50 PM  
**To:** Graham, Barney (NIH/VRC) [E] [REDACTED] (b) (6); Baric, Ralph [REDACTED] (b) (6)  
**Cc:** Corbett, Kizzmekia (NIH/VRC) [E] [REDACTED] (b) (6); Alexandra Schaefer [REDACTED] (b) (6); Dinnon, Kenneth Harold III [REDACTED] (b) (6) >; Martinez, David Rafael [REDACTED] (b) (6)  
**Subject:** FW: Update on SARS-CoV-2 mRNA study

Hello everyone,

Please find attached an up to date version of the mRNA study data including graphs (and stats) on all data we have until now. I apologize for the delay.

I was hoping to be able to include the [REDACTED] (b) (4)

[REDACTED] (b) (4)

Please let me know if you have any additional requests or comments.

Thanks everyone,

Sarah

---

**From:** "Leist, Sarah Rebecca" <[REDACTED] (b) (6)>  
**Date:** Tuesday, April 7, 2020 at 8:23 PM  
**To:** "Corbett, Kizzmekia (NIH/VRC) [E]" [REDACTED] (b) (6), "Graham, Barney (NIH/VRC) [E]" [REDACTED] (b) (6)>, "Baric, Ralph S" <[REDACTED] (b) (6)>  
**Cc:** "Schaefer, Alexandra" [REDACTED] (b) (6)>, "Dinnon, Kenneth Harold III" [REDACTED] (b) (6), "Martinez, David Rafael" [REDACTED] (b) (6)>  
**Subject:** Update on SARS-CoV-2 mRNA study

Hello everyone,

Please find attached the up to date summary of the data we've collected so far [REDACTED] (b) (4)

[REDACTED]

[REDACTED] (b) (4)

I will keep you posted!

Thanks to everyone who contributed to this initial study – the data looks beautiful and is very robust!

Have a nice evening,

Sarah

**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Sat, 28 Mar 2020 12:53:02 +0000  
**To:** Reilly, Deborah (NIH/VRC) [E]  
**Subject:** Accepted: COVID-19 Daily Check-in

**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Tue, 28 Apr 2020 14:41:48 +0000  
**To:** Anderson, Larry J  
**Subject:** RE: [External] RE: HRSV nomenclature below the species level - manuscript for pre-submission review

Agree, much more fun in person if you don't mind waiting.

If it comes up again, I will let them know that virtual meetings would be for education and not awards.

Barney

---

**From:** Anderson, Larry J (b) (6)  
**Sent:** Tuesday, April 28, 2020 10:10 AM  
**To:** Graham, Barney (NIH/VRC) [E] (b) (6)  
**Subject:** RE: [External] RE: HRSV nomenclature below the species level - manuscript for pre-submission review

Got side tracked. The in person sounds more fun but will be glad to do as the group decides.

Ija

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:** Friday, April 24, 2020 8:32 AM  
**To:** Anderson, Larry J (b) (6)>  
**Subject:** Re: [External] RE: HRSV nomenclature below the species level - manuscript for pre-submission review

Trying to stay on top of things. Busy with the vaccine and mAb discovery etc.

I guess you saw the RSV meeting was delayed.

Some of us were wondering about a smaller virtual meeting with a few key sessions. Would you rather give your award lecture online or wait a year and give it in person when we can shake your hand and give you a fist bump?

Barney

Sent from my iPhone

On Apr 24, 2020, at 8:22 AM, Anderson, Larry J <(b) (6)> wrote:

How are you doing? Busy times, lots happening, and things are moving very fast.

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:** Friday, April 24, 2020 12:05 AM

**To:** Buchholz, Ulla (NIH/NIAID) [E] (b) (6)

(b) (6)

Anderson, Larry J (b) (6)

(b) (6)

>; Brister, James

(NIH/NLM/NCBI) [E] (b) (6)

(b) (6)

(b) (6)

(b) (6)

(b) (6)

Lindstrom, Stephen

(CDC/DDID/NCIRD/DVD) (b) (6)

(b) (6)

Peret, Teresa (CDC/DDID/NCIRD/DVD)

(b) (6)

>; Trovao,

Nidia (NIH/FIC) [F] (b) (6)

(b) (6)

(b) (6)

>

**Subject:** [External] RE: HRSV nomenclature below the species level - manuscript for pre-submission review

Hi Ulla and Vahid,

Thank you for working so hard to finish this. It is well written, and I have just a few edits and questions in the comments.

Will there be some type of template for the metadata submission with standard field codes that make it clear how to report the information?

Best wishes and take care,

Barney

---

**From:** Buchholz, Ulla (NIH/NIAID) [E] <(b) (6)>  
**Sent:** Monday, April 13, 2020 11:59 PM  
**To:** (b) (6)  
(b) (6)  
Brister, James (NIH/NLM/NCBI) [E] (b) (6)  
(b) (6); Graham, Barney (NIH/VRC)  
[E] (b) (6)  
(b) (6); Lindstrom, Stephen  
(CDC/DDID/NCIRD/DVD) <(b) (6)>  
(b) (6); Peret, Teresa (CDC/DDID/NCIRD/DVD) <(b) (6)>  
(b) (6) Trovao, Nidia (NIH/FIC)  
[F] (b) (6)  
(b) (6); Buchholz, Ulla (NIH/NIAID) [E]  
(b) (6)  
**Subject:** HRSV nomenclature below the species level - manuscript for pre-submission review

Dear co-authors and supporters of our HRSV nomenclature proposal,

At long last: attached please find the final version of the HRSV nomenclature manuscript for pre-submission review. This proposal for a universal nomenclature below the species level has grown into a combined proposal, supported by members of the International RSV Society (ISIRV), and by the WHO team involved in the HRSV surveillance program. Our plan is to submit this manuscript to Emerging Infectious Diseases, to be published as an EID Online Report. An alternative option, (b) (4)

(b) (4) - hence my proposal to submit to EID.

It would be great if you could send final comments and feedback by midnight EST on Monday, April 20. Many of us will be very involved in COVID-19 activities. Please send me a brief email by if you would like additional time to review.

- Please verify that your name and affiliation are spelled correctly.
- Please send any funding information for inclusion in the acknowledgement/disclaimer section.
- Please send me a brief "ok" by email if you do not have any comments on this version.

This proposal was initiated by Vahid Salimi. Alfonsina Trento and Mariana Viegas were major contributors. Thomas Williams and Ian Barr joined in as lead contributors from the WHO team, and everyone on the author list was involved in discussions and in the writing: You can see from the (mostly alphabetical) author list that our group of co-authors is spanning the world.

We hope that the nomenclature proposal will be widely acceptable, facilitating molecular epidemiology studies. Thank you so much for your patience and support.

The manuscript is dedicated to Jose Melero, who was a wonderful friend to us all.

Thank you for your contributions to this manuscript!

Kind regards, and stay safe,  
Ulla

--

Ursula Buchholz, PhD  
Senior Associate Scientist  
RNA Viruses Section  
Laboratory of Infectious Diseases  
NIAID, NIH  
Bldg. 50, Rm. 6503  
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**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Thu, 5 Mar 2020 20:31:10 +0000  
**To:** Gregory Sempowski  
**Cc:** Corbett, Kizzmekia (NIH/VRC) [E]  
**Subject:** RE: SARS CoV-2 Neut Assays

Hi Greg,

I'm connecting you to Dr. Kizzmekia Corbett who is directing our coronavirus work.

Best wishes,

Barney

---

**From:** Gregory Sempowski (b) (6)  
**Sent:** Thursday, March 5, 2020 2:31 PM  
**To:** Graham, Barney (NIH/VRC) [E] (b) (6)  
**Subject:** SARS CoV-2 Neut Assays

Dear Barney,

I am sure you are totally swamped. (b) (4)

[Redacted]

Thank you so much,  
Greg

**Gregory D. Sempowski, PhD**

Professor, Departments of Medicine and Pathology  
Director, Duke Regional Biocontainment Laboratory  
Duke Human Vaccine Institute  
GHRB 1019 | 909 S. LaSalle St. | Durham, NC 27710  
(b) (6) Office | (b) (6) Admin.

**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Mon, 6 Apr 2020 20:28:38 +0000  
**To:** Seder, Robert (NIH/VRC) [E]  
**Subject:** RE: Slides from Strategic meeting  
**Attachments:** mRNA Clinical Trial Preclinical summary.pptx

Sorry, missed some emails last week.

BG

---

**From:** Seder, Robert (NIH/VRC) [E] (b) (6) >  
**Sent:** Wednesday, April 1, 2020 2:23 PM  
**To:** Graham, Barney (NIH/VRC) [E] <(b) (6)>  
**Subject:** Slides from Strategic meeting

BG

Can you please send me the slides you showed today.

Bob

Robert A. Seder, M.D.  
Chief, Cellular Immunology Section  
Vaccine Research Center, NIAID, NIH  
40 Convent Drive  
Bethesda, Maryland 20892  
Office phone: (b) (6)

**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Mon, 10 Feb 2020 17:43:39 +0000  
**To:** Hiatt, Nissa (NIH/VRC) [C]; Routh, Jennifer (NIH/NIAID) [E]  
**Cc:** Corbett, Kizzmekia (NIH/VRC) [E]  
**Subject:** Fwd: EMBO Coronavirus article

FYI. I could quickly answer by email, but would be best if you could handle with input from Dr. Corbett.

Barney

Sent from my iPhone

Begin forwarded message:

**From:** Philip Hunter <ph@philiphunter.com>  
**Date:** February 10, 2020 at 12:28:01 PM EST  
**To:** "Graham, Barney (NIH/VRC) [E]" <(b) (6)>  
**Subject:** EMBO Coronavirus article  
**Reply-To:** <ph@philiphunter.com>

Dear Dr. Graham,

I would greatly appreciate a quick comment from you on the scientific background to the ongoing Wuhan coronavirus outbreak, as your name just cropped up during a discussion with William Schaffner. My article is for EMBO Reports (<http://embor.embopress.org/>) in the Science & Society section, which is read by a cross section of life scientists. I would need comments by February 15th if possible please, by phone or email as you prefer.

1. William said you were very quick to start working on a vaccine at the NIH after the Chinese revealed the genomic sequence so that you could conduct your own PCR test. How soon might this result in a vaccine that can be tested on human patients and then made more widely available?
2. How important a role might this vaccine play in combating spread of the virus, presumably more for providing protection over the longer term in the event it becomes endemic in the human population?

3. How effective will antivirals play in at least alleviating symptoms for people with the infection?
4. What about antibodies – I have seen a paper describing one recently that looked promising? Could an antibody based therapy actually prove more effective than antivirals for treating people already with the infection, or might the two work in combination?
5. Do you anticipate the virulence of the Wuhan virus declining as it spreads?

I look forward to hearing from you,

Philip Hunter

44 208 682 0862

Mobile [REDACTED] (b) (6)

[www.philiphunter.com](http://www.philiphunter.com)

**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Thu, 26 Mar 2020 12:58:12 +0000  
**To:** Chapman, Latanya (NIH/VRC) [C]  
**Cc:** Bok, Karin (NIH/VRC) [E]; Corbett, Kizzmekia (NIH/VRC) [E]; Austin, Sarah (NIH/NIAID) [E]  
**Subject:** FW: Discussion Points for Lilly/AbCellera Follow Up Discussion - March 26th  
**Attachments:** VRC Call 26-MAR-2020.docx

LaTanya, has this been distributed? I will not be able to be on this call because of conflict with another call. Someone besides me, especially Drs. Corbett and Mascola need to see this.

Barney

---

**From:** Kristi M Huntington (b) (6)  
**Sent:** Wednesday, March 25, 2020 4:31 PM  
**To:** Graham, Barney (NIH/VRC) [E] (b) (6)>; Chapman, Latanya (NIH/VRC) [C] (b) (6)>  
**Subject:** Discussion Points for Lilly/AbCellera Follow Up Discussion - March 26th

Barney and LaTanya –

Please find attached some discussion topics for tomorrow's discussion. Since I do not have access to the complete invitee list, would you be so kind as to distribute?

Many Thanks!  
Kristi

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

**From:** Graham, Barney (NIH/VRC) [E] <(b) (6)>  
**Sent:** Tuesday, March 24, 2020 3:49 PM  
**To:** Graham, Barney (NIH/VRC) [E]; Kristi M Huntington  
**Subject:** [EXTERNAL] FW: Lilly/AbCellera Follow Up Discussion  
**When:** Thursday, March 26, 2020 1:00 PM-2:00 PM (UTC-05:00) Eastern Time (US & Canada).  
**Where:** Virtual (Goto Meeting)

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

\*\* CONFIRMATION \*\*

Title of Meeting: Lilly/AbCellera Follow Up Discussion

Principal Meeting Organizer: Gabriela Alvarado

Goal of Meeting: To discuss (b) (4)

Date: 3/26/20

Time: 1:00PM

Allotted Time: 1 hour

Location: Virtual (Goto Meeting)

VRC Participants: Barney Graham, Kizzmekia Corbett, Karin Bok, Kaitlyn Morabito, John Mascola, Jason Gall and Gabriela Alvarado

AbCellera Participants: Ester Falconer, Payal Sipahimalani and Bo Barnhart

Eli Lilly Participants: Kristi M Huntington, Beverly Heinz, Bryan Edward Jones, Julian Davies, (b) (4)

Agenda: TBD

Thanks,  
LaTanya

(b) (6)

---

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**Access Code:** (b) (6)

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(b) (6)

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

**Sent:** Friday, March 20, 2020 5:30:46 PM (UTC) Coordinated Universal Time

**To:** Corbett, Kizzmekia (NIH/VRC) [E]; Bok, Karin (NIH/VRC) [E]; Morabito, Kaitlyn (NIH/VRC) [E]; Gall, Jason (NIH/VRC) [C]; Alvarado, Gabriela (NIH/VRC) [C]; Chapman, Latanya (NIH/VRC) [C]; Young, Monique (NIH/VRC) [E]; Grier, Shardae (NIH/VRC) [E]; Suhana, Tina (NIH/VRC) [E];

(b) (6)

; Bryan Edward Jones; Julian Davies; (b) (4)

**Subject:** Lilly/AbCellera Follow Up Discussion

**When:** Thursday, March 26, 2020 5:00 PM-6:00 PM.

**Where:** Virtual (Goto Meeting)

**\*\* CONFIRMATION \*\***

Title of Meeting: Lilly/AbCellera Follow Up Discussion

Principal Meeting Organizer: Gabriela

Alvarado

Goal of Meeting: To discuss (b) (4).

Date: 3/26/20

Time: 1:00PM

Allotted Time: 1 hour

Location: Virtual (Goto Meeting)

VRC Participants: Barney Graham, Kizzmekia Corbett, Karin Bok, Kaitlyn Morabito, John Mascola, Jason Gall and Gabriela Alvarado

AbCellera Participants: Ester Falconer, Payal Sipahimalani and Bo Barnhart

Eli Lilly Participants: Kristi M Huntington, Beverly Heinz, Bryan Edward Jones, Julian Davies, (b) (4)

Agenda: TBD

Thanks,

LaTanya

(b) (6)

---

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**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Mon, 30 Mar 2020 12:39:48 +0000  
**To:** Cohen, Jeffrey (NIH/NIAID) [E]  
**Subject:** Re: Moderna Meeting in April

My initial reaction was to say no, but I was assured this was just relaying information to people already invested in the company and not a sales pitch. We are passing it through ethics review. This was agreed to before the current outbreak and was simply going to report our work on MERS and Nipah.

Barney

Sent from my iPhone

On Mar 28, 2020, at 12:36 PM, Cohen, Jeffrey (NIH/NIAID) [E] [REDACTED] (b) (6) >  
wrote:

Hi Barney

I was invited, as apparently were you, for the phone conference with Moderna next month. When I asked Allison August from Moderna yesterday about who was the audience, she said it would mostly be potential investors. [REDACTED] (b) (5)

[REDACTED]

[REDACTED]

Thanks  
Jeff

**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Sat, 4 Apr 2020 21:03:55 +0000  
**To:** Berger, Edward (NIH/NIAID) [V]  
**Subject:** RE: Volunteering - How can I help as a former NIH PI?

Thanks Ed. I'm going to try calling tomorrow.

BG

---

**From:** Berger, Edward (NIH/NIAID) [V] (b) (6) >  
**Sent:** Thursday, April 2, 2020 10:46 PM  
**To:** Graham, Barney (NIH/VRC) [E] (b) (6) >  
**Subject:** Re: Volunteering - How can I help as a former NIH PI?

Hi Barney,  
Thanks for the reply. You can call/text/voicemail my cell phone any day between 10AM – 11PM (b) (6)  
(b) (6)  
Best regards,  
Ed

---

**From:** Graham-Barney-NIH (b) (6)  
**Date:** Thursday, April 2, 2020 at 6:06 PM  
**To:** "Berger, Edward (NIH/NIAID) [V]" <(b) (6)>  
**Cc:** "Mascola, John (NIH/VRC) [E]" (b) (6)  
**Subject:** Re: Volunteering - How can I help as a former NIH PI?

Hi Ed,

It's great to hear from you. Would be good to hear your thoughts during this unprecedented time. I'll look for a time to call you. I've been meaning to anyway since I missed your retirement party.

Take care,

Barney

Sent from my iPhone

On Apr 1, 2020, at 5:14 PM, Berger, Edward (NIH/NIAID) [V] (b) (6) wrote:

Hello John and Barney,

I would like to contribute as a volunteer in some way.

Please see the message below, which I am sending to selected people/offices at NIH.

I hope all is going well in these challenging times.

Be safe and be well.

Ed

---

Hello colleagues,

As a former long-term NIAID/NIH PI, I would like to offer my services to help combat the COVID-19 pandemic.

As a relatively high-risk person (b) (6), I would appreciate helping in ways that do not put me at greater risk for exposure.

Of course I can work from home. I am also willing to come to NIH or other sites, as long as the setting does not put me at greater risk.

I also have some ideas about an anti-Coronavirus treatment agent that could be developed in a relatively straight-forward manner. Happy to discuss.

I can be reached via:

(b) (6)  
by text or phone.

Cell phone call or text. This is best. Voicemail is fine.

Note: To be sure that I see the email, please also notify me

The world greatly appreciates the varied ways that NIH is contributing to combatting COVID-19.

Please stay safe and healthy as we all progress through this challenge.

Sincerely,

Ed Berger

Edward A. Berger, Ph.D.  
Scientist Emeritus  
Laboratory of Viral Diseases, NIAID  
National Institutes of Health  
Bethesda, MD 20892

(b) (6) Phone  
301-435-1269 FAX

(b) (6)

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**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Thu, 13 Feb 2020 14:46:00 +0000  
**To:** Stein, Judy (NIH/VRC) [C]  
**Subject:** Accepted: Call between (b) (4) and VRC/NIAID TTIPO to discuss (b) (4)  
[REDACTED]

**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Fri, 31 Jan 2020 17:39:24 +0000  
**To:** Young, Monique (NIH/VRC) [E]  
**Subject:** Re: Invitation to Register - Global Research and Innovation Forum: Towards a Roadmap for the 2019 Novel Coronavirus

Great. Thanks. Cynthia gave her permission. Just make sure I'm home on the 13th.

BG

Sent from my iPhone

On Jan 31, 2020, at 4:10 PM, Young, Monique (NIH/VRC) [E] (b) (6) wrote:

Good Morning –

I've made a flight reservation with Omega.

I'll complete the registration today.

Perhaps, we can talk on Monday to get more details.

Thanks...Monique

(b) (6)

---

**From:** Graham, Barney (NIH/VRC) [E] (b) (6)  
**Sent:** Friday, January 31, 2020 6:00 AM  
**To:** Young, Monique (NIH/VRC) [E] (b) (6)  
**Cc:** Morabito, Kaitlyn (NIH/VRC) [E] (b) (6); Bok, Karin (NIH/VRC) [E]  
<(b) (6)>; Corbett, Kizzmekia (NIH/VRC) [E] (b) (6); Mascola, John  
(NIH/VRC) [E] (b) (6); Marston, Hilary (NIH/NIAID) [E] (b) (6)  
**Subject:** FW: Invitation to Register - Global Research and Innovation Forum: Towards a Roadmap for the 2019 Novel Coronavirus

Hi Monique,

FYI. I will probably need to go to this meeting which is less than 2 weeks away.

BG

---

**From:** Bill & Melinda Gates Foundation Events Team <[eventsregistration@gatesfoundation.org](mailto:eventsregistration@gatesfoundation.org)>

**Sent:** Thursday, January 30, 2020 8:33 PM

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

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

**Subject:** Invitation to Register - Global Research and Innovation Forum: Towards a Roadmap for the 2019 Novel Coronavirus



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20, AVENUE APPIA – CH-1211 GENEVA 27 – SWITZERLAND – TEL CENTRAL +41 22 791 2111 – FAX CENTRAL +41 22 791 3111 –  
[www.who.int](http://www.who.int)

Barney Graham

30 January 2020

Dear Barney Graham,

WHO R&D Blueprint

*for action to prevent epidemics:*

**Global research and innovation forum: towards a roadmap for the 2019 novel Coronavirus WHO Executive Boardroom, 11-12 February 2020, Geneva, Switzerland**

On behalf of the World Health Organization (WHO), and the Global Research Collaboration for Infectious Disease Preparedness (GloPID-R), we have pleasure in inviting you, as a participant, to attend the above-mentioned 2-day in-person meeting to be held in Geneva, Switzerland, 11-12 February 2020. We plan to live-stream the plenary sessions for participants unable to travel.

The purpose of the forum is to bring together a group of key experts, partners and stakeholders to finalize the development of a *roadmap for the 2019 novel Coronavirus* in order to enable the conduct of research, product development and innovation. Such a roadmap will include an analysis of current capacities and ongoing efforts in affected countries and globally, and a review of the steps that the community should take to

accelerate critical research. This meeting will assess the status of research and product development to fight the 2019 novel Coronavirus epidemic; including diagnostics, therapeutics, and prophylactics products as well as regulatory, ethical, social sciences, animal health, data / sample sharing and other considerations; to align on a cross-functional strategy to advance the countermeasures necessary to treat patients and control transmission.

The forum will be structured in a series of plenary and group sessions, the three main overall objectives being to

- *enable the joint identification of the main knowledge gaps and research priorities;*
- *foster an acceleration of the generation of scientific information; and*
- *promote the development and generation of priority medical countermeasures to control the 2019-nCoV emergency, through an effective collaborative approach.*

*The main expected outcome will be to generate a concerted global research agenda, including priorities and frameworks for global coordination and implementation.*

A complete set of the background documents will be available on your arrival in Geneva. The working language of the consultation will be English.

Please find a [Declaration of Interests Form](#) which we kindly request you to complete and return, as soon as possible and upload directly to the event registration site or email [eventsregistration@gatesfoundation.org](mailto:eventsregistration@gatesfoundation.org) with document attached prior to the meeting.

Please [register here](#) as soon as possible.

Please note the following requirements for each registration:

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- Need photo
- Need passport number

**DOI:**

- Be prepared to have an e-signature or print, sign, and scan the document

Should you require further details on the technical content of the consultation, please do not hesitate to contact Ms. Ximena Riveros Balta, email:

(b) (6) For any administrative queries related to this meeting, please contact Ms Neddy Mafunga, e-mail: (b) (6) or

(b) (6)

We look forward to hearing from you with regard to your participation.

Yours sincerely,

Dr. Soumya Swaminathan  
WHO Chief Scientist

Dr. Mike Ryan  
WHO Executive Director  
Health Emergencies

Prof. Yazdan Yazhanpanah  
GliPID-R Chair

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**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Sat, 11 Jan 2020 20:44:46 +0000  
**To:** Kizzmekia Corbett  
**Subject:** Re: Initial genome release of novel coronavirus - Novel 2019 coronavirus - Virological

Thanks for handling this Kizzy. [REDACTED] (b) (5)

BG

Sent from my iPhone

On Jan 11, 2020, at 9:27 AM, Kizzmekia Corbett [REDACTED] (b) (6) wrote:

Initial genome release of novel coronavirus - Novel 2019 coronavirus - Virological

<http://virological.org/t/initial-genome-release-of-novel-coronavirus/319>

**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Fri, 10 Apr 2020 16:58:03 +0000  
**To:** Ledgerwood, Julie (NIH/NIAID) [E]  
**Cc:** Mascola, John (NIH/VRC) [E]; Suhana, Tina (NIH/VRC) [E]; Austin, Sarah (NIH/NIAID) [E]; Taylor, Stephanie (NIH/NIAID) [E]  
**Subject:** Re: NIAID COVID-19 Division Directors Sync Meeting - April 15

I think I can also be available.

BG

Sent from my iPhone

On Apr 10, 2020, at 10:58 AM, Ledgerwood, Julie (NIH/NIAID) [E] (b) (6) > wrote:

I can attend.  
JL

---

**From:** Mascola, John (NIH/VRC) [E] (b) (6) >  
**Sent:** Friday, April 10, 2020 9:48 AM  
**To:** Suhana, Tina (NIH/VRC) [E] (b) (6) >  
**Cc:** Austin, Sarah (NIH/NIAID) [E] (b) (6); Ledgerwood, Julie (NIH/NIAID) [E] (b) (6); Graham, Barney (NIH/VRC) [E] (b) (6) >; Koup, Richard (NIH/VRC) [E] (b) (6)  
**Subject:** RE: NIAID COVID-19 Division Directors Sync Meeting - April 15

Let see if someone here can join.

I would like to hold lab meeting.

---

**From:** Suhana, Tina (NIH/VRC) [E] (b) (6) >  
**Sent:** Friday, April 10, 2020 9:47 AM  
**To:** Mascola, John (NIH/VRC) [E] (b) (6) >  
**Cc:** Austin, Sarah (NIH/NIAID) [E] (b) (6)  
**Subject:** NIAID COVID-19 Division Directors Sync Meeting - April 15

Good morning John –

Just checking – are you planning to join the NIAID COVID-19 Division Directors Sync meeting on Wednesday, April 15<sup>th</sup> from 4:00 PM – 5:00 PM as it currently conflicts with Virology Core lab meeting (2:30 PM – 4:30 PM)?

Thanks,  
Tina

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

**From:** Auchincloss, Hugh (NIH/NIAID) [E] (b) (6)

**Sent:** Tuesday, March 24, 2020 8:37 AM

**To:** Auchincloss, Hugh (NIH/NIAID) [E]; Harper, Jill (NIH/NIAID) [E]; Mascola, John (NIH/VRC) [E]; Dieffenbach, Carl (NIH/NIAID) [E]; Lane, Cliff (NIH/NIAID) [E]; Erbelding, Emily (NIH/NIAID) [E]; Holland, Steven (NIH/NIAID) [E]; Marston, Hilary (NIH/NIAID) [E]

**Cc:** Read, Sarah (NIH/NIAID) [E]; Rotrosen, Daniel (NIH/NIAID) [E]; Hackett, Charles (NIH/NIAID) [E]; Fenton, Matthew (NIH/NIAID) [E]; Cassetti, Cristina (NIH/NIAID) [E]; Embry, Alan (NIH/NIAID) [E]; McNay, Laura (NIH/NIAID) [E]; Eisinger, Robert (NIH/NIAID) [E]; Lerner, Andrea (NIH/NIAID) [E]; Bushar, Nicholas (NIH/NIAID) [E]; Gilles, Sharon (NIH/NIAID) [E]; Johnson, Martin S. (NIH/NIAID) [E]; Crum, Wayne (NIH/NIAID) [E]; Handley, Gray (NIH/NIAID) [E]; McGowan, John J. (NIH/NIAID) [E]; Carver, Trea (NIH) [C]; Schmidt, Beth (NIH/NIAID) [E]; Abusadah, Yasmin (NIH/NIAID) [C]; Sullivan, Fantasia (NIH/NIAID) [C]; Fowler, Karen (NIH/NIAID) [C]; Suhana, Tina (NIH/VRC) [E]; Austin, Sarah (NIH/NIAID) [E]; Fauci, Anthony (NIH/NIAID) [E]; Barasch, Kimberly (NIH/NIAID) [C]; Schneider, Johanna (NIH/NIAID) [E]; Barno, Lavitra (NIH/CC/DRD) [E]; Togias, Alkis (NIH/NIAID) [E]; Doepel, Laurie (NIH/NIAID) [E]; Bryant, Paula (NIH/NIAID) [E]; Higgs, Elizabeth (NIH/NIAID) [E]; Leitner, Wolfgang (NIH/NIAID) [E]; Calder, Thomas (NIH/NIAID) [E]; Roberts, Chris (NIH/NIAID) [E]; Post, Diane (NIH/NIAID) [E]; Stemmy, Erik (NIH/NIAID) [E]; Miller, Lara (NIH/NIAID) [E]; Beigel, John (NIH) [E]; Becker, Patrice (NIH/NIAID) [E]; Deckhut, Alison (NIH/NIAID) [E]; Breen, Joseph (NIH/NIAID) [E]; Mallia, Conrad (NIH/NIAID) [E]

**Subject:** NIAID COVID-19 Division Directors Sync

**When:** Occurs every Wednesday effective 3/25/2020 until 9/9/2020 from 4:00 PM to 5:00 PM (UTC-05:00) Eastern Time (US & Canada).

**Where:** Skype Meeting

This is the date and time that worked with the essential participants that I received word back from.

This is the weekly follow up call with division directors on covid-19 activities. Agenda to follow.

---

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**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Thu, 19 Mar 2020 21:42:42 +0000  
**To:** Jon Cohen  
**Subject:** RE: Experimental COVID-19 vaccine test begins as U.S. volunteer receives first shot <http://bit.ly/2wfq0Bw>

He gave you a phone number, so that seems like an invitation to call. I don't know if that would go to WeChat or not.

BG

---

**From:** Jon Cohen <jcohen@aaas.org>  
**Sent:** Thursday, March 19, 2020 4:29 PM  
**To:** Graham, Barney (NIH/VRC) [E] (b) (6)  
**Subject:** Re: Experimental COVID-19 vaccine test begins as U.S. volunteer receives first shot <http://bit.ly/2wfq0Bw>

Thanks Barney. He sent me an e-mail (that included an e-mail I sent him on January 10), and I replied. He didn't reply. I'll send him another one with my WeChat, which I forgot to do. Thanks for doing this...

Jon

On Mar 19, 2020, at 1:15 PM, Graham, Barney (NIH/VRC) [E] (b) (6) > wrote:

FYI. George Gao is head of the China CDC.

BG

Sent from my iPhone

Begin forwarded message:

**From:** George GAO <(b) (6)>  
**Date:** March 19, 2020 at 1:59:25 PM EDT  
**To:** "Graham, Barney (NIH/VRC) [E]" (b) (6)>  
**Subject:** Re: Experimental COVID-19 vaccine test begins as U.S. volunteer receives first shot <http://bit.ly/2wfq0Bw>

I think Jon has my email and mobile number but you can give to him

(b) (6)

发自我的iPhone

在 2020年3月20日, 01:48, Graham, Barney (NIH/VRC) [E] (b) (6)> 写道 :

Hi George,

I was speaking to Jon Cohen yesterday about coronavirus. Jon is a writer for Science and is interested in talking to a few Chinese scientists who have seen the coronavirus outbreak from the beginning.

He has a WeChat account and I told him I would reach out to a few people to let them decide if they wanted to be contacted. So it's up to you to make the contact.

Best wishes,

Barney

Sent from my iPhone

On Mar 16, 2020, at 9:59 PM, George GAO (b) (6)> wrote:

We are working on serology

发自我的iPhone

在 2020年3月17日, 08:30, Graham, Barney (NIH/VRC) [E] (b) (6)> 写道 :

I hadn't thought about the problem of importing new cases from elsewhere after your initial wave resolved. This will not be over for a while and I'm afraid it will be worse next winter.

Do you know what percent of the total population was infected in Hubei province? My sense is that it was well under 5%.

Barney

Sent from my iPhone

On Mar 16, 2020, at 8:15 PM, George GAO (b) (6) wrote:

Dear Barney

Great to hear from you and pleased to know your mRNA vaccine is on its way to save life ! Yes, things are much improved in China with our day-and-night hard working for over two months (to be honest for me starting from the night of 30th Dec. 2019, almost no time to sleep) from everyone involved. However we are facing a strong challenge from the imported cases outside China. We have to work hard with anyone from all over the world, including you.

Lets team up !

All the best

George

发自我的iPhone

在 2020年3月17日, 05:24, Graham, Barney (NIH/VRC) [E] <(b) (6)> 写道 :

---

Hi George,

We were able to get the mRNA vaccine trial started today It expresses the stabilized spike protein. It sounds like things are starting to calm down in China now and just ramping up in the U.S.

I hope you are able get some rest and catch up now that the worst of your epidemic is over.

Best wishes,

Barney

AP text and video: Experimental COVID-19 vaccine test begins as U.S. volunteer receives first shot <http://bit.ly/2wfg0Bw>

## Experimental COVID-19 Vaccine Test Begins as U.S. Volunteer Receives First Shot

By LAURAN NEERGAARD and CARLA K. JOHNSON / AP

March 16, 2020 2:30 PM EDT

<image002.jpg>

(SEATTLE) — U.S. researchers gave the first shot to the first person in a test of an experimental coronavirus vaccine Monday — leading off a worldwide hunt for protection even as the pandemic surges.

With a careful jab in a healthy volunteer's arm, scientists at the Kaiser Permanente Washington Research Institute in Seattle begin an anxiously awaited first-stage study of a potential COVID-19 vaccine developed in record time after the new virus exploded from China and fanned across the globe.

"We're team coronavirus now," Kaiser Permanente study leader Dr. Lisa Jackson said on the eve of the experiment. "Everyone wants to do what they can in this emergency."

The *Associated Press* observed as the study's first participant, an operations manager at a small tech company, received the injection inside an exam room. Several others were next in line for a test that will ultimately give 45 volunteers two doses, a month apart.

"We all feel so helpless. This is an amazing opportunity for me to do something," said Jennifer Haller, 43, of Seattle. She's the mother of two teenagers and "they think it's cool" that she's taking part in the study.

Monday's milestone marked just the beginning of a series of studies in people needed to prove whether the shots are safe and could work. Even if the research goes well, a vaccine wouldn't be available for widespread use for 12 to 18 months, said Dr. Anthony Fauci of the U.S. National Institutes of Health. That's still important if the virus becomes a long-term threat.

This vaccine candidate, code-named mRNA-1273, was developed by the NIH and Massachusetts-based biotechnology company Moderna Inc. There's no chance participants could get infected from the shots because they don't contain the coronavirus itself.

It's not the only potential vaccine in the pipeline. Dozens of research groups around the world are racing to create a vaccine against COVID-19. Another candidate, made by Inovio Pharmaceuticals, is expected to begin its own safety study — in the U.S., China and South Korea — next month.

The Seattle experiment got underway days after the World Health Organization declared the new virus outbreak a pandemic because of its rapid global spread, infecting more than 169,000 people and killing more than 6,500.

COVID-19 has upended the world's social and economic fabric since China first identified the virus in January, with regions shuttering schools and businesses, restricting travel, canceling entertainment and sporting events, and encouraging people to stay away from each other.

Starting what scientists call a first-in-humans study is a momentous occasion for scientists, but Jackson described her team's mood as "subdued." They've been working round-the-clock readying the research in a part of the U.S. struck early and hard by the virus.

Still, "going from not even knowing that this virus was out there ... to have any vaccine" in testing in about two months is unprecedented, Jackson told the *AP*.

Some of the study's carefully chosen healthy volunteers, ages 18 to 55, will get higher dosages than others to test how strong the inoculations should be. Scientists will check for any side effects and draw blood samples to test if the vaccine is revving up the immune system, looking for encouraging clues like the NIH earlier found in vaccinated mice.

"We don't know whether this vaccine will induce an immune response, or whether it will be safe. That's why we're doing a trial," Jackson stressed. "It's not at the stage where it would be possible or prudent to give it to the general population."

Most of the vaccine research under way globally targets a protein aptly named "spike" that studs the surface of the new coronavirus and lets it invade human cells. Block that protein and people won't get infected.

Researchers at the NIH copied the section of the virus' genetic code that contains the instructions for cells to create the spike protein. Moderna encased that "messenger RNA" into a vaccine.

The idea: The body will become a mini-factory, producing some harmless spike protein. When the immune system spots the foreign protein, it will make antibodies to attack — and be primed to react quickly if the person later encounters the real virus. That's a much faster way of producing a vaccine

than the traditional approach of growing virus in the lab and preparing shots from either killed or weakened versions of it.

But because vaccines are given to millions of healthy people, it takes time to test them in large enough numbers to spot an uncommon side effect, cautioned Dr. Nelson Michael of the Walter Reed Army Institute of Research, which is developing a different vaccine candidate.

“The science can go very quickly but, first, do no harm, right?” he told reporters last week.

The Seattle research institute is part of a government network of centers that test all kinds of vaccines, and was chosen for the coronavirus vaccine study before COVID-19 began spreading widely in Washington state.

Kaiser Permanente screened dozens of people, looking for those who have no chronic health problems and aren’t currently sick. Researchers aren’t checking whether would-be volunteers already had a mild case of COVID-19 before deciding if they’re eligible. If some did, scientists will be able to tell by the number of antibodies in their pre-vaccination blood test and account for that, Jackson said. Participants will be paid \$100 for each clinic visit in the study.

---

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**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Tue, 14 Apr 2020 15:51:27 +0000  
**To:** Ledgerwood, Julie (NIH/NIAID) [E]; Mascola, John (NIH/VRC) [E]; Koup, Richard (NIH/VRC) [E]  
**Subject:** RE: Moderna Highlights Opportunity of mRNA Vaccines at its First Vaccines Day

They mentioned the mRNA-1273, but the only data I see is from Zika, which looks pretty good.

BG

---

**From:** Ledgerwood, Julie (NIH/NIAID) [E] <(b) (6)>  
**Sent:** Tuesday, April 14, 2020 11:16 AM  
**To:** Mascola, John (NIH/VRC) [E] <(b) (6)>; Graham, Barney (NIH/VRC) [E] <(b) (6)>; Koup, Richard (NIH/VRC) [E] <(b) (6)>  
**Subject:** FW: Moderna Highlights Opportunity of mRNA Vaccines at its First Vaccines Day

I had not realized Moderna was releasing the interim immunogenicity today---but here it is.  
JL

---

**From:** Folkers, Greg (NIH/NIAID) [E] <(b) (6)>  
**Sent:** Tuesday, April 14, 2020 10:57 AM  
**Subject:** Moderna Highlights Opportunity of mRNA Vaccines at its First Vaccines Day

## Moderna Highlights Opportunity of mRNA Vaccines at its First Vaccines Day

*Vaccines create significant value for healthcare systems by preventing infectious disease; despite this, the vast majority of viruses do not have commercial vaccines available, representing a large opportunity Moderna has demonstrated neutralizing immunogenicity against all eight viruses targeted in clinical trials to date using the Company's innovative vaccine platform*

*First interim analysis of Phase 1 Zika vaccine candidate (mRNA-1893) study shows that 10 µg and 30 µg dose levels seroconverted 94% and 100% of seronegative participants, respectively, and effectively boosted seropositive participants; both dose levels generally well-tolerated*

*NIH-led Phase 1 study of mRNA-1273, Moderna's vaccine candidate against the novel coronavirus, continues on track with enrollment of participants at the highest dose*

*Virtual Vaccines Day to be held at 8:00 a.m. ET on Tuesday, April 14*

April 14, 2020 07:00 AM Eastern Daylight Time

CAMBRIDGE, Mass.--([BUSINESS WIRE](#))--Moderna, Inc. (Nasdaq: MRNA), a clinical stage biotechnology company pioneering messenger RNA (mRNA) therapeutics and vaccines to create a new generation of transformative medicines for patients, today is hosting its first Vaccines Day, including presentations highlighting the potential advantages of mRNA vaccines. The Company is also announcing new positive interim Phase 1 data from its Zika vaccine candidate (mRNA-1893). With this data, Moderna's prophylactic vaccines modality now has seven positive Phase 1 readouts, including a combination

vaccine against two viruses (hMPV and PIV3; mRNA-1653). The Company has demonstrated neutralizing immunogenicity against all eight viruses targeted to date in its clinical trials. Based on the totality of this clinical experience, earlier this year the Company designated prophylactic vaccines a core modality and is working to accelerate the development of its vaccine pipeline.

The vast majority of human viruses do not have a commercially available vaccine in the United States. This gap includes many long-known viruses, such as cytomegalovirus (CMV) (discovered in 1956), Zika (1962) and Epstein-Barr virus (EBV, 1964), but also includes many emerging novel viruses. Since 1980, an average of two novel viruses that infect humans have been discovered each year. Examples of these novel viruses include HIV 1 (discovered in 1983), Hepatitis C (1989), H1N1 (2009), and SARS-CoV-2 (2019). Moderna's vaccine pipeline has been studied in ten clinical trials to date with more than 1,400 participants. Clinical data demonstrate that Moderna's proprietary vaccine technology has been generally well-tolerated and can elicit durable immune responses to viral antigens. The Company also believes that it has demonstrated the ability to leverage shared technology, digital systems and a flexible manufacturing infrastructure to advance a large portfolio quickly and efficiently.

"We believe that our seven innovative first-in-class mRNA vaccine candidates provide a strong foundation for Moderna and offer a high probability of success when compared to other technologies. In the last several decades, 80 new pathogens have emerged, yet the vast majority of these viruses lack an approved vaccine in the U.S. We believe that vaccines offer a large total addressable market and an opportunity to reduce healthcare costs with a benefit to society through the prevention of devastating illnesses in areas of unmet need," said Stéphane Bancel, Moderna's Chief Executive Officer. "The totality of data from our vaccines platform gives us reason to be optimistic about the prospects for our vaccines to come, including our vaccine against the novel coronavirus."

In an analysis published in [Biostatistics](#) in April 2019, Dr. Andrew Lo, et al. studied the probability of clinical trial success rates and related parameters of more than 185,000 clinical trials involving 21,000 compounds. This robust analysis compared infectious disease vaccines to other therapeutic areas and found that infectious disease vaccines have an overall 33% probability of success that increases to a 42% probability of success once a Phase 2 study is launched, the highest of all therapeutic areas.

"It's critical for clinical researchers and biopharma investors to evaluate the probability of success when making scientific and economic decisions," said Andrew Lo, Ph.D., Director of MIT's Laboratory for Financial Engineering. "After analyzing more than 185,000 clinical trials involving 21,000 compounds, we found that infectious disease vaccines have the highest probability of clinical success."

#### **Interim Phase 1 Data for Zika Virus Vaccine (mRNA-1893)**

All four cohorts (10 µg, 30 µg, 100 µg, 250 µg) of the Phase 1 study of mRNA-1893 have been dosed. An interim analysis of the study reports safety and immunogenicity data from the 10 µg and 30 µg cohorts.

Neutralizing antibody titers were assessed using Plaque Reduction Neutralization Test (PRNT<sub>50</sub>) and microneutralization assays (MN), which provide equivalent guidance for interpreting the neutralizing immune response.

Following a two-dose vaccination schedule of mRNA-1893 given 28 days apart, the 10 µg and 30 µg dose levels were both generally well-tolerated, and there were no vaccine-related serious adverse events (SAEs) or adverse events of special interest (AESI). The most frequent solicited adverse reaction was local pain at the injection site. The safety profile did not appear affected by the second vaccination nor a flavivirus-positive baseline serostatus.

The analysis also showed that the 10 µg and 30 µg dose levels induced a neutralizing antibody response in both flavivirus infection-naïve (seronegative) participants and in participants with pre-existing flavivirus antibodies (seropositive), as shown by geometric mean titers and seroconversion rates.

Notably, a single vaccination of the 30 µg dose level was sufficient to convert baseline flavivirus seronegative participants. However, there was a clear benefit of a two-dose series given 28 days apart.

In the flavivirus-seronegative group:

- Seroconversion rates after the second vaccination reached 94.4% in the 10 µg dose level and 100% in the 30 µg dose level, based on the PRNT<sub>50</sub>. MN data were consistent with PRNT<sub>50</sub> data.

In the flavivirus-seropositive group:

- The percentage of participants achieving a 4-fold boost in pre-existing PRNT<sub>50</sub> titers after the second vaccination reached 50% in the 10 µg dose level and 75% in the 30 µg dose level, based on the PRNT<sub>50</sub>. MN data were consistent with PRNT<sub>50</sub> data.

"I am encouraged by these interim Phase 1 data showing the ability of mRNA-1893 to elicit a strong neutralizing antibody response," said Tal Zaks, M.D., Ph.D., Chief Medical Officer at Moderna. "Our Zika program, along with our continued work on a vaccine candidate against the novel coronavirus, underscore our commitment to improving global public health through developing mRNA vaccines to prevent the spread of infectious diseases."

This project has been funded in whole or in part with Federal funds from the Department of Health and Human Services; Office of the Assistant Secretary for Preparedness and Response; Biomedical Advanced Research and Development Authority, under Contract No. HHSO100201600029C. It was granted Fast Track designation by the U.S. Food and Drug Administration (FDA) in August 2019. Moderna owns worldwide commercial rights to mRNA-1893.

#### **About Moderna's Prophylactic Vaccines Modality**

Moderna scientists designed the Company's prophylactic vaccines modality to prevent infectious diseases. More than 1,400 participants have been enrolled in Moderna's infectious disease vaccine clinical studies under health authorities in the U.S., Europe and Australia. Based on clinical experience across seven Phase 1 studies, the Company has designated prophylactic vaccines a core modality and is working to accelerate the development of its vaccine pipeline.

Moderna currently has [nine development candidates](#) in its prophylactic vaccines modality, including: *Vaccines against respiratory infections*

- Respiratory syncytial virus (RSV) vaccine for older adults (mRNA-1777 and mRNA-1172 or V172 with Merck)
- RSV vaccine for young children (mRNA-1345)
- Human metapneumovirus (hMPV) and parainfluenza virus type 3 (PIV3) combination vaccine (mRNA-1653)
- Novel coronavirus (SARS-CoV-2) vaccine (mRNA-1273)
- Influenza H7N9 (mRNA-1851)

*Vaccines against infections transmitted from mother to baby*

- Cytomegalovirus (CMV) vaccine (mRNA-1647)
- Zika vaccine (mRNA-1893 with BARDA)

*Vaccines against highly prevalent viral infections*

- Epstein-Barr virus (EBV) vaccine (mRNA-1189)

To date, Moderna has demonstrated positive Phase 1 data readouts for seven prophylactic vaccine candidates (H10N8, H7N9, RSV, chikungunya virus, hMPV/PIV3, CMV and Zika). Moderna's CMV vaccine candidate is currently in a Phase 2 dose-confirmation study.

#### **Virtual Vaccines Day Today**

Moderna will host a virtual Vaccines Day today, Tuesday April 14<sup>th</sup>, beginning at 8:00 a.m. ET. A live webcast will be available under “Events and Presentations” in the Investors section of the Moderna website at [investors.modernatx.com](https://investors.modernatx.com). A replay of the webcast will be archived on Moderna’s website for one year following the presentation.

#### **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 can have a therapeutic or preventive benefit and have the potential to address a broad spectrum of diseases. The Company’s platform builds on continuous advances in basic and applied mRNA science, delivery technology and manufacturing, providing Moderna 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, independently and with strategic collaborators. Moderna has 24 mRNA development candidates in its portfolio across all modalities, with 13 in clinical studies. Five of these programs are in or preparing for Phase 2 studies and the Company is preparing for its first Phase 3 study.

Headquartered in Cambridge, Mass., Moderna currently has strategic alliances for development programs with AstraZeneca PLC and Merck & Co., Inc., as well as the Defense Advanced Research Projects Agency (DARPA), an agency of the U.S. Department of Defense, and 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 ranked in the top ten of *Science’s* list of top biopharma industry employers for the past five years. To learn more, visit [www.modernatx.com](https://www.modernatx.com).

#### **Forward Looking Statement**

This press release contains forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995, as amended, including regarding: the potential for vaccines to be an effective way to address pandemic threats and reduce healthcare costs; the success of data from the Phase 1 study of mRNA-1893; the Company’s development of a potential vaccine against the novel coronavirus (mRNA-1273); the conduct and timing of the Phase 1 study of mRNA-1273; the Company’s potential manufacturing capabilities to advance a large portfolio quickly and efficiently; the ability of the Company’s seven innovative first-in-class mRNA vaccine candidates to provide a strong foundation and offer a high probability of success for the Company; and the size of total addressable market for the Company’s vaccines, if approved. In some cases, forward-looking statements can be identified by terminology such as “will,” “may,” “should,” “expects,” “intends,” “plans,” “aims,” “anticipates,” “believes,” “estimates,” “predicts,” “potential,” “continue,” or the negative of these terms or other comparable terminology, although not all forward-looking statements contain these words. The forward-looking statements in this press release are neither promises nor guarantees, and you should not place undue reliance on these forward-looking statements because they involve known and unknown risks, uncertainties, and other factors, many of which are beyond Moderna’s control and which could cause actual results to differ materially from those expressed or implied by these forward-looking statements. These risks, uncertainties, and other factors include, among others: the fact that interim Phase 1 data from the Phase 1 study of mRNA-1893 may not be indicative of final data from the study; the results and timing of the Phase 1 study of mRNA-1893; the fact that there has never been a commercial product utilizing mRNA technology approved for use; the fact that the rapid response technology in use by Moderna is still being developed and implemented; the fact that third-party analyses of the probability of clinical trial success have not been prepared by the Company; and those risks and uncertainties described under the heading “Risk Factors” in Moderna’s most recent Annual Report on Form 10-K filed with the U.S. Securities and Exchange Commission (SEC) and in subsequent

filings made by Moderna with the SEC, which are available on the SEC's website at [www.sec.gov](http://www.sec.gov). Except as required by law, Moderna disclaims any intention or responsibility for updating or revising any forward-looking statements contained in this press release in the event of new information, future developments or otherwise. These forward-looking statements are based on Moderna's current expectations and speak only as of the date hereof.

## Contacts

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**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Sun, 15 Mar 2020 14:26:19 +0000  
**To:** Corbett, Kizzmekia (NIH/VRC) [E]; Fisher, Brian (NIH/VRC) [E]  
**Cc:** Young, Monique (NIH/VRC) [E]  
**Subject:** RE: Postbac Loaner Laptop?

Can I get a second laptop for traveling? Can I get a laptop for general lab purposes? Can we get a laptop for the new piece of equipment? We need to find a way to have access to laptops for these types of situations.

BG

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**From:** Corbett, Kizzmekia (NIH/VRC) [E] (b) (6) >  
**Sent:** Sunday, March 15, 2020 9:56 AM  
**To:** Fisher, Brian (NIH/VRC) [E] <(b) (6) >  
**Cc:** Graham, Barney (NIH/VRC) [E] (b) (6) >; Young, Monique (NIH/VRC) [E] (b) (6) >  
**Subject:** Postbac Loaner Laptop?

Thanks Brian for organizing everything.

Brian is there an update on a postbac loaner laptop? I am willing to "own" it and be responsible for checking it out. I know I have asked for this (and several other things for postbacs) to no avail, but I think (b) (5)

Perhaps, as there are some people deemed not critical the CoV mission, we can have them lend their laptop to postbacs. If not, I will give up mine after hours. Sometimes you have to make a point by making a pointed point.

--

**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:** "Fisher, Brian (NIH/VRC) [E]" (b) (6) >  
**Date:** Saturday, March 14, 2020 at 11:09 AM  
**To:** "Hutchinson, Geoffrey (NIH/VRC) [F]" (b) (6), "Ambrozak, David (NIH/VRC) [E]" (b) (6) >  
**Cc:** Kizzmekia Corbett (b) (6)  
**Subject:** Re: Scheduling request for B cell sorting

Geoff,

VRC is currently developing policies and guidelines for telework. Those asked to work on site vs those asked to telework will be based on position, need and mission critical tasks. We should know more info on Monday.

Thanks

B.

---

**From:** Hutchinson, Geoffrey (NIH/VRC) [F] <(b) (6)>  
**Sent:** Saturday, March 14, 2020 10:55:23 AM  
**To:** Ambrozak, David (NIH/VRC) [E] <(b) (6)>  
**Cc:** Fisher, Brian (NIH/VRC) [E] (b) (6) >; Corbett, Kizzmekia (NIH/VRC) [E] (b) (6) >  
**Subject:** Re: Scheduling request for B cell sorting

Hi David,

Coronavirus projects must continue and I am wondering if you will still be able to do the B cell sort on Tuesday? If not I will need to come up with an alternative.

Thanks,  
Geoff

---

**From:** "Ambrozak, David (NIH/VRC) [E]" (b) (6)  
**Date:** Tuesday, March 10, 2020 at 7:26 AM  
**To:** "Hutchinson, Geoffrey (NIH/VRC) [F]" (b) (6) >  
**Cc:** "Perfetto, Steve (NIH/VRC) [E]" <(b) (6)>  
**Subject:** Re: Scheduling request for B cell sorting

Don't worry about the last few questions about sort training and using sorters. Those are mainly for individuals who are wanting to do there own sorting. If you could try and get an HPRD# for this study (Barney should have one) and then send the form to Steve Perfetto he will take it from there.

David

---

**From:** "Hutchinson, Geoffrey (NIH/VRC) [F]" (b) (6)  
**Date:** Monday, March 9, 2020 at 3:18 PM  
**To:** "Boyoglu-Barnum, Seyhan (NIH/VRC) [E]" (b) (6)>, "Wang, Lingshu (NIH/VRC) [E]" (b) (6)>, "Ambrozak, David (NIH/VRC) [E]" (b) (6)>  
**Cc:** "Corbett, Kizzmekia (NIH/VRC) [E]" (b) (6)  
**Subject:** Re: Scheduling request for B cell sorting

I've some information in, but since I won't be doing the sorting or operating the flow, would it make more sense for someone else to fill in some of this information?

Geoff

---

**From:** "Ambrozak, David (NIH/VRC) [E]" (b) (6)  
**Date:** Monday, March 9, 2020 at 8:04 AM  
**To:** "Boyoglu-Barnum, Seyhan (NIH/VRC) [E]" (b) (6)>, "Hutchinson, Geoffrey (NIH/VRC) [F]" (b) (6)  
**Cc:** "Corbett, Kizzmekia (NIH/VRC) [E]" (b) (6)>, "Wang, Lingshu (NIH/VRC) [E]" (b) (6)>  
**Subject:** Re: Scheduling request for B cell sorting

Good morning,

I'm sending you this sort registration form which will need to be filled out (as best as you can) and then emailed to Steve Perfetto. It is mainly to get the HPRD# for the project and he will do a risk assessment to determine the precautions we will take while sorting your samples. You should only have to do this once to get things started. If you have any specific questions please ask Steve.

Thanks,  
David

David Ambrozak, MS.,MT. (ASCP)  
Vaccine Research Center, NIH  
Building 40  
40 Convent Dr., Room 3614B  
Bethesda, MD 20892-3015

Phone: (b) (6)

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delete it from your mailbox or any other storage devices. The National Institute of Allergy and Infectious Diseases (NIAID) shall not accept liability for any statement made that are the sender's own and not expressly made on behalf of the NIAID by one of its representatives.

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**From:** "Boyoglu-Barnum, Seyhan (NIH/VRC) [E]" <(b) (6)>  
**Date:** Thursday, March 5, 2020 at 3:47 PM  
**To:** "Ambrozak, David (NIH/VRC) [E]" <(b) (6)>, "Hutchinson, Geoffrey (NIH/VRC) [F]" <(b) (6)>  
**Cc:** "Corbett, Kizzmekia (NIH/VRC) [E]" <(b) (6)>, "Wang, Lingshu (NIH/VRC) [E]" <(b) (6)>  
**Subject:** RE: Scheduling request for B cell sorting

Thank you.  
Seyhan

---

**From:** Ambrozak, David (NIH/VRC) [E] <(b) (6)>  
**Sent:** Thursday, March 5, 2020 3:35 PM  
**To:** Boyoglu-Barnum, Seyhan (NIH/VRC) [E] <(b) (6)>; Hutchinson, Geoffrey (NIH/VRC) [F] <(b) (6)>  
**Cc:** Corbett, Kizzmekia (NIH/VRC) [E] <(b) (6)>; Wang, Lingshu (NIH/VRC) [E] <(b) (6)>  
**Subject:** Re: Scheduling request for B cell sorting

I'll book it

David Ambrozak, MS.,MT. (ASCP)  
Vaccine Research Center, NIH  
Building 40  
40 Convent Dr., Room 3614B  
Bethesda, MD 20892-3015

Phone: (b) (6)

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**From:** "Boyoglu-Barnum, Seyhan (NIH/VRC) [E]" <(b) (6)>  
**Date:** Thursday, March 5, 2020 at 3:00 PM

**To:** "Ambrozak, David (NIH/VRC) [E]" (b) (6)>, "Hutchinson, Geoffrey (NIH/VRC) [F]" (b) (6)>  
**Cc:** "Corbett, Kizzmekia (NIH/VRC) [E]" (b) (6)>, "Wang, Lingshu (NIH/VRC) [E]" (b) (6)>  
**Subject:** RE: Scheduling request for B cell sorting

That will be fine. We can be ready around 11am? Will that work for you David?  
Thank you.  
Seyhan

---

**From:** Ambrozak, David (NIH/VRC) [E] <(b) (6)>  
**Sent:** Thursday, March 5, 2020 2:46 PM  
**To:** Hutchinson, Geoffrey (NIH/VRC) [F] (b) (6)>  
**Cc:** Corbett, Kizzmekia (NIH/VRC) [E] (b) (6); Wang, Lingshu (NIH/VRC) [E] (b) (6); Boyoglu-Barnum, Seyhan (NIH/VRC) [E] (b) (6)>  
**Subject:** Re: Scheduling request for B cell sorting

I have (or might have) jury duty that day. How about the next day (17<sup>th</sup>)?? What time do you think you could have cells processed and ready to sort?

---

**From:** "Hutchinson, Geoffrey (NIH/VRC) [F]" (b) (6)  
**Date:** Thursday, March 5, 2020 at 2:42 PM  
**To:** "Ambrozak, David (NIH/VRC) [E]" <(b) (6)>  
**Cc:** "Corbett, Kizzmekia (NIH/VRC) [E]" (b) (6)>, "Wang, Lingshu (NIH/VRC) [E]" (b) (6), "Boyoglu-Barnum, Seyhan (NIH/VRC) [E]" (b) (6)  
**Subject:** Re: Scheduling request for B cell sorting

Is the following Monday (16<sup>th</sup>) available? (b) (5)  
(b) (5)

Thanks,  
Geoff

---

**From:** "Ambrozak, David (NIH/VRC) [E]" (b) (6)>  
**Date:** Thursday, March 5, 2020 at 2:38 PM  
**To:** "Hutchinson, Geoffrey (NIH/VRC) [F]" (b) (6)>  
**Cc:** "Corbett, Kizzmekia (NIH/VRC) [E]" (b) (6), "Wang, Lingshu (NIH/VRC) [E]" (b) (6)>, "Boyoglu-Barnum, Seyhan (NIH/VRC) [E]" (b) (6)>  
**Subject:** Re: Scheduling request for B cell sorting

No problem at all....How about this Monday at 1 PM or this coming Thursday (anytime). I don't mind when we start sorting but the earlier in the day the better for me. If you need more dates just let me know what works for you and I'll check the schedule.

David

---

**From:** "Hutchinson, Geoffrey (NIH/VRC) [F]" <(b) (6)>  
**Date:** Thursday, March 5, 2020 at 11:22 AM  
**To:** "Ambrozak, David (NIH/VRC) [E]" <(b) (6)>  
**Cc:** "Corbett, Kizzmekia (NIH/VRC) [E]" <(b) (6)>, "Wang, Lingshu (NIH/VRC) [E]" <(b) (6)>, "Boyoglu-Barnum, Seyhan (NIH/VRC) [E]" <(b) (6)>  
**Subject:** Scheduling request for B cell sorting

Hi David,

(b) (5)  
(b) (5). Do you have time in the next couple of weeks to help with this?

Thanks,

Geoff

**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Wed, 15 Apr 2020 21:04:11 +0000  
**To:** Jason McLellan  
**Cc:** Daniel P. Wrapp;Corbett, Kizzmekia (NIH/VRC) [E];Xavier Saelens;dorien devlieger;Nico Callewaert  
**Subject:** Re: Cell Editorial Decision CELL-D-20-00891R1

Great work and [REDACTED] (b) (4)

BG

Sent from my iPhone

On Apr 15, 2020, at 4:46 PM, Jason McLellan [REDACTED] (b) (6)> wrote:

Hi Everyone,

Good news, the nanobody paper is accepted at Cell in principle!

Still a few final hurdles to jump through, but Daniel will begin working on those and will reach out to you if information is needed.

Many thanks and congrats!

Jason

---

**From:** em.cell.0.6aa3c7.bf11287e@editorialmanager.com  
<em.cell.0.6aa3c7.bf11287e@editorialmanager.com> **On Behalf Of** Cell Editorial Office  
**Sent:** Wednesday, April 15, 2020 3:33 PM  
**To:** Jason McLellan [REDACTED] (b) (6)  
**Subject:** Cell Editorial Decision CELL-D-20-00891R1

Dr. Jason McLellan  
UNITED STATES

Structural Basis for Potent Neutralization of Betacoronaviruses by Single-domain Camelid Antibodies  
CELL-D-20-00891R1

Apr 15, 2020

Dear Jason,

I am pleased to let you know that, based on your revisions and the reviewer comments, your manuscript has now been accepted in principle at Cell. At this stage our Editorial Operations Associate and I have gone over your paper with Cell's stylistic guidelines and the STAR Methods format in mind and I am writing to request that you make the following changes. Please note that we cannot provide formal acceptance of your paper until these items comply with our production requirements and I approve that the STAR Methods section is appropriate for publication.

The following are specific issues to address for your paper; as you prepare your revised manuscript, include your responses to these requests in your cover letter. **If you make any additional changes to the final files not specified in this list, please let us know.**

### **Production Requirements:**

- Please ensure the sequences are deposited in Genbank for the VHH.
- Please provide a compiled PDF of any supplemental tables that span less than three pages. Descriptive titles should be included in the PDF that references a related main figure or the STAR Methods. Please put Table S1 and S2 into one PDF. Their titles and legends should be provided there as well, please remove the titles/legends from the main manuscript.
- Please include a Graphical Abstract that is an exact square, 1200 x 1200 pixels in dimension at 300 dpi. Preferred file types are TIFF, PDF, or JPG. Please refer to our [guidelines](#) for more in-depth tips for creating a Graphical Abstract.
- Please upload a single Word document that includes up to 4 Highlights. Please ensure that your article highlights are limited to four bullet points. Each highlight can be no more than 89 characters, including spaces.
- Please download a copy of our [Declaration of Interests form](#), fill it out electronically, and upload the form as a submission item along with your final submission.
- We ask that declarations stated on the [Declaration of Interests form](#), including declarations that confirm there are no competing interests, be included in the manuscript in a section titled "Declaration of Interests" preceding the References section.

**\*\*Please note that companion files including the Declaration of Interest form, Highlights, and Graphical Abstract will not appear in the combined system PDF once the submission has been re-built. However, if you have previously provided these files and no edits were requested, you do not need to provide the files again. Once the above issues are resolved, we will be able to forward your files to the editors for final approval.\*\***

### **STAR Methods:**

#### **GENERAL**

- STAR Methods follows a **NEW** standardized structure. Please include these specific headings in the following order: RESOURCE AVAILABILITY; EXPERIMENTAL MODEL AND SUBJECT DETAILS; METHOD DETAILS; QUANTIFICATION AND STATISTICAL ANALYSIS; ADDITIONAL

RESOURCES. The list below details the information that should be reported in each section. Please see the [STAR Methods guide](#) for more information or contact me for help.

## RESOURCE AVAILABILITY

- We require three subheadings in this section (Lead Contact, Materials Availability, and Data and Code Availability). Please be in touch if you have any questions about this and refer to the Information for Authors for specific details on Cell Press policy on reagents sharing.
- Under the Lead Contact subheading in the Resource Availability section, we require identification and contact information for a Lead Contact, who is the main point of contact for responding to material and resource requests. Please provide the full name and email address for the author taking responsibility for the Lead Contact role.
  - **Sample text to include:** Further information and requests for resources and reagents should be directed to and will be fulfilled by the Lead Contact, Jane Doe ([janedoe@qwerty.com](mailto:janedoe@qwerty.com)).
- Under the Materials Availability subheading in the Resource Availability section, we **require** a “Materials Availability Statement” even if no reagents were generated in the study.
  - Examples of the types of appropriate “Materials Availability Statements” are below and the Information for Authors provides further details on the Cell Press Materials Sharing policy. A combination of these Statements may be appropriate:
    - Plasmids generated in this study have been deposited to [Addgene, name and catalog number or unique identifier].
    - Mouse lines generated in this study have been deposited to [the Knockout Mouse Project (KOMP), name and catalog number or unique identifier].
    - This study did not generate new unique reagents.
    - There are restrictions to the availability of [reagent] due to the lack of an external centralized repository for its distribution and our need to maintain the stock. We are glad to share [reagent] with reasonable compensation by requestor for its processing and shipping.
    - [Reagent] generated in this study will be made available on request, but we may require a payment and/or a completed Materials Transfer Agreement if there is potential for commercial application.
    - All unique/stable reagents generated in this study are available from the Lead Contact without restriction.
    - All unique/stable reagents generated in this study are available from the Lead Contact with a completed Materials Transfer Agreement.
- Under the Data and Code Availability subheading in the Resource Availability section, we require a Data and Code Availability Statement.
  - Examples of “Data and Code Availability Statements” are below. Statements with multiple types of datasets may use a combination of statements.
    - The [datasets/code] generated during this study are available at [NAME OF REPOSITORY] [ACCESSION CODE/WEB LINK]
    - The published article includes all [datasets/code] generated or analyzed during this study.
    - The [datasets/code] supporting the current study have not been deposited in a public repository because [REASON WHY DATA ARE NOT PUBLIC], but are available from the corresponding author on request.

- There are restrictions to the availability of [dataset/code] due to [REASON WHY RESTRICTIONS EXIST]
- Original/source data for [figures/datatype] in the paper is available [i.e. Mendeley Data DOI]
- Original/source data for [figures/datatype] in the paper is available in supplemental figure X
- The [datasets/code] supporting the current study have not been deposited in a public repository because [REASON WHY DATA ARE NOT PUBLIC] but are available from the corresponding author on request.
- If the paper does not generate any new data or code, it is appropriate to state the following:
  - This study did not generate any unique datasets or code.
- The manuscript generates data that are required to be available through a community-endorsed repository (i.e., DNA and protein sequences, structures of biological macromolecules, microarray data, RNAseq). Examples of the appropriate public repositories are found in the **Mandatory Data Deposition** section of [Information for Authors](#). Please include a statement describing the availability of datasets/code associated with the paper, including any conditions for access of datasets not publicly available.
- If the paper reports previously unpublished custom code, software, or algorithms that are central to supporting the main claims of the paper, this must be stated in the STAR Methods in the Key Resources Table and under the “Data and Code Availability” subheading of Resource Availability. A unique identifier must be provided.
- Under the Data and Code Availability subheading of Resource Availability, please include any accession numbers, DOIs or unique identifiers, or web links to deposited datasets and code. If URLs or links are provided in supplemental files, please report the supplemental file name (e.g., Table S1 if the information is reported in a supplemental table or Data S1 if the data is provided as part of the Supplemental Information PDF or compiled in a standalone ZIP file [which must be < 150MB]). For raw data at repositories that are Force11 compliant (e.g., Mendeley Data), please provide the DOI.
- Please also include data deposited and custom code in repositories in the Key Resources Table.

## METHOD DETAILS

- The new STAR Methods format is not constrained by text limits, and we encourage authors to use this new structure to clearly describe how and why procedures or analyses were conducted with the Method Details section. The current information does not provide sufficient information to make it clear how experiments/analyses were conducted.
- While citations may be used in STAR Methods, the methodological information critical for performing the experiments and analysis should be described with more detail in the **Method Details** section.
  - In particular, please expand the section detailing
    - **how replication-deficient VSV pseudotyped with MERS-CoV S, SARS-CoV-1 S or SARS-CoV-2 S and coding for GFP or firefly luciferase were generated**
    - **the condensed transformation protocol described by Lin-Cereghino et al 2005.**

## QUANTIFICATION AND STATISTICAL ANALYSIS

- Please describe all of the statistical analyses and software used in this section and indicate where all of the statistical details of experiments can be found (e.g., in the figure legends, figures, Results, etc.), including the statistical tests used, exact value of n, what n represents (e.g., number of animals, number of cells, etc.), definition of center, and dispersion and precision measures (e.g., mean, median, SD, SEM, confidence intervals).

## KEY RESOURCES TABLE

- Please remove the instructions from the Key Resources table file.
- The Key Resources Table is a tool for readers to easily access critical items needed to perform similar types of experiments. I noticed that you have left the supplier information blank for some items listed in the KRT. If a supplier or external source is not available for an item, please cite the manuscript where the item was originally generated and described. If the source is this manuscript, please state “this manuscript”. Please see the [Table Template](#) for examples of how to report “Source” of your items. **No blanks are permitted.**
- Unique identifiers are critical for clear reporting of items used. Please prepend all alpha-numeric identifiers with appropriate labels so that it is clear what the numeric string references. The most common label is “Cat#”. Please see [Table Template](#) for specific examples.
- Please include all deposited data used and generated in the Key Resources Table.
  - **Please include info for the VHH sequences deposited in Genbank.**

Please upload your final files to our <https://www.editorialmanager.com/cell/> as a revision of CELL-D-20-00891R1. When you submit your revised files, our team will check them and will contact you if there are any remaining formatting issues that need to be resolved. We will also share any editorial comments on the revised files at this point.

## STAR PROTOCOLS

Consider submitting one of your protocols to STAR Protocols, the new protocols journal from Cell Press. STAR Protocols aims to make the daily work of the scientific researcher easier by providing complete and consistent instructions on how to conduct experiments. STAR Protocols gives scientists the space they need to explain what worked and, perhaps more importantly, what didn't. The primary criteria for publication in STAR Protocols is usability and reproducibility. You can check out their most recent protocols here. If you would like to submit your Protocol, please visit their submissions site. If you have any questions, please email [starprotocols@cell.com](mailto:starprotocols@cell.com).

## COVER SUBMISSIONS

If you would like to submit a cover image, please see our [cover submission guidelines](#). Here, you will find instructions on how to submit your image as well as a cover template that contains the journal logo and crop lines. A striking image on the cover attracts more attention to the paper, so please do consider sending us an image!

Please note that your paper is not formally accepted at this stage and cannot be until we receive the materials listed above. We would like to have them **within the next few days**. Please let me know if you have any questions, and I look forward to hearing from you.

Yours sincerely,

Andrew J. Rennekamp, Ph.D.  
Scientific Editor, Cell

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*In compliance with data protection regulations, you may request that we remove your personal registration details at any time. [\(Remove my information/details\)](#). Please contact the publication office if you have any questions.*

**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Mon, 17 Feb 2020 19:45:54 +0000  
**To:** SPARROW, Erin Grace  
**Cc:** Young, Monique (NIH/VRC) [E]  
**Subject:** Re: WHO technical advisory group for RSV vaccines - DoI and CDA  
**Attachments:** image001.png

Can we use the one I just filed for the coronavirus last week?

BG

Sent from my iPhone

On Feb 17, 2020, at 8:22 AM, SPARROW, Erin Grace (b) (6) wrote:

Dear Barney,

Before the next RSV TAG call (scheduled for 17 March), we will need you to sign a new declaration of interest and a confidentiality undertaking.

Thanks in advance,  
Erin

Erin Sparrow  
Technical Officer  
Vaccine Product and Delivery Research  
Immunization, Vaccines and Biologicals  
World Health Organization  
Geneva, Switzerland

Office: (b) (6)  
Web: [www.who.int](http://www.who.int)  
Follow WHO on [Facebook](#), [Twitter](#), [YouTube](#), [Instagram](#)  
<image001.png>

<Confidentiality-undertaking\_RSV-TAG.PDF>  
<DOI\_EN\_Form\_RSV-TAG-2020-2022\_Graham.docx>



**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Sat, 22 Feb 2020 18:15:49 +0000  
**To:** Gershoni, Jonathan  
**Cc:** Jonathan Gershoni  
**Subject:** RE: Is the PDB file available?  
**Attachments:** 6VSB\_Submitted.pdb

Not sure why it has not been released yet.

Here is submitted file. Be sure to credit Jason McLellan and Daniel Wrapp if you use it in talks and figures.

Barney

---

**From:** Gershoni, Jonathan (b) (6) >  
**Sent:** Saturday, February 22, 2020 1:10 PM  
**To:** Graham, Barney (NIH/VRC) [E] <(b) (6)>  
**Cc:** Jonathan Gershoni <(b) (6)>  
**Subject:** Is the PDB file available?

Hi Barney,

Your SCIENCE paper is very interesting and important.

(b) (4)

I tried to get the 6VSB PDB file but it isn't available as yet. (b) (4)

If you can send me the file that would be great,

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]  
**Sent:** Tue, 24 Mar 2020 14:08:27 +0000  
**To:** Corbett, Kizzmekia (NIH/VRC) [E]  
**Subject:** RE: Potential Mechanistic Studies

(b) (5)

Barney

---

**From:** Corbett, Kizzmekia (NIH/VRC) [E] (b) (6)>  
**Sent:** Tuesday, March 24, 2020 10:05 AM  
**To:** Graham, Barney (NIH/VRC) [E] (b) (6)>  
**Subject:** Re: Potential Mechanistic Studies

Good morning,

I looked over the NHP plans, and took heed to the discussion at PI meeting last week.

(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

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Laboratory: (b) (6)

Personal (b) (6)

Fax: (301) 480-2771

---

**From:** "Seder, Robert (NIH/VRC) [E]" (b) (6)

**Date:** Monday, March 23, 2020 at 6:44 PM

**To:** Barney Graham <(b) (6)>, Kizzmekia Corbett (b) (6)

**Subject:** Potential Mechanistic Studies

Hi Barney and Kizzie,

As you know, there has been an "all hands" effort by the VRC to utilize our collective expertise to help with the current COVID crisis. (b) (5)

(b) (5)

(b) (5)

(b) (5). I have attached a large list of studies for your review. Clearly, there would need to be prioritization and discussion of what vaccines are available to do the studies.

I look forward to hearing your feedback. I can then discuss this later this week at PI meeting. Mario and Rick have reviewed it.

Best,

Bob

Robert A. Seder, M.D.  
Chief, Cellular Immunology Section  
Vaccine Research Center, NIAID, NIH  
40 Convent Drive  
Bethesda, Maryland 20892  
Office phone: (b) (6)

**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Mon, 23 Mar 2020 12:59:10 +0000  
**To:** Corbett, Kizzmekia (NIH/VRC) [E]  
**Subject:** RE: SP for CoV response

(b) (5)

(b) (6) Do we need to have a daily check-in time instead of having it be so random?

I talked to Cynthia last night and (b) (6). We will see about Olu today.

Barney

---

**From:** Corbett, Kizzmekia (NIH/VRC) [E] (b) (6) >  
**Sent:** Monday, March 23, 2020 8:42 AM  
**To:** Graham, Barney (NIH/VRC) [E] (b) (6) >  
**Subject:** Re: SP for CoV response

Dr. Graham. (b) (5)

(b) (6)

--

**Kizzmekia S. Corbett, PhD**  
**Senior Research Fellow | Scientific Lead**  
**Coronavirus Vaccines & Immunopathogenesis (coVip) Team**  
Viral Pathogenesis Laboratory | Vaccine Research Center  
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**From:** Barney Graham (b) (6)  
**Date:** Monday, March 23, 2020 at 8:39 AM  
**To:** Kizzmekia Corbett <(b) (6)>  
**Subject:** RE: SP for CoV response

I understand. (b) (5)

Barney

---

**From:** Corbett, Kizzmekia (NIH/VRC) [E] <(b) (6)>  
**Sent:** Monday, March 23, 2020 8:38 AM  
**To:** Graham, Barney (NIH/VRC) [E] (b) (6)  
**Subject:** Re: SP for CoV response

There is a saying "You wasn't with me shooting in the gym" and that is my take on ALL of this.

Ask Anne about it.

--

**Kizzmekia S. Corbett, PhD**  
**Senior Research Fellow | Scientific Lead**  
**Coronavirus Vaccines & Immunopathogenesis (coVip) Team**  
Viral Pathogenesis Laboratory | Vaccine Research Center  
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Fax: (301) 480-2771

---

**From:** Barney Graham (b) (6)>  
**Date:** Monday, March 23, 2020 at 8:35 AM  
**To:** "McDermott, Adrian (NIH/VRC) [E]" (b) (6) Kizzmekia Corbett (b) (6)>, Monique Young (b) (6)  
**Cc:** "Mascola, John (NIH/VRC) [E]" (b) (6)>, "Carlton, Kevin (NIH/VRC) [E]" (b) (6)>, "Gall, Jason (NIH/VRC) [C]" (b) (6)>, "Koup, Richard (NIH/VRC) [E]" (b) (6), "Ledgerwood, Julie (NIH/NIAID) [E]" (b) (6)>, "Suhana, Tina (NIH/VRC) [E]" (b) (6), "Austin, Sarah (NIH/NIAID) [E]" (b) (6), "Marston, Hilary (NIH/NIAID) [E]" <(b) (6)>, "Ruckwardt, Tracy (NIH/VRC) [E]" (b) (6)>, "Doria-Rose, Nicole (NIH/NIAID) [E]" (b) (6)>, "Alvarado, Gabriela (NIH/VRC) [C]" (b) (6), "Taylor, Alison (NIH/VRC) [C]" (b) (6)>, "Flach, Britta (NIH/VRC) [C]" (b) (6)  
**Subject:** RE: SP for CoV response

Thanks Adrian.

Those are all good ideas. Can we plan a Zoom meeting at 1PM today.

Monique, could you arrange with the attendees specified by Drs. McDermott and Corbett.

Thanks,

Barney

---

**From:** McDermott, Adrian (NIH/VRC) [E] <(b) (6)>  
**Sent:** Monday, March 23, 2020 8:22 AM  
**To:** Corbett, Kizzmekia (NIH/VRC) [E] <(b) (6)>  
**Cc:** Mascola, John (NIH/VRC) [E] (b) (6)>; Graham, Barney (NIH/VRC) [E] (b) (6); Carlton, Kevin (NIH/VRC) [E] (b) (6)>; Gall, Jason (NIH/VRC) [C] <(b) (6)>; Koup, Richard (NIH/VRC) [E] <(b) (6)>; Ledgerwood, Julie (NIH/NIAID) [E] (b) (6); Suhana, Tina (NIH/VRC) [E] (b) (6); Austin, Sarah (NIH/NIAID) [E] (b) (6)>; Marston, Hilary (NIH/NIAID) [E] (b) (6); Ruckwardt, Tracy (NIH/VRC) [E] <(b) (6)>; Doria-Rose, Nicole (NIH/NIAID) [E] (b) (6)>; Alvarado, Gabriela (NIH/VRC) [C] (b) (6)>; Taylor, Alison (NIH/VRC) [C] (b) (6); Flach, Britta (NIH/VRC) [C] (b) (6)  
**Subject:** Re: SP for CoV response

Kizzie,

Let's seriously discuss (b) (5)  
(b) (5)



Happy to get on a zoom call and discuss this morning with whoever can get us SOPs so we can start the process.

Thanks  
Adrian

Sent from my iPhone

On Mar 23, 2020, at 8:01 AM, Corbett, Kizzmekia (NIH/VRC) [E] (b) (6)> wrote:

Good morning all,

I am attaching an excel document inclusive of the major COVID-19 specific tasks (as I know them. I understand as interest in the VRC increases, this will change). There are primaries and secondaries for each task. (b) (5)

(b) (5)

Have a great week everyone.

--

**Kizzmekia S. Corbett, PhD**

**Senior Research Fellow | Scientific Lead**

**Coronavirus Vaccines & Immunopathogenesis (coVip) Team**

Viral Pathogenesis Laboratory | Vaccine Research Center

National Institutes of Allergy and Infectious Diseases

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Personal: (b) (6)

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---

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

**Date:** Sunday, March 22, 2020 at 10:36 PM

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

(b) (6)>

**Cc:** "Gall, Jason (NIH/VRC) [C]" (b) (6), "Koup, Richard (NIH/VRC) [E]"

(b) (6), "Ledgerwood, Julie (NIH/NIAID) [E]" (b) (6)>,

"Suhana, Tina (NIH/VRC) [E]" (b) (6), "Austin, Sarah (NIH/NIAID) [E]"  
(b) (6), "Marston, Hilary (NIH/NIAID) [E]" (b) (6)>,  
"Ruckwardt, Tracy (NIH/VRC) [E]" (b) (6)>, Kizzmekia Corbett  
(b) (6), "McDermott, Adrian (NIH/VRC) [E]"  
(b) (6)>, "Doria-Rose, Nicole (NIH/NIAID) [E]"  
(b) (6)

**Subject:** RE: SP for CoV response

Nicole also offered some space on 5<sup>th</sup> floor if needed.

---

**From:** Graham, Barney (NIH/VRC) [E] <(b) (6)>  
**Sent:** Sunday, March 22, 2020 10:35 PM  
**To:** Carlton, Kevin (NIH/VRC) [E] (b) (6)>  
**Cc:** Mascola, John (NIH/VRC) [E] (b) (6)>; Gall, Jason (NIH/VRC) [C]  
(b) (6)>; Koup, Richard (NIH/VRC) [E] <(b) (6)> Ledgerwood, Julie  
(NIH/NIAID) [E] (b) (6)>; Suhana, Tina (NIH/VRC) [E] (b) (6)>; Austin,  
Sarah (NIH/NIAID) [E] (b) (6)>; Marston, Hilary (NIH/NIAID) [E]  
(b) (6)>; Ruckwardt, Tracy (NIH/VRC) [E] (b) (6)>; Corbett,  
Kizzmekia (NIH/VRC) [E] (b) (6)>; McDermott, Adrian (NIH/VRC) [E]  
(b) (6)>

**Subject:** Re: SP for CoV response

Thanks Kevin. First step is to have alternative location for essential CoV serology work at 9wW. Tracy Ruckwardt and Kizzmekia Corbett have already visited and met with Adrian McDermott. They are copied here.

Barney

Sent from my iPhone

On Mar 22, 2020, at 10:30 PM, Carlton, Kevin (NIH/VRC) [E] (b) (6)> wrote:

Hi John,

Agreed and will be the POC from my PM group to assist all CoV needs.

Kevin

Sent from my iPhone

On Mar 21, 2020, at 12:51 PM, Mascola, John (NIH/VRC) [E] (b) (6) wrote:

Kevin, Jason,

We now need to bring the full capabilities of VRC SP and Project management to our overall CoV response. First to be value added and assist Barney and current team. But also to go through our SP process, outline major objectives and goals and meet to review. And then to engage full scientific capabilities of VRC PIs and Programs.

Lets plan a SP devoted to this this week – inviting all PI/SS to participate. Could be our usual Wed time slot, or other day. It would be a priority and I would move other meetings. Lets plan to nail down time by COB Monday.

Thanks,

John

<COVID-19 duties and personnel\_v2\_20200323.xlsx>

**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Thu, 23 Apr 2020 15:19:22 +0000  
**To:** Corbett, Kizzmekia (NIH/VRC) [E]  
**Subject:** RE: Webinar Speaking Invitation

(b) (6)

BG

---

**From:** Corbett, Kizzmekia (NIH/VRC) [E] (b) (6)>  
**Sent:** Thursday, April 23, 2020 5:31 AM  
**To:** Graham, Barney (NIH/VRC) [E] (b) (6)>  
**Subject:** FW: Webinar Speaking Invitation

(b) (6)

--

**Kizzmekia S. Corbett, PhD**  
**Senior Research Fellow | Scientific Lead**  
**Coronavirus Vaccines & Immunopathogenesis (coVip) Team**  
Viral Pathogenesis Laboratory | Vaccine Research Center  
National Institutes of Allergy and Infectious Diseases  
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Laboratory: (b) (6)  
Personal: (b) (6)  
Fax: (301) 480-2771

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**From:** Lisa Scimemi (b) (6)  
**Date:** Wednesday, April 22, 2020 at 6:54 PM  
**To:** Kizzmekia Corbett (b) (6)>  
**Subject:** Webinar Speaking Invitation

Kizzmekia -

Hope all is well with you.

I am coordinating our Sanguine Speaker Series (S3), a series of events where scientific researchers have a platform to share their research knowledge and expertise.

I saw a talk that you presented, *Advancing Towards A General Solution for Coronavirus Vaccines* and wanted to see if you would be interested in presenting this talk in one of our webinars?

If you are interested, let me know and I can send you a list of available dates that we have in May and June.

I look forward to hearing back from you.

Thank you.

-Lisa

--

Lisa Scimemi  
Director of Event Marketing  
Sanguine BioSciences, Inc.  
5000 Van Nuys Blvd  
Sherman Oaks, CA 91423  
P: 617-833-1911  
E: [lscimemi@sanguinebio.com](mailto:lscimemi@sanguinebio.com)



**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Tue, 17 Mar 2020 18:51:30 +0000  
**To:** Hiatt, Nissa (NIH/VRC) [C]  
**Subject:** RE: Referred by Bob Seder

This is a longer term project and something I think we should do, so let's not lose it in the shuffle.

BG

---

**From:** Hiatt, Nissa (NIH/VRC) [C] (b) (6)  
**Sent:** Tuesday, March 17, 2020 11:55 AM  
**To:** Graham, Barney (NIH/VRC) [E] <(b) (6)>  
**Subject:** Re: Referred by Bob Seder

Hi Barney,

I spoke to Kathy and they plan to revisit this request in a few weeks. I will keep it on my list and track progress.

As you can imagine they are being inundated with documentary type requests but the limits on groups of people bring a lot of uncertainty at this particular moment.

I'll be in touch! Someone should make a documentary about the amazing work that y'all are doing.

Best,  
Nissa

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

On Mar 16, 2020, at 10:00 PM, Graham, Barney (NIH/VRC) [E] <(b) (6)> wrote:

Thank you for your interest in this problem and the work we do. The type of story you are describing reminds me of the (b) (4)

(b) (4)

I will share this with the NIAID and VRC communications teams as they would want to help coordinate your access to information resources.

This one seems to have gotten our attention like never before, so maybe people will be more interested in listening to what is possible.

Best wishes,

Barney

Sent from my iPhone

On Mar 16, 2020, at 7:18 PM, Susan Goldberg (b) (6) > wrote:

Dear Dr. Graham,

My name is Susan Goldberg, and I'm the Editor in Chief of National Geographic. What that means is that I lead our journalism across print, digital and social media platforms. Bob Seder, who is a personal friend, suggested I reach out to you directly.

I know you are incredibly busy right now — no doubt beyond even my wildest imagination — so let me come right to the point:

National Geographic would like to

(b) (4)

(b) (4)

Over the last 132 years, National Geographic has earned a reputation for educating the public on crucial stories about science. We do that every day on digital platforms — whether on our website, on the biggest Instagram account of any brand (132 million followers and counting), or on other platforms that give us the largest social footprint of any media company — as well as in our monthly magazine that reaches more than 50 million readers globally in 36 languages.

(b) (4)

We have a track record of handling reporting on medical and science issues with depth, sensitivity and exclusivity. I would point to our coverage of a face transplant at the Cleveland Clinic. We worked closely for two years with the Clinic to tell the story in way that conveyed the complex science behind the surgery as well as the humanity of the face transplant recipient, Katie Stubblefield, her parents and her doctors. We had a reporter and a photographer spend hundreds of hours with the family and doctors to learn their stories before the surgery. The reporter and a photographer were present for the entire 31-hour operation, taking care not to interfere with the surgeons, while capturing the drama and emotion of the event in a way that had never been done before. The result was a story that was our best-read of 2018, resonating deeply with readers across our platforms. We were gratified that Katie, her family, the doctors who oversaw her care, and Clinic officials were pleased with this journalism and proud of their participation in it.

(b) (4)

(b) (4). I would be happy to meet with you and the media representatives of the NIH to discuss this in person.

Thank you for taking the time to consider this request and to share it with your communications team.

All my very best,

Susan Goldberg

Editor in Chief, National Geographic  
Editorial Director, National Geographic Partners  
202.791.1253

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**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Tue, 31 Mar 2020 09:47:25 +0000  
**To:** Corey MD, Larry  
**Subject:** RE: proposal for clinical trial

(b) (4)

BG

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

From: Corey MD, Larry (b) (6) >  
Sent: Monday, March 30, 2020 11:51 PM  
To: Graham, Barney (NIH/VRC) [E] <(b) (6)>  
Subject: FW: proposal for clinical trial

(b) (4)

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

From: Anna Wald (b) (6) >  
Sent: Monday, March 30, 2020 6:11 PM  
To: Pergam, Steven A <(b) (6)>; Boeckh, Michael <(b) (6)>; Corey MD, Larry  
(b) (6); Liu, Catherine (b) (6); John B. Lynch (b) (6);  
Santiago Neme (b) (6); Seth Cohen (b) (6); Christine Johnston (b) (6)  
Subject: proposal for clinical trial

Another idea!

---

Anna Wald, MD, MPH

Head of Allergy and Infectious Diseases Division, Professor of Medicine, Laboratory Medicine & Epidemiology,  
University of Washington

Pronouns: she/her

tel. (b) (6)

fax. 206/520-4371

University of Washington Virology Research Clinic [https://urldefense.proofpoint.com/v2/url?u=http-3A\\_depts.washington.edu\\_herpes\\_d=DwJFAw&c=eRAMFD45gAfqt84VtBcfhQ&r=3Muwtn5CXw1SNVfqSt6xZQUH9Ps2ltyDMIwugBXAXNg&m=aBuxqUO\\_QIkU6iZ7EfulUu6DY48TTCCGjsEPz9D3ero&s=8ZsiCSpsiO51xtG1cNqpnIq8huhwopr49e6K5siQvyw&e=](https://urldefense.proofpoint.com/v2/url?u=http-3A_depts.washington.edu_herpes_d=DwJFAw&c=eRAMFD45gAfqt84VtBcfhQ&r=3Muwtn5CXw1SNVfqSt6xZQUH9Ps2ltyDMIwugBXAXNg&m=aBuxqUO_QIkU6iZ7EfulUu6DY48TTCCGjsEPz9D3ero&s=8ZsiCSpsiO51xtG1cNqpnIq8huhwopr49e6K5siQvyw&e=)

PHYSICAL LOCATION:

908 Jefferson St, Suite 11NJ-1166, Seattle, WA 98104

MAILING ADDRESS:

Harborview Medical Center, 325 9th Ave, Box #359928, Seattle, WA 98104

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

From: Pergam, Steven A <(b) (6)>

Sent: Thursday, March 26, 2020 5:03 PM

To: Anna Wald <(b) (6)>; Boeckh, Michael <(b) (6)>; Corey MD, Larry <(b) (6)>; Liu MD, Catherine <(b) (6)>; John B. Lynch <(b) (6)>; Santiago Neme <(b) (6)>; Seth Cohen <(b) (6)>; Christine Johnston <(b) (6)>  
Subject: (b) (4)

(b) (4)

Sent from my iPhone, so please excuse any grammatical or spelling errors

**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Sun, 19 Apr 2020 21:01:20 +0000  
**To:** Corbett, Kizzmekia (NIH/VRC) [E]  
**Subject:** COVID IG webinar 22Apr2020  
**Attachments:** COVID IG webinar 22Apr2020.docx

This is the abstract I hope to send to the organizers of the Wednesday seminar tonight. See what you think. I'll send proposed slides by early tomorrow with a plan for who is talking when.

Barney

**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Sat, 28 Mar 2020 12:53:06 +0000  
**To:** Reilly, Deborah (NIH/VRC) [E]  
**Subject:** Accepted: COVID-19 Daily Check-in

**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Tue, 28 Apr 2020 19:29:36 +0000  
**To:** Kristina Horton  
**Cc:** Young, Monique (NIH/VRC) [E]  
**Subject:** Re: Speaker Invite- Keystone Vaccinology eSymposia (please respond by April 28)

I think that title works. I might modify slightly depending on happens between now and then.

Barney

Sent from my iPhone

On Apr 28, 2020, at 12:08 PM, Kristina Horton <kristinah@keystonesymposia.org> wrote:

Wonderful, Barney- we look forward to your participation.

As we pull together our website for registration and marketing, are you okay with your talk title?

**Preliminary Talk Title:** Immunogen Design Strategies for COVID-19, RSV, Influenza and Other Enveloped Viruses

Please be in touch with any questions in the interim.

Best,  
Kristina

***Kristina H. Richardson***

Scientific Advisory Board Coordinator  
Administrative Assistant: CSO & Global Development  
+ 1 970.262.2692 | [kristinah@keystonesymposia.org](mailto:kristinah@keystonesymposia.org)

---

**From:** Graham, Barney (NIH/VRC) [E] (b) (6)  
**Sent:** Friday, April 24, 2020 11:42 AM  
**To:** Kristina Horton <kristinah@keystonesymposia.org>  
**Cc:** Young, Monique (NIH/VRC) [E] (b) (6)>  
**Subject:** Re: Speaker Invite- Keystone Vaccinology eSymposia (please respond by April 28)

Thank you. Glad to participate.

Barney

Sent from my iPhone

On Apr 24, 2020, at 1:11 PM, Kristina Horton <[kristinah@keystonesymposia.org](mailto:kristinah@keystonesymposia.org)> wrote:

<image001.png>

April 24, 2020

Barney Graham, M.D., Ph.D.  
Senior Investigator  
Vaccine Research Center  
NIAID, National Institutes of Health  
40 Convent Drive, MSC3017 Room 2502  
Bethesda, MD, 20892 -3017  
USA

Dear Dr. Graham:

On behalf of Drs. Rappuoli, Stuart, and Sallusto, we are pleased to formally invite you to speak at the Keystone eSymposia: **Vaccinology in the Age of Pandemics: Strategies Against COVID-19 & Other Global Threats**, a virtual conference which will be held on, **Monday, June 15 and Tuesday, June 16, 2020**.

Attached you will find a draft program description and schedule. On the day of the event, we will play your pre-recorded talk and then ask for you to be available for a live Q/A session to answer audience questions. In early May, we will send you a finalized program schedule which will include a confirmed day for your pre-recorded talk and the time slot for the live Q/A session.

**Next Steps:**

- **Preliminary Talk Title:** Immunogen Design Strategies for COVID-19, RSV, Influenza and Other Enveloped Viruses
  - **Please review and update your preliminary talk title by Tuesday, April 28**. Changes can be made up to two-weeks prior to the event.
- **Please follow this [link](#) to upload your talk recording, by Monday, May 18**. Click [here](#) to learn more about recording your presentation. Our media team can assist you with recording on your personal computer.

Keystone Symposia strives to ensure our meetings, virtual or otherwise, have an exceptional impact on all who attend. As a leader in the field, your contribution to the program will help us achieve that goal. We look forward to your participation.

For questions about the scientific programming of this meeting, please contact Dr. Rappuoli at (b) (6). Administrative and logistics questions can be addressed to [KristinaH@KeystoneSymposia.Org](mailto:KristinaH@KeystoneSymposia.Org).

Sincerely,  
<image002.jpg>

<image003.jpg>

Deborah L. Johnson, Ph.D.  
Chief Executive Officer

Thale C. Jarvis, Ph.D.  
Chief Scientific Officer

On Behalf of the eSymposia Organizers: Drs. Rappuoli, Stuart, and Sallusto

<Vaccinology eSymposia\_DRAFT Program Description & Schedule.pdf>

**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Thu, 5 Mar 2020 20:36:18 +0000  
**To:** Cynthia Turner-Graham  
**Subject:** FW: The President's Visit

FYI. This was a nice note from Dr. Collins.

BP

---

**From:** Collins, Francis (NIH/OD) [E] <(b) (6)>  
**Sent:** Thursday, March 5, 2020 3:33 PM  
**To:** Fauci, Anthony (NIH/NIAID) [E] (b) (6); Awwad, David (NIH/NIAID) [C] (b) (6); Fleisher, Arne (NIH/NIAID) [E] (b) (6); Ohlandt, Chris (NIH/NIAID) [E] (b) (6); Andreyev, Vladimir (NIH/NIAID) [C] (b) (6); Corbett, Kizzmekia (NIH/VRC) [E] (b) (6); Graham, Barney (NIH/VRC) [E] (b) (6); Mascola, John (NIH/VRC) [E] (b) (6); Conrad, Patricia (NIH/NIAID) [E] (b) (6); Daucher, Marybeth (NIH/NIAID) [E] (b) (6); Folkers, Greg (NIH/NIAID) [E] (b) (6); Harris, Christina (NIH/NIAID) [E] (b) (6); Hiatt, Nissa (NIH/VRC) [C] (b) (6); Myles, Renate (NIH/OD) [E] (b) (6); Burklow, John (NIH/OD) [E] (b) (6); Minix, Josh (NIH/OD/ORS) [E] (b) (6); Blackburn, Amy (NIH/OD) [E] (b) (6); Haynes, Patricia (NIH/OD/ORS) [E] (b) (6); Wilson, Darryl (NIH/OD/ORS) [E] (b) (6); Brown, Lawrence (NIH/OD/ORS) [E] (b) (6); Rowland, Craig (NIH/OD/ORS) [E] (b) (6); Robinson, Ronald (NIH/OD/ORS) [E] (b) (6); McGraw, Michael (NIH/OD/ORS) [E] (b) (6); Warren, David (NIH/OD/ORS) [E] (b) (6); Chestnut, Troy (NIH/OD/ORS) [E] (b) (6); Harvey, Tawania (NIH/OD/ORS) [E] (b) (6); Robinson, John (NIH/OD/ORS) [E] (b) (6); Duke, James (NIH/OD/ORS) [E] (b) (6); Haynes, Patricia (NIH/OD/ORS) [E] (b) (6); Jordan, Gerald (NIH/OD/ORS) [E] (b) (6); Ayala-Guevara, Jose (NIH/OD/ORS) [E] (b) (6); Davis, Louise (NIH/OD/ORS) [E] (b) (6); Cullinane, Sean (NIH/OD/ORS) [E] (b) (6); Cook, Susan (NIH/OD/ORS) [E] (b) (6); McClain, Michael (NIH/OD/ORF) [E] (b) (6); Adams, Brandon (NIH/OD/ORF) [E] (b) (6); Godfrey, Dave (NIH/OD/ORF) [E] (b) (6); Farrell, James (NIH/OD/ORF) [E] (b) (6); Johnson, Johnathan (NIH/OD/ORF) [E] (b) (6); Comproni, Joseph (NIH/OD/ORF) [E] (b) (6); Ryland, Ken (NIH/OD/ORS) [E] (b) (6); Burnham, Michael (NIH/OD/ORS) [E] (b) (6); Hall, Rodney (NIH/OD/ORS) [E] (b) (6); Harrison, Rob (NIH/OD/ORS) [E] (b) (6); Scaringe, Jeff (NIH/OD/ORS) [C] (b) (6); Smith, Ritchie (NIH/OD/ORS) [C] (b) (6); Norris, John (NIH/OD/ORS) [C] (b) (6); Hope, Terence (NIH/OD/ORS) [C] (b) (6); Juarez, Jose (NIH/OD/ORS) [C] (b) (6); Osorio, Luis (NIH/OD/ORS) [C] (b) (6); Edwards, Tammie (NIH/OD/ORS) [E] (b) (6); Taylor, India (NIH/OD/ORS) [E] (b) (6); Trang, Anthony (NIH/CIT) [E] (b) (6)

Lightner, Anthony (NIH/CIT) [E] (b) (6); Cox, Todd (NIH/CIT) [E] (b) (6)  
Griffin, Mike (NIH/CIT) [E] (b) (6); Adams, Adonis (NIH/CIT) [C]  
(b) (6) Waters, Koren (NIH/CIT) [E] (b) (6); Burklow, John  
(NIH/OD) [E] (b) (6)>  
Cc: Tabak, Lawrence (NIH/OD) [E] (b) (6)>; Wolinetz, Carrie (NIH/OD) [E]  
(b) (6); Schwetz, Tara (NIH/OD) [E] (b) (6)>; Johnson, Alfred  
(NIH/OD) [E] (b) (6)>; McGowan, Colleen (NIH/OD/ORS) [E]  
(b) (6) Hinton, Alvin (NIH/OD/ORS) [E] <(b) (6); Cullen, William  
(NIH/OD/ORS) [E] (b) (6); Wheeland, Daniel (NIH/OD/ORF) [E]  
(b) (6); Gottesman, Michael (NIH/OD) [E] (b) (6)  
**Subject:** The President's Visit

Dear NIH Team:

I want to thank you all sincerely for making the President's visit on March 3 such an outstanding success! I know how much time, effort, and thought—and just plain hard work—goes into planning and executing such a high-profile event. Many of you gave up your weekend and evenings to ensure that all the necessary pieces were in place to enable us to host a successful briefing and lab tour. Special thanks to our hero, Tony Fauci, who continues to defy human limitations and work 24/7 to make sure our nation is kept informed about COVID-19, and that the research speeds forward as quickly as possible. I also want to thank John Mascola, Barney Graham, and Kizzmekia Corbett for sharing their special expertise with the President. It was clear that he was intrigued and impressed with everything he heard and saw.

We relied on the efforts of dozens of NIH staff, and it's not possible for me to thank each of you individually. In fact, this may not be the complete list, so please share with others I may have missed. I do, however, want to recognize a small number of people who played key roles in collaborating with the White House, the Department, and NIH colleagues, while juggling simultaneously a myriad of critical details: Marybeth Daucher, Christina Harris, Amy Blackburn, Patricia Haynes, Josh Minix, and Ken Ryland. I particularly want to recognize the outstanding leadership of John Burklow, whose gifts for organizing events like this, while never seeming to get rattled, are the best in the entire government.

All of you worked as a unit—you came together, within a few days' notice, to mount a highly coordinated effort that resulted in the presentation of brilliant, timely NIH research to the President and to the world. I could not be more honored and proud to lead such an amazing institution of dedicated professionals.

With deep appreciation,  
Francis

**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Wed, 29 Jan 2020 11:30:27 +0000  
**To:** (b) (6)  
**Subject:** Re: Researchers Are Racing to Make a Coronavirus Vaccine. Will It Help? - The New York Times

Agree. (b) (6)

At least we know what to do with spike this time around.

The AAV abstract was chosen for late breaker at CROI. I'll see if I can send you a confidential copy of the abstract.

BG

Sent from my iPhone

On Jan 29, 2020, at 12:17 PM, "(b) (6)" wrote:

Never a dull moment!

<https://www.nytimes.com/2020/01/28/health/coronavirus-vaccine.html>

**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Thu, 26 Mar 2020 13:05:25 +0000  
**To:** Corbett, Kizzmekia (NIH/VRC) [E]  
**Cc:** Chapman, Latanya (NIH/VRC) [C]; Bok, Karin (NIH/VRC) [E]; Austin, Sarah (NIH/NIAID) [E]  
**Subject:** Re: Discussion Points for Lilly/AbCellera Follow Up Discussion - March 26th

Maybe you and John get on the Lilly call and Kaitlyn and I will be on the NT call.

Barney

Sent from my iPhone

On Mar 26, 2020, at 9:03 AM, Corbett, Kizzmekia (NIH/VRC) [E]

(b) (6) wrote:

We all have the same conflicts as per my previous email to Latanya.

--

**Kizzmekia S. Corbett, PhD**

**Senior Research Fellow | Scientific Lead**

**Coronavirus Vaccines & Immunopathogenesis (coVip) Team**

Viral Pathogenesis Laboratory | Vaccine Research Center

National Institutes of Allergy and Infectious Diseases

National Institutes of Health

Building 40 Room 2608

40 Convent Drive

Bethesda MD 20892

Laboratory: (b) (6)

Personal: (b) (6)

Fax: (301) 480-2771

---

**From:** Barney Graham (b) (6) >

**Date:** Thursday, March 26, 2020 at 8:58 AM

**To:** "Chapman, Latanya (NIH/VRC) [C]" (b) (6) >

**Cc:** "Bok, Karin (NIH/VRC) [E]" (b) (6) Kizzmekia Corbett

(b) (6) "Austin, Sarah (NIH/NIAID) [E]" (b) (6)

**Subject:** FW: Discussion Points for Lilly/AbCellera Follow Up Discussion - March 26th

LaTanya, has this been distributed? I will not be able to be on this call because of conflict with another call. Someone besides me, especially Drs. Corbett and Mascola need to see this.

Barney

---

**From:** Kristi M Huntington [REDACTED] (b) (6)  
**Sent:** Wednesday, March 25, 2020 4:31 PM  
**To:** Graham, Barney (NIH/VRC) [E] [REDACTED] (b) (6); Chapman, Latanya (NIH/VRC) [C]  
[REDACTED] (b) (6)  
**Subject:** Discussion Points for Lilly/AbCellera Follow Up Discussion - March 26th

Barney and LaTanya –

Please find attached some discussion topics for tomorrow's discussion. Since I do not have access to the complete invitee list, would you be so kind as to distribute?

Many Thanks!  
Kristi

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

**From:** Graham, Barney (NIH/VRC) [E] [REDACTED] (b) (6)>  
**Sent:** Tuesday, March 24, 2020 3:49 PM  
**To:** Graham, Barney (NIH/VRC) [E]; Kristi M Huntington  
**Subject:** [EXTERNAL] FW: Lilly/AbCellera Follow Up Discussion  
**When:** Thursday, March 26, 2020 1:00 PM-2:00 PM (UTC-05:00) Eastern Time (US & Canada).  
**Where:** Virtual (Goto Meeting)

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

**\*\* CONFIRMATION \*\***

Title of Meeting: Lilly/AbCellera Follow Up Discussion  
Principal Meeting Organizer: Gabriela Alvarado

Goal of Meeting: To discuss [REDACTED] (b) (4)  
Date: 3/26/20  
Time: 1:00PM  
Allotted Time: 1 hour  
Location: Virtual (Goto Meeting)  
VRC Participants: Barney Graham, Kizzmekia Corbett, Karin Bok, Kaitlyn Morabito, John Mascola, Jason Gall and Gabriela Alvarado  
AbCellera Participants: Ester Falconer, Payal Sipahimalani and Bo Barnhart

Eli Lilly Participants: Kristi M Huntington, Beverly Heinz, Bryan Edward Jones, Julian Davies, (b) (4)

Agenda: TBD

Thanks,  
LaTanya

(b) (6)

---

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(b) (6)

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United States: [+1 \(224\) 501-3216](tel:+12245013216)

Access Code: (b) (6)

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(b) (6)

---

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

**Sent:** Friday, March 20, 2020 5:30:46 PM (UTC) Coordinated Universal Time

**To:** Corbett, Kizzmekia (NIH/VRC) [E]; Bok, Karin (NIH/VRC) [E]; Morabito, Kaitlyn (NIH/VRC) [E]; Gall, Jason (NIH/VRC) [C]; Alvarado, Gabriela (NIH/VRC) [C]; Chapman, Latanya (NIH/VRC) [C]; Young, Monique (NIH/VRC) [E]; Grier, Shardae (NIH/VRC) [E]; Suhana, Tina (NIH/VRC) [E];

(b) (6)

; Bryan Edward Jones; Julian Davies;

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

**Subject:** Lilly/AbCellera Follow Up Discussion

**When:** Thursday, March 26, 2020 5:00 PM-6:00 PM.

**Where:** Virtual (Goto Meeting)

\*\* CONFIRMATION \*\*

Title of Meeting: Lilly/AbCellera Follow Up Discussion

Principal Meeting Organizer: Gabriela

Alvarado

Goal of Meeting: To discuss (b) (4)

Date: 3/26/20

Time: 1:00PM

Allotted Time: 1 hour

Location: Virtual (Goto Meeting)

VRC Participants: Barney Graham, Kizzmekia Corbett, Karin Bok, Kaitlyn Morabito, John Mascola, Jason Gall and Gabriela Alvarado

AbCellera Participants: Ester Falconer, Payal Sipahimalani and Bo Barnhart

Eli Lilly Participants: Kristi M Huntington, Beverly Heinz, Bryan Edward Jones, Julian Davies, (b) (4)

(b) (4)

Agenda: TBD

Thanks,

LaTanya

(b) (6)

---

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United States: [+1 \(224\) 501-3216](tel:+12245013216)

**Access Code:** (b) (6)

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(b) (6)

**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Fri, 1 Nov 2019 22:22:53 +0000  
**To:** Loomis, Rebecca (NIH/VRC) [E]  
**Cc:** Morabito, Kaitlyn (NIH/VRC) [E]  
**Subject:** RE: updated NiV manuscript and figures  
**Attachments:** Structure-based Design of Nipah Virus Vaccine.v4\_BG.docx

Hi Rebecca,

I made a few more edits and had a few comments on either references or one sentence that could be deleted. Otherwise I think it is ready to go. I'm going to forward the last email from the journal to which you can submit.

Thanks,

Barney

---

**From:** Loomis, Rebecca (NIH/VRC) [E] (b) (6)>  
**Sent:** Friday, November 1, 2019 1:45 PM  
**To:** Graham, Barney (NIH/VRC) [E] <(b) (6)>  
**Subject:** updated NiV manuscript and figures

Barney,

I made revisions Jason suggested and fixed the incomplete sentences. I also added acknowledgments and author contributions at end of text. Attached is the revised manuscript and final figures. No one else has sent revisions or comments at this time.

Please let me know if I need to do anything else before submission.

Thank you,  
Rebecca

**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Sat, 4 Apr 2020 21:06:33 +0000  
**To:** Blanck, George  
**Subject:** RE: (b) (4) vaccines

You can try (b) (4)

Barney

---

**From:** Blanck, George <(b) (6)>  
**Sent:** Thursday, April 2, 2020 7:45 PM  
**To:** Graham, Barney (NIH/VRC) [E] <(b) (6)>  
**Subject:** Re: (b) (4) vaccines

Thx. All well so far. (b) (6) hard to say, all good now.

(b) (4)

Perhaps Lawrence Corey Fred Hutch?

Thx, George

---

**From:** Graham, Barney (NIH/VRC) [E] (b) (6)>  
**Sent:** Thursday, April 2, 2020 6:22 PM  
**To:** Blanck, George (b) (6)>  
**Subject:** Re: (b) (4) vaccines

This email originated from outside of USF. Do not click links or open attachments unless you recognize the sender or understand the content is safe.

Hi George.

Nice to hear from you. Hope you and your family are well.

(b) (4)

Best wishes,

Barney

Sent from my iPhone

On Apr 2, 2020, at 4:13 PM, Blanck, George <(b) (6)> wrote:

Hello Barney,

Hope well. I am sure you are overwhelmed though...I do wish you good luck with all covid-19 efforts.

May I ask, (b) (4)

Thx, George

---

**George Blanck, Ph.D.**  
**Professor, Molecular Medicine**  
**Morsani College of Medicine, USF**

**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Fri, 13 Mar 2020 14:45:54 +0000  
**To:** Young, Monique (NIH/VRC) [E]  
**Subject:** FW: WVCW IMPORTANT - Postponement to 27-29 Sep, CoV sessions

FYI.

Could you please put Sept 27-29 down on my calendar?

Thanks,

BG

---

**From:** Wing-Yun Cheung [REDACTED] (b) (6)  
**Sent:** Friday, March 13, 2020 10:35 AM  
**To:** Graham, Barney (NIH/VRC) [E] [REDACTED] (b) (6) >  
**Subject:** RE: WVCW IMPORTANT - Postponement to 27-29 Sep, CoV sessions  
**Importance:** High

Dear Barney,

Could you let me know if you can make the new dates? **27 - 29 September**, still at the Walter E Convention Center, D.C.

I'm trying to still put together a webinar for the COVID sessions, there's definitely a demand from the attendees. Would you still be willing to participate virtually over the original April dates?

Kind regards,  
Wing

Wing-yun Cheung, MSci  
Congress Director, Life Sciences  
Terrapinn Holdings  
Direct line: [REDACTED] (b) (6)  
LinkedIn: [REDACTED] (b) (6)

Warning: We DO NOT work with third parties for accommodation and will NOT call you directly to book for this. All speakers and delegates are advised to book through the official event website. Only trust correspondence from Terrapinn emails.

---

**From:** Wing-Yun Cheung  
**Sent:** 11 March 2020 14:29  
**To:** Krause, Philip [REDACTED] (b) (6); Poland, Gregory A., M.D. [REDACTED] (b) (6);

Kehrli, Marcus - ARS <(b) (6)>; 'Hotez, Peter Jay' (b) (6);  
(b) (6) Sean Tucker (b) (6); Juan Andres  
(b) (6) Farshad Guirakhoo (b) (6); Alexander Kort  
>; Graham, Barney (NIH/VRC) [E] (b) (6); Greg Glenn

Cc: Roberts, Joseph W. <(b) (6)>; 'Soriano Osejo, Douglas'  
(b) (6)>; David Weiner <(b) (6)>; Joseph Kim  
(b) (6)>; Emma Wheatley (b) (6)>; Joseph Simmonds-Issler  
(b) (6)>; Kate Broderick <(b) (6)>

**Subject:** RE: WVCW IMPORTANT - Postponement to 27-29 Sep, CoV sessions

**Importance:** High

Dear all,

I wanted to let you know as soon as possible that today we have made the very difficult decision to postpone the World Vaccine Congress Washington to **27 - 29 September**, still at the Walter E Convention Center, D.C.

We did this in response to the travel restrictions that are increasingly in place and we want to be responsible in protecting the Congress, speakers and attendees. We were optimistic about the control of the COVID-19 outbreak, monitoring the situation daily but I feel we have reached the point where it has become in effect, impossible to deliver the event as we had planned, and safely.

I expect, if anything, better participation on the new dates as we work together to recruit more attendees, and develop the agenda to take into account the very latest developments, including a vaccine for COVID-19!

In the interest of still delivering some very timely information about COVID-19 to the attendees still, **would you all be willing to still prepare slides?** I'm exploring how we can still virtually support the community on this in April, and potentially providing some slides to attendees.

Regarding 27 – 29 September:

I will be sending out more details shortly, but the new dates are confirmed (so **please add to your calendar**), and I'd like to express my appreciation for your support and understanding at this time. I hope that you can still make it and I will be able to confirm the new session timings soon, if you have any restrictions please let me know personally.

These new dates will also mean the postponement to the ViE awards, new timelines will follow. An official statement will be sent to all attendees and be put on our website shortly.

Please contact me if you have any questions, I apologise in advance if it takes me a few days to answer back.

Best wishes,

Wing

Wing-yun Cheung, MSci  
Congress Director, Life Sciences  
Terrapinn Holdings  
Direct line: (b) (6)  
LinkedIn: (b) (6)

Warning: We DO NOT work with third parties for accommodation and will NOT call you directly to book for this. All speakers and delegates are advised to book through the official event website. Only trust correspondence from Terrapinn emails.

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**From:** Wing-Yun Cheung  
**Sent:** 28 February 2020 15:28  
**To:** Krause, Philip (b) (6); Poland, Gregory A., M.D. (b) (6);  
Kehrli, Marcus - ARS <(b) (6)>; 'Hotez, Peter Jay' (b) (6)  
(b) (6); Sean Tucker <(b) (6)>; Juan Andres  
(b) (6)>  
**Cc:** Roberts, Joseph W. <(b) (6)>; 'Soriano Osejo, Douglas'  
(b) (6); David Weiner (b) (6); Joseph Kim  
(b) (6); Emma Wheatley <(b) (6)>; Joseph Simmonds-Issler  
(b) (6)>  
**Subject:** Corona workshop, WVC  
**Importance:** High

Dear all,

I hope you're looking forward to the World Vaccine Congress! I know most of you are all well acquainted with Dr **Philip Krause**, Deputy Director, OVR, CBER, **FDA** already, I would like to announce that he will be our **workshop leader** and therefore assist in running the workshop and steering the discussion. If you have any Q&As you would like him to use after your talk, please send them over.

Below is an update to the **timings** on **April 6<sup>th</sup>**. If anything is incorrect or needs amending just let me know.

**Outline: 2 – 5pm**

2:00 **Workshop leader opening remarks**

**Dr Philip Krause**, Deputy Director, OVR, CBER, **FDA**

2:05 **SARS-CoV-2: Going Viral**

**Dr Gregory A. Poland**, Director of Mayo Vaccine Research Group, **Mayo Clinic**

2:25 **Coronaviruses in Livestock: Vaccines and International Transport of Virus**

**Dr Mark Kehrli**, Center Director, **National Animal Disease Center**

What existing treatments and vaccine development platforms show promise to control the rate of infection and spread?

- How long will it be until we have a vaccine?
- Research and development for candidate vaccines and varying approaches

2:50 **Protein-based vaccines:** **Dr Peter Hotez**, Dean, Professor, Co-Head of Pediatric Tropical Medicine, **Baylor College of Medicine** & Co-Director, **Texas Children's Hospital Center for Vaccine Development**

3:00 **DNA vaccines:** **Dr Jacqueline Shea**, COO, **Inovio**

3:15 RNA vaccines: [Dr Juan Andres, CTO, Moderna](#)  
 3:30 Oral vaccine platform & mucosal immunity: [Dr Sean Tucker, CSO and VP Research, Vaxart Inc.](#)  
 3:45 Adjuvant platforms: [Dr Thomas Breuer, Senior Vice President, Chief Medical Officer, GSK Vaccines - TBC](#)  
 4:00 Vaccine platforms and funding: [Senior representative, CEPI](#)  
 4:15 – 5:00 All speakers to join panel and Q&As with workshop participants: The race is on: Perspectives from industry, academia, global governing bodies and funders – strategic and collaborative opportunities

For those of you interested, the additional corona sessions in the agenda include:

- Rick Bright, BARDA delivering a keynote on corona the next day (April 7<sup>th</sup>)
- Barney Graham, NIH, Gregory Glenn, Novavax and Farshad Guirakhoo, GeoVax (who's in collaboration with Chinese biotech BravoVax) will present on April 8th in the emerging disease sessions.

All your speaker registrations are complete but do plan the rest of your logistics if you have not done so already.

- Remember to only book [accommodation](#) through our website if you have not done so already - rooms ran out early last year so don't delay! There have been scammers claiming to be working with the congress and pressuring speakers to book accommodation through them. Please note that we would never do that so please don't share bank card details with them.
- If you haven't given me this already, I will need your **mobile number** in case I need to reach you on-site. To reach me on site my number is: (b) (6).

If you haven't sent this back filled, please do:

Please give us your <b>arrival</b> details to the conference (time and date)	
Please choose your April 7 <sup>th</sup> <b>roundtables</b>	<a href="https://form.jotform.com/200204520149339">https://form.jotform.com/200204520149339</a>
Whether you're coming to the ViE awards Gala dinner (April 7) and other networking receptions	<a href="https://form.jotform.com/200212784070343">https://form.jotform.com/200212784070343</a>
<b>Your mobile/cell number</b> (my number is: (b) (6))	
Your permission for sharing a PDF version of your slides after the congress where applicable. You may also provide an alternative deck for sharing but please specify	Y/N/alternative

@Phil, I will provide you with all the speaker bios and any Q&As the speakers may request in a brief for you, ahead of the congress.

Warm regards,  
 Wing

Wing-yun Cheung, MSci  
 Congress Director, Life Sciences

Terrapinn Holdings

Direct line: (b) (6)

LinkedIn: (b) (6)

Warning: We DO NOT work with third parties for accommodation and will NOT call you directly to book for this. All speakers and delegates are advised to book through the official event website. Only trust correspondence from Terrapinn emails.

**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Thu, 13 Feb 2020 17:17:54 +0000  
**To:** Hiatt, Nissa (NIH/VRC) [C]  
**Cc:** Routh, Jennifer (NIH/NIAID) [E]; Bok, Karin (NIH/VRC) [E]; Marston, Hilary (NIH/NIAID) [E]; Morabito, Kaitlyn (NIH/VRC) [E]; Corbett, Kizzmekia (NIH/VRC) [E]  
**Subject:** FW: Enhancing antibodies

FYI. This is a continuation of the interview I did with Jon a week or two ago. I feel like I need to answer this because it is something that needs to be better understood by the field.

Everybody OK with this?

Barney

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

From: Jon Cohen <jcohen@aaas.org>  
Sent: Wednesday, February 12, 2020 5:05 PM  
To: Graham, Barney (NIH/VRC) [E] <(b) (6)>  
Subject: Enhancing antibodies

Hi Barney,

Are you concerned about the potential for vaccines to create enhancing antibodies to COVID-19?

If so, is there any evidence of this you can point me to in animal models?

Thanks,

Jon

**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Fri, 31 Jan 2020 19:42:16 +0000  
**To:** Young, Monique (NIH/VRC) [E]  
**Subject:** Fwd: New Link Invitation to Register - Global Research and Innovation Forum:  
Towards a Roadmap for the 2019 Novel Coronavirus

FYI

BG

Sent from my iPhone

Begin forwarded message:

**From:** Bill & Melinda Gates Foundation Events Team  
<eventsregistration@gatesfoundation.org>  
**Date:** January 31, 2020 at 8:38:00 PM GMT+1  
**To:** "Graham, Barney (NIH/VRC) [E]" (b) (6)  
**Cc:** "Young, Monique (NIH/VRC) [E]" (b) (6)>  
**Subject:** New Link Invitation to Register - Global Research and Innovation Forum:  
Towards a Roadmap for the 2019 Novel Coronavirus  
**Reply-To:** <eventsregistration@gatesfoundation.org>



**World Health  
Organization**



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20, AVENUE APPIA – CH-1211 GENEVA 27 – SWITZERLAND – TEL CENTRAL +41 22 791 2111 – FAX CENTRAL +41 22 791 3111 –  
[www.who.int](http://www.who.int)

Barney Graham

30 January 2020

Dear Barney Graham,

## WHO R&D Blueprint

*for action to prevent epidemics:*

### **Global research and innovation forum: towards a roadmap for the 2019 novel Coronavirus WHO Executive Boardroom, 11-12 February 2020, Geneva, Switzerland**

On behalf of the World Health Organization (WHO), and the Global Research Collaboration for Infectious Disease Preparedness (GloPID-R), we have pleasure in inviting you, as a participant, to attend the above-mentioned 2-day in-person meeting to be held in Geneva, Switzerland, 11-12 February 2020. We plan to live-stream the plenary sessions for participants unable to travel.

The purpose of the forum is to bring together a group of key experts, partners and stakeholders to finalize the development of a *roadmap for the 2019 novel Coronavirus* in order to enable the conduct of research, product development and innovation. Such a roadmap will include an analysis of current capacities and ongoing efforts in affected countries and globally, and a review of the steps that the community should take to accelerate critical research. This meeting will assess the status of research and product development to fight the 2019 novel Coronavirus epidemic; including diagnostics, therapeutics, and prophylactics products as well as regulatory, ethical, social sciences, animal health, data / sample sharing and other considerations; to align on a cross-functional strategy to advance the countermeasures necessary to treat patients and control transmission.

The forum will be structured in a series of plenary and group sessions, the three main overall objectives being to

- *enable the joint identification of the main knowledge gaps and research priorities;*
- *foster an acceleration of the generation of scientific information; and*
- *promote the development and generation of priority medical countermeasures to control the 2019-nCoV emergency, through an effective collaborative approach.*

*The main expected outcome will be to generate a concerted global research agenda, including priorities and frameworks for global coordination and implementation.*

A complete set of the background documents will be available on your arrival in Geneva. The working language of the consultation will be English.

Please find a [Declaration of Interests Form](#) which we kindly request you to complete and return, as soon as possible and upload directly to the event registration site or email [eventsregistration@gatesfoundation.org](mailto:eventsregistration@gatesfoundation.org) with document attached prior to the meeting.

Please [register here](#) as soon as possible.

Please note the following requirements for each registration:

**WHO reg:**

- Minimum of 15 min
- Create an account – then activate through email
- Cannot register with phone, must be on computer
- Need photo
- Need passport number

**DOI:**

- Be prepared to have an e-signature or print, sign, and scan the document

Should you require further details on the technical content of the consultation, please do not hesitate to contact Ms. Ximena Riveros Balta, email: (b) (6). For any administrative queries related to this meeting, please contact Ms Neddy Mafunga, e-mail: (b) (6) or (b) (6).

We look forward to hearing from you with regard to your participation.

Yours sincerely,

Dr. Soumya Swaminathan  
WHO Chief Scientist

Dr. Mike Ryan  
WHO Executive Director  
Health Emergencies

Prof. Yazdan Yazhanpanah  
GliPID-R Chair

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**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Thu, 19 Mar 2020 22:01:10 +0000  
**To:** Jon Cohen  
**Subject:** RE: Experimental COVID-19 vaccine test begins as U.S. volunteer receives first shot <http://bit.ly/2wfq0Bw>

(b) (6) he said I could give it to you.

BG

---

**From:** Jon Cohen <jcohen@aaas.org>  
**Sent:** Thursday, March 19, 2020 6:00 PM  
**To:** Graham, Barney (NIH/VRC) [E] (b) (6)  
**Subject:** Re: Experimental COVID-19 vaccine test begins as U.S. volunteer receives first shot <http://bit.ly/2wfq0Bw>

He didn't include his phone number in his e-mail to me, so thanks. I do have his WeChat account, and I pinged him there. Maybe he'll contact me soon. It's 6am there. I'll try and phone him in a few hours.

Thanks for the help.

Jon

On Mar 19, 2020, at 1:15 PM, Graham, Barney (NIH/VRC) [E] (b) (6) > wrote:

FYI. George Gao is head of the China CDC.

BG

Sent from my iPhone

Begin forwarded message:

**From:** George GAO (b) (6) >  
**Date:** March 19, 2020 at 1:59:25 PM EDT  
**To:** "Graham, Barney (NIH/VRC) [E]" (b) (6)  
**Subject:** Re: Experimental COVID-19 vaccine test begins as U.S. volunteer receives first shot <http://bit.ly/2wfq0Bw>

I think Jon has my email and mobile number but you can give to him

(b) (6)

发自我的iPhone

在 2020年3月20日, 01:48, Graham, Barney (NIH/VRC) [E] (b) (6) > 写道 :

Hi George,

I was speaking to Jon Cohen yesterday about coronavirus. Jon is a writer for Science and is interested in talking to a few Chinese scientists who have seen the coronavirus outbreak from the beginning.

He has a WeChat account and I told him I would reach out to a few people to let them decide if they wanted to be contacted. So it's up to you to make the contact.

Best wishes,

Barney

Sent from my iPhone

On Mar 16, 2020, at 9:59 PM, George GAO <(b) (6)> wrote:

We are working on serology

发自我的iPhone

在 2020年3月17日, 08:30, Graham, Barney (NIH/VRC) [E] (b) (6) > 写道 :

I hadn't thought about the problem of importing new cases from elsewhere after your initial wave resolved. This will not be over for a while and I'm afraid it will be worse next winter.

Do you know what percent of the total population was infected in Hubei province? My sense is that it was well under 5%.

Barney

Sent from my iPhone

On Mar 16, 2020, at 8:15 PM, George GAO <(b) (6)> wrote:

Dear Barney

Great to hear from you and pleased to know your mRNA vaccine is on its way to save life ! Yes, things are much improved in China with our day-and-night hard working for over two months (to be honest for me starting from the night of 30th Dec. 2019, almost no time to sleep) from everyone involved. However we are facing a strong challenge from the imported cases outside China. We have to work hard with anyone from all over the world, including you.

Lets team up !

All the best

George

发自我的iPhone

在 2020年3月17日, 05:24, Graham, Barney (NIH/VRC) [E] (b) (6) > 写道 :

---

Hi George,

We were able to get the mRNA vaccine trial started today It expresses the stabilized spike protein. It sounds like things are starting to calm down in China now and just ramping up in the U.S.

I hope you are able get some rest and catch up now that the worst of your epidemic is over.

Best wishes,

Barney

AP text and video: Experimental COVID-19 vaccine test begins as U.S. volunteer receives first shot <http://bit.ly/2wfg0Bw>

## Experimental COVID-19 Vaccine Test Begins as U.S. Volunteer Receives First Shot

By [LAURAN NEERGAARD](#) and [CARLA K. JOHNSON](#) / AP

March 16, 2020 2:30 PM EDT

[<image002.jpg>](#)

(SEATTLE) — U.S. researchers gave the first shot to the first person in a test of an [experimental coronavirus vaccine](#) Monday — leading off a worldwide hunt for protection even as the pandemic surges.

With a careful jab in a healthy volunteer's arm, scientists at the Kaiser Permanente Washington Research Institute in Seattle begin an anxiously awaited first-stage study of a potential COVID-19 vaccine developed in record time after the new virus exploded from China and fanned across the globe.

"We're team coronavirus now," Kaiser Permanente study leader Dr. Lisa Jackson said on the eve of the experiment. "Everyone wants to do what they can in this emergency."

The *Associated Press* observed as the study's first participant, an operations manager at a small tech company, received the injection inside an exam room. Several others were next in line for a test that will ultimately give [45 volunteers](#) two doses, a month apart.

"We all feel so helpless. This is an amazing opportunity for me to do something," said Jennifer Haller, 43, of Seattle. She's the mother of two teenagers and "they think it's cool" that she's taking part in the study.

Monday's milestone marked just the beginning of a series of studies in people needed to prove whether the shots are safe and could work. Even if the research goes well, a vaccine wouldn't be available for widespread use for 12 to 18 months, said Dr. Anthony Fauci of the U.S. National Institutes of Health. That's still important if the virus becomes a long-term threat.

This vaccine candidate, code-named mRNA-1273, was developed by the NIH and Massachusetts-based biotechnology company Moderna Inc. There's no chance participants could get infected from the shots because they don't contain the coronavirus itself.

It's not the only potential vaccine in the pipeline. Dozens of research groups around the world are racing to create a vaccine against COVID-19. Another candidate, made by Inovio Pharmaceuticals, is expected to begin its own safety study — in the U.S., China and South Korea — next month.

The Seattle experiment got underway days after the World Health Organization declared the new virus outbreak a pandemic because of its rapid global spread, infecting more than 169,000 people and killing more than 6,500.

COVID-19 has upended the world's social and economic fabric since [China first identified the virus](#) in January, with regions shuttering schools and businesses, restricting travel, canceling entertainment and sporting events, and encouraging people to stay away from each other.

Starting what scientists call a first-in-humans study is a momentous occasion for scientists, but Jackson described her team's mood as "subdued." They've been working round-the-clock readying the research in a part of the U.S. struck early and hard by the virus.

Still, "going from not even knowing that this virus was out there ... to have any vaccine" in testing in about two months is unprecedented, Jackson told the *AP*.

Some of the study's carefully chosen healthy volunteers, ages 18 to 55, will get higher dosages than others to test how strong the inoculations should be. Scientists will check for any side effects and draw blood samples to test if the vaccine is revving up the immune system, looking for encouraging clues like the NIH earlier found in vaccinated mice.

"We don't know whether this vaccine will induce an immune response, or whether it will be safe. That's why we're doing a trial," Jackson stressed. "It's not at the stage where it would be possible or prudent to give it to the general population."

Most of the vaccine research under way globally targets a protein aptly named "spike" that studs the surface of the new coronavirus and lets it invade human cells. Block that protein and people won't get infected.

Researchers at the NIH copied the section of the virus' genetic code that contains the instructions for cells to create the spike protein. Moderna encased that "messenger RNA" into a vaccine.

The idea: The body will become a mini-factory, producing some harmless spike protein. When the immune system spots the foreign protein, it will make antibodies to attack — and be primed to react quickly if the person later encounters the real virus. That's a much faster way of producing a vaccine

than the traditional approach of growing virus in the lab and preparing shots from either killed or weakened versions of it.

But because vaccines are given to millions of healthy people, it takes time to test them in large enough numbers to spot an uncommon side effect, cautioned Dr. Nelson Michael of the Walter Reed Army Institute of Research, which is developing a different vaccine candidate.

“The science can go very quickly but, first, do no harm, right?” he told reporters last week.

The Seattle research institute is part of a government network of centers that test all kinds of vaccines, and was chosen for the coronavirus vaccine study before COVID-19 began spreading widely in Washington state.

Kaiser Permanente screened dozens of people, looking for those who have no chronic health problems and aren’t currently sick. Researchers aren’t checking whether would-be volunteers already had a mild case of COVID-19 before deciding if they’re eligible. If some did, scientists will be able to tell by the number of antibodies in their pre-vaccination blood test and account for that, Jackson said. Participants will be paid \$100 for each clinic visit in the study.

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**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Fri, 10 Apr 2020 18:17:08 +0000  
**To:** Corbett, Kizzmekia (NIH/VRC) [E]; Morabito, Kaitlyn (NIH/VRC) [E]; Ruckwardt, Tracy (NIH/VRC) [E]; Carlton, Kevin (NIH/VRC) [E]  
**Cc:** Mascola, John (NIH/VRC) [E]; Seder, Robert (NIH/VRC) [E]; Roederer, Mario (NIH/VRC) [E]; Sullivan, Nancy (NIH/VRC) [E]  
**Subject:** [REDACTED] (b) (4), (b) (5)  
**Attachments:** [REDACTED] (b) (4), (b) (5)  
[REDACTED] (b) (4), (b) (5)

This is a relatively cleaned up version of the document we need to share with [REDACTED] (b) (4), (b) (5)

I've also attached a tracked and trimmed version. [REDACTED] (b) (4), (b) (5)  
[REDACTED] (b) (4), (b) (5)  
[REDACTED] (b) (4), (b) (5)

If we could all take a few minutes to address the comments left in the cleaned up version. [REDACTED] (b) (4), (b) (5)  
[REDACTED] (b) (4), (b) (5)

Thanks to Kaitlyn and all for getting this together. I've copied John and the NHP team in case you are interested in commenting on this initial draft document. [REDACTED] (b) (5)  
[REDACTED] (b) (5)

Barney

**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Wed, 8 Apr 2020 18:37:54 +0000  
**To:** Grady, Christine (NIH/CC/BEP) [E]  
**Cc:** Danis, Marion (NIH/CC/BEP) [E]  
**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:

1. (b) (5)
- 2.
- 3.

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)

---

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

[REDACTED] (b) (5)

Thank you very much,  
Christine

**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Sun, 15 Mar 2020 14:26:52 +0000  
**To:** Neil King  
**Subject:** RE: [REDACTED] (b) (4)

I'll try calling later this evening.

BG

**From:** Neil King [REDACTED] (b) (6) >  
**Sent:** Sunday, March 15, 2020 10:14 AM  
**To:** Graham, Barney (NIH/VRC) [E] <[REDACTED] (b) (6) >  
**Subject:** Re: [REDACTED] (b) (4)

Hi Barney,

I don't want to annoy you, but let me know if you'd like to chat again about [REDACTED] (b) (4)  
[REDACTED] (b) (4)

Thanks,  
Neil

On Sun, Mar 15, 2020 at 6:50 AM Neil King [REDACTED] (b) (6) > wrote:  
That's what I was thinking too. [REDACTED] (b) (4) We'll need  
help from you all, of course.

Neil

On Sun, Mar 15, 2020 at 6:47 AM Graham, Barney (NIH/VRC) [E] [REDACTED] (b) (6) > wrote:  
Thanks Neil,

This may come up in discussions about interventions during the current outbreak and will be difficult to  
not talk about it. Sooner rather than later would be best.

Barney

**From:** Neil King [REDACTED] (b) (6) >  
**Sent:** Sunday, March 15, 2020 9:43 AM  
**To:** Graham, Barney (NIH/VRC) [E] [REDACTED] (b) (6) Corbett, Kizzmekia (NIH/VRC) [E]  
[REDACTED] (b) (6) >; Hutchinson, Geoffrey (NIH/VRC) [F] [REDACTED] (b) (6) >;

Kaneikiyo, Masaru (NIH/VRC) [E] (b) (6)>; Daniel Ellis (b) (6)>  
**Subject:** Fwd: (b) (4)

Hi Barney et al.,

Just wanted to let you all know that (b) (4)  
(b) (4)

Thanks,  
Neil

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

From: **CoMotion Reporting** <[jpreport@uw.edu](mailto:jpreport@uw.edu)>

Date: Thu, Mar 12, 2020 at 12:00 PM

Subject: (b) (4)

To: (b) (6) Daniel R. Ellis (b) (6), George T Ueda  
(b) (6)

Cc: Dennis A Hanson (b) (6), Samantha N. Cayabyab (b) (6)>, Trisha N Davis  
(b) (6)

Dear Investigators King, Ellis and Ueda:

(b) (4)

Dennis Hanson  
Title: Senior Technology Manager  
Phone: 206.543.0430  
Email: [hansonda@u.washington.edu](mailto:hansonda@u.washington.edu)

Thank you for submitting your innovation to UW CoMotion. We look forward to working with you to extend the impact of your innovation.

Sincerely,  
Tina Huang

**CoMotion Reporting**

CoMotion at University of Washington

CoMotion Innovation Center, Box 354950  
4545 Roosevelt Way NE, Suite 400, Seattle, WA 98105  
206.543.3970 | fax (206) 616-3322  
[ipreport@uw.edu](mailto:ipreport@uw.edu) | [comotion.uw.edu](http://comotion.uw.edu)

—

**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Wed, 11 Mar 2020 13:17:03 +0000  
**To:** Hiatt, Nissa (NIH/VRC) [C]  
**Subject:** Re: COVID-19 tx

... although I couldn't even take a cup of coffee ☺

BG

Sent from my iPhone

On Mar 11, 2020, at 7:59 AM, Hiatt, Nissa (NIH/VRC) [C] <(b) (6)> wrote:

I will handle. Nice to know their going rate.

Best,

Nissa

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

On Mar 9, 2020, at 6:48 PM, Graham, Barney (NIH/VRC) [E] <(b) (6)> wrote:

FYI. I'm not interested in this and drugs are not my specialty. Maybe someone in DMID.

BG

**From:** Michael Flanagan <michael.flanagan@firstwordgroup.com>  
**Sent:** Monday, March 9, 2020 6:46 PM  
**To:** Graham, Barney (NIH/VRC) [E] <(b) (6)>  
**Subject:** Re: COVID-19 tx

Hello there Dr. Graham,

I hope this finds you well. I am writing a story about possible therapeutics for COVID-19 and came across a related paper you authored during a search through Pubmed archives. Specifically, I'm hoping to learn a little more about some of the candidates that are being tested (remdesivir is the most high profile, of course, but there seem to be a number of other antivirals and supportive care candidates being evaluated). *FirstWord* offers honorarium for key opinion leader interviews – typically \$250 per half-hour, which ought to be enough to run through my questions. Any chance you might be able to squeeze me in sometime in the next few days?

Thanks! MF

--

---

**Michael Flanagan**  
Executive Editor  
**FirstWord**

---

Office: +1.608.692.5536

[www.firstwordgroup.com](http://www.firstwordgroup.com)

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**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Wed, 18 Mar 2020 15:58:45 +0000  
**To:** Corbett, Kizzmekia (NIH/VRC) [E]  
**Subject:** RE: next COVID-19 animal model -

This is WHO who will be helping with pre-qualification of any vaccines coming through in the next year.  
I sent Andrea a bunch of names. (b) (5)

BG

---

**From:** Corbett, Kizzmekia (NIH/VRC) [E] (b) (6)>  
**Sent:** Wednesday, March 18, 2020 11:37 AM  
**To:** Graham, Barney (NIH/VRC) [E] (b) (6)>  
**Subject:** Re: next COVID-19 animal model -

(b) (5)  
. Academics can wait.

--

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

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

---

**From:** Barney Graham <(b) (6)>  
**Date:** Wednesday, March 18, 2020 at 11:30 AM  
**To:** Andrea Carfi (b) (6)>  
**Cc:** Kizzmekia Corbett (b) (6)>, Bennett Hamilton  
(b) (6)>, Kaitlyn Morabito (b) (6)>,  
"Alvarado, Gabriela (NIH/VRC) [C]" (b) (6)>, "Bok, Karin (NIH/VRC) [E]"  
(b) (6)>, "Stein, Judy (NIH/VRC) [C]" (b) (6)>  
**Subject:** RE: next COVID-19 animal model -



(b) (6)>; Morabito, Kaitlyn (NIH/VRC) [E] (b) (6);  
Alvarado, Gabriela (NIH/VRC) [C] (b) (6)>; Bok, Karin (NIH/VRC) [E]  
(b) (6); Stein, Judy (NIH/VRC) [C] (b) (6)

**Subject:** Re: next COVID-19 animal model -

Hi Barney,

Would be possible to know who is in this working group. Are companies included?

Andrea

On Mar 18, 2020, at 8:40 AM, Graham, Barney (NIH/VRC) [E] (b) (6)> wrote:

FYI. How would you all feel about sharing data with this WHO group Tomorrow morning. There are a lot of opinion leaders on the call, so could be helpful. (b) (4)

Barney

Sent from my iPhone

Begin forwarded message:

**From:** "GSELL, Pierre" (b) (6)>  
**Date:** March 18, 2020 at 5:10:24 AM EDT  
**To:** "Graham, Barney (NIH/VRC) [E]" <(b) (6)>  
**Cc:** Simon Funnell (b) (6)>, Cesar Munoz-Fontela (b) (6)>, William Dowling (b) (6)  
**Subject:** FW: next COVID-19 animal model -

Dear Barney,

Thanks again for your participation in the animal group.

In preparation for tomorrow's call, 2pm Geneva time, please let us know if you have any new data that you would like to share with the group. If so, please send us a couple of slides in advance. Of particular interest would be a brief summary of animal data that was generated to move forward the Moderna candidate vaccine to Phase 1 and further plans to assess vaccine and therapeutics effectiveness in animals. Please advise.

Kind regards and apologies for short notice.

Pierre-Stéphane Gsell

Technical Officer

R&D Blueprint | Health Emergencies Programme | 1156

World Health Organization | Avenue Appia 20 | 1211 Geneva 27 | Switzerland

Desk: (b) (6) | Mob: (b) (6) | (b) (6)

---

**From:** Simon Funnell (b) (6) >

**Sent:** 17 March 2020 12:34

**To:** GSELL, Pierre (b) (6) >

**Subject:** OFFICIAL: RE: Draft slides email

Dear COVID-19 modelling group participant, thank you for your continued participation in this growing international collaboration.

Please find attached the Webex dial-in details for our next COVID-19 modelling *ad hoc* experts, regulators and funders telecon.

Our agenda for the 19<sup>th</sup> March will include;

1. Introduction followed by verbal updates on
  1. Non-human primate studies
  2. Ferret studies
  3. Murine studies
  4. Any other infection modelling studies
1. Update on the current emergency use situation
2. Identification of what we can do now to provide regulators confidence to proceed with Phase 1 vaccine studies
3. Identification of what we can do now to accelerate the identification and use of therapeutics as soon as possible
4. AOB

Please email us slides (no more than 3 for a 5 minute talk) if you have an update you would like to share with us.

We need to hear from all of you if you have live or recently completed studies especially related to disease enhancement if it occurs.

Please note that we intend to keep to a weekly Thursday telecon schedule for the time being in order to help attendees plan their participation in what we know are challenging circumstances for all.

There are many participants so please mute your microphone unless invited to speak by Pierre to avoid feedback and assist orderly communication between participants. Please also use a headset where possible as speakerphones tend to be source of feedback problems.

If you cannot attend this call, please update the growing excel summary table found in the sharepoint drive and view the presentations of this and previous calls. Access to the sharepoint drive is also included as a reminder;

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

You will also find minutes of our previous calls in the meetings subdirectory. Your contributions have already led to refinement and continued input will help reduce unnecessary replication of global effort.

 **Please consider the environment before printing this email**

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**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Mon, 23 Mar 2020 13:08:58 +0000  
**To:** Emily M Brammer  
**Subject:** RE: phone interview re: antibody-based approaches to viral treatment

Not available for this.

BG

---

**From:** Emily M Brammer <emily.mckenzie@axonadvisors.com>  
**Sent:** Monday, March 23, 2020 8:51 AM  
**To:** Graham, Barney (NIH/VRC) [E] (b) (6)  
**Subject:** RE: phone interview re: antibody-based approaches to viral treatment

Hi Dr. Graham,

Did you have a moment to review the request for an interview below? Is this something you can do this week?

Regards,

Emily

---

**From:** Emily M Brammer  
**Sent:** Friday, March 20, 2020 4:53:35 PM  
**To:** (b) (6)>  
**Subject:** phone interview re: antibody-based approaches to viral treatment

Dear Dr. Graham,

I hope you are staying well!

By way of introduction, my name is Emily McKenzie, and I work at Axon Advisors. We specialize in brokering subject matter expertise.

One of our clients has requested phone interviews with experts in [antibody-based approaches to viral treatment and prophylaxis \(obviously, with an eye towards coronavirus\)](#).

Would you have time to speak with my client? The call should last approx. 60 min., and we would compensate you (or a charity of your choice if you cannot accept payment for consulting) [\\$600/hr](#) for your time.

Some topics to be discussed are:

- Strategies for selecting mAbs (or polyclonal antibodies, I guess in this situation) for viral antigens
  - How long is the discovery process?
  - What is being selected for?
- Prior examples for antibody or serum treatments for viral infections
  - Pro/cons v other modalities?
  - Why aren't they used more broadly?
- Who is working on this?
  - Leaders in the field of antibody selection against viral targets?
  - What is required to move quickly?
- Amenability of CoV to antibody targeting
  - How is CoV similar/different compared to other viruses targeted with antibodies?
  - Will this work?

If available, please let me know what time works best for you and the phone number at which you can be reached then. We are hoping to schedule the calls to take place next week.

Thank you in advance for your consideration! If you have questions, feel free to call me at the number below.

Regards,

Emily

**Emily McKenzie**

**Axon Advisors**

333 N. Alabama St., Ste. 350

Indianapolis, IN, 46204

317-800-7952

[www.axonadvisors.com](http://www.axonadvisors.com)

**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Fri, 20 Mar 2020 21:36:27 +0000  
**To:** Scranton, Kavitha (ELS-CMA)  
**Subject:** RE: Immunity Request for Review (b) (6) - TIME SENSITIVE

Hi Kavitha,

We are spread so thin trying to manage the SARS-2 response and vaccine development that I can't add anything else. I'm sorry, it looks like it could be an interesting paper. Similar to something (b) (6)

Take care,

Barney

---

**From:** Scranton, Kavitha (ELS-CMA) <kscranton@cell.com>  
**Sent:** Friday, March 20, 2020 5:08 PM  
**To:** Graham, Barney (NIH/VRC) [E] (b) (6)>  
**Subject:** Re: Immunity Request for Review (b) (6) TIME SENSITIVE

Dear Barney,

As I mentioned, we're trying to review COVID-19 papers quickly, within 3-5 days if possible, but we also appreciate that this is a difficult and stressful time. Please let me know if you'll be able to take a look at this paper, and we're happy to work with you to come to a reasonable deadline that works for you.

If you don't have time to look at this, any suggestions for alternate reviewers would be appreciated.

Best,  
Kavitha

Kavitha Scranton, Ph.D. | Senior Scientific Editor, [Immunity](#) | 50 Hampshire Street, 5th Floor, Cambridge, MA 02139, USA | Tel: +1-617-397-2851 | Email: [kscranton@cell.com](mailto:kscranton@cell.com) | Website: [www.cell.com/immunity](http://www.cell.com/immunity) | Twitter: [@ImmunityCP](#) [@KavithaSci](#)

---

**From:** <[em.immunity.5b1c.6a11ab.bd20b528@editorialmanager.com](mailto:em.immunity.5b1c.6a11ab.bd20b528@editorialmanager.com)> on behalf of Kavitha Scranton <[em@editorialmanager.com](mailto:em@editorialmanager.com)>  
**Reply-To:** "Scranton, Kavitha (ELS-CMA)" <[kscranton@cell.com](mailto:kscranton@cell.com)>  
**Date:** Friday, March 20, 2020 at 5:07 PM  
**To:** "Scranton, Kavitha (ELS-CMA)" <[kscranton@cell.com](mailto:kscranton@cell.com)>  
**Subject:** Immunity Request for Review (b) (6) - TIME SENSITIVE

You are being carbon copied ("cc:'d") on an e-mail "To" "Barney Graham"

(b) (6)

CC: [kscranton@cell.com](mailto:kscranton@cell.com)

Dear Dr. Graham,

I am writing to invite you to review a manuscript by

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

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

For our short format articles, we are looking for findings of high novelty that open up new avenues of research for the field or have immediate implications for therapeutic applications. In the interest of facilitating a more rapid dissemination of findings of immediate impact, we recognize that not all points of the paper may be fully fleshed out, as they traditionally are in our full-length papers. However, as with all [Immunity](#) articles, Reports should be scientifically and technically sound, and the data should fully support the main conclusions. In your evaluation of this manuscript, in addition to the technical and experimental aspects, we would appreciate it if you would comment specifically on the level of advance and it's suitability for an *Immunity* Report. **If you have any questions about this new potential format or would like to discuss it further, please contact me directly by replying to this email, and I would be happy to set up a time to talk.**

Please note that by agreeing to review, you are also agreeing to have your comments and identity transferred between professional editors of Cell Press journals within the context of the [Cell Press Article Transfer System](#).

If you agree to review the manuscript, it would be due in 10 days. If this is a busy time, I would be grateful if you could suggest alternative referees for this manuscript. Please do keep diversity of gender, career stage and geography in mind as you make these suggestions.

Please accept or decline this invitation by selecting the appropriate link below:

AGREE: \*\*\*\*\*

DECLINE: \*\*\*\*\*

Your username is: \*\*\*\*\*

If you need to retrieve password details, please go to: [Immunity](#)

Thank you and with best regards,

Kavitha Scranton, Ph.D.  
Scientific Editor, *Immunity*  
[immunity@cell.com](mailto:immunity@cell.com)  
Phone: 617-397-2851

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

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---

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**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Thu, 23 Apr 2020 15:24:52 +0000  
**To:** Alma Bamogo Assanatou  
**Cc:** (b) (6)  
**Subject:** RE: RE: RSV GOLD project

Hi Assa,

The main groups (b) (4)  
(b) (4)

Best wishes,

Barney

---

**From:** Alma Bamogo Assanatou (b) (6)  
**Sent:** Thursday, April 23, 2020 6:04 AM  
**To:** Graham, Barney (NIH/VRC) [E] (b) (6)  
**Cc:** (b) (6)  
**Subject:** Fwd: RE: RSV GOLD project

Hello Barney,  
Hope this finds you well and safe during this pandemic of covid19.  
There is an upcoming (b) (4)  
(b) (4)

Thanks for your help. I have been following the coronavirus vaccine development and know how busy you are at this time.

Best,  
Assa

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

From: rsvgold <[rsvgold@umcutrecht.nl](mailto:rsvgold@umcutrecht.nl)>  
To: Haoua Tall (b) (6)  
Cc: "Lowensteyn, Y.N." <(b) (6)> 'Dr ESSOH' (b) (6),  
(b) (6)  
Date: Tue, 21 Apr 2020 08:58:49 +0000  
Subject: RE: RSV GOLD project

Dear Haoua,

I hope all is well with you in these pandemic times. I am just sending a quick email to check in to see whether you have been able to see if there are any other collaborating centers around you that you could put us in touch with? We would greatly appreciate it.

Also, I'd like to introduce the **ICU Network Study**. The ICU Network Study aims to start real-time inclusion of RSV mortality cases in 10 ICU's in GAVI eligible countries worldwide. We ultimately hope that the study will allow for real-time RSV mortality data collection through the RSV GOLD database. We will receive funding from the Bill and Melinda Gates Foundation to **provide the chosen locations with standard RSV testing**, for at least the duration of the study.

(b) (4)

(b) (4) I have also attached a short study description for you to take a look at and possibly share with others. Your help would be truly appreciated.

If you are currently too occupied by the COVID-19 situation to focus on this project, we completely understand. Please let me know and I'll send you a reminder when things have settled down.

I look forward to hearing from you!

Best wishes and many thanks, also on behalf of RSV GOLD team,

Dunja

---

**Van:** rsvgold

**Verzonden:** dinsdag 24 maart 2020 15:14

**Aan:** Haoua Tall; (b) (6)

**CC:** Lowensteyn, Y.N.; 'Dr ESSOH'; (b) (6)

**Onderwerp:** RE: RSV GOLD project

Dear Haoua,

Thank you for your quick reply! Also, thank you for checking whether you might have any new RSV mortality cases to share.

(b) (4)

Are you aware of any other collaborating centers around you that you could put us in touch with? We would greatly appreciate it.

I look forward to hearing from you and to continuing our collaboration.

Best wishes and many thanks,

Dunja

---

**Van:** Haoua Tall (b) (6)  
**Verzonden:** donderdag 19 maart 2020 16:50  
**Aan:** rsvgold; (b) (6)  
**CC:** Lowensteyn, Y.N.; 'Dr ESSOH' (b) (6)  
**Onderwerp:** RE: RSV GOLD project

Dear RSV GOLD Team  
Thank you for your email.  
Unfortunately we do not have new RSV mortality cases to share.  
Do you have a shortlist of collaborating centers around us that are already in the consortium/could be invited? We could help put you in touch.  
Thanks  
Haoua

---

**De :** rsvgold (b) (6)  
**Envoyé :** jeudi 19 mars 2020 12:45  
**À :** (b) (6)  
**Cc :** Lowensteyn, Y.N. <(b) (6)>  
**Objet :** RSV GOLD project

Dear Dr. Gessner and Dr. Tall,

First of all, I hope you are all doing well during this pandemic time. We would like to thank you again for your valuable contributions to the success of RSV GOLD!

Based on your collaboration with RSV GOLD in the past, we would like to inquire whether you have any new RSV mortality cases to share with us since you last shared data with us.

In case you have new mortality cases to share with us, please let me know whether you still have a link for our online questionnaire or whether you would like to receive a new link.

If you could put us in touch with any other people in your network who may have cases of pediatric RSV mortality to contribute to the registry, we would also greatly appreciate it.

Thank you so much for your time and efforts.

Best wishes, also on behalf of the RSV GOLD team,

Ichelle van Roessel, Researcher  
Yvette Löwensteyn, MD, Project Leader  
Natalie Mazur, MD MSc, Project Manager  
Prof. Dr. Louis Bont, MD, PhD  
Wilhelmina Children's Hospital  
University Medical Centre Utrecht, The Netherlands

[Learn more on RSVGOLD.com](http://RSVGOLD.com)

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*Denk s.v.p aan het milieu voor u deze e-mail afdrukt.*

---

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**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Tue, 31 Mar 2020 10:20:49 +0000  
**To:** Edwards, Kathryn  
**Subject:** RE: Vaccine chapter on COVID 19

Let me talk with Mark.

BG

---

**From:** Edwards, Kathryn (b) (6)  
**Sent:** Tuesday, March 31, 2020 6:19 AM  
**To:** Graham, Barney (NIH/VRC) [E] (b) (6)  
**Subject:** Re: Vaccine chapter on COVID 19

end of the year. what about getting helpers to do lots of the work? Any young people you have? what about mark d or stan p? But say what you want Barney. If you want to say no, then just say it. Thinking about you so much and knowing that David would be so proud of all that you are doing for the world. k

---

**From:** Graham, Barney (NIH/VRC) [E] (b) (6)  
**Sent:** Tuesday, March 31, 2020 4:07 AM  
**To:** Edwards, Kathryn (b) (6)  
**Subject:** RE: Vaccine chapter on COVID 19

Hi Kathy,

I'm so swamped right now it doesn't feel like I should say yes. However, because it's you asking I'm considering.

Can you say when it will be due?

BG

---

**From:** Edwards, Kathryn (b) (6)>  
**Sent:** Friday, March 27, 2020 4:32 PM  
**To:** Graham, Barney (NIH/VRC) [E] (b) (6)  
**Subject:** Vaccine chapter on COVID 19

We are going to need a vaccine chapter on COVID 19. Would you be able to do that? Would you like to add other authors? Would Mark Denison or Stan Perlman be helpful or would there

be others that you might like to pick? I know that you are swamped but Stanley Plotkin and the other authors wanted me to reach out to you.

[ **WARNING** : This email came from an external source. Please treat this message with additional caution.]

**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Mon, 20 Apr 2020 01:24:09 +0000  
**To:** Billet, Courtney (NIH/NIAID) [E]  
**Cc:** Daucher, Marybeth (NIH/NIAID) [E]; Mascola, John (NIH/VRC) [E]; Harris, Christina (NIH/NIAID) [E]; Routh, Jennifer (NIH/NIAID) [E]  
**Subject:** Re: VRC -- please review

Thanks Courtney. I wonder if you could [REDACTED] (b) (5)

(b) (5)

Thanks,

Barney

Sent from my iPhone

On Apr 19, 2020, at 6:54 PM, Billet, Courtney (NIH/NIAID) [E] [REDACTED] (b) (6) wrote:

Thanks all – we will go with this and keep you posted.

---

**From:** Daucher, Marybeth (NIH/NIAID) [E] [REDACTED] (b) (6)>  
**Sent:** Sunday, April 19, 2020 6:54 PM  
**To:** Mascola, John (NIH/VRC) [E] [REDACTED] (b) (6)>; Billet, Courtney (NIH/NIAID) [E] [REDACTED] (b) (6)>  
**Cc:** Graham, Barney (NIH/VRC) [E] [REDACTED] (b) (6); Harris, Christina (NIH/NIAID) [E] [REDACTED] (b) (6); Routh, Jennifer (NIH/NIAID) [E] [REDACTED] (b) (6)>  
**Subject:** Re: VRC -- please review

Agree

---

**From:** "Mascola, John (NIH/VRC) [E]" [REDACTED] (b) (6)  
**Date:** Sunday, April 19, 2020 at 6:45:20 PM  
**To:** "Billet, Courtney (NIH/NIAID) [E]" [REDACTED] (b) (6)>  
**Cc:** "Graham, Barney (NIH/VRC) [E]" [REDACTED] (b) (6)>, "Daucher, Marybeth (NIH/NIAID) [E]"

(b) (6)>, "Harris, Christina (NIH/NIAID) [E]" (b) (6), "Routh, Jennifer (NIH/NIAID) [E]" (b) (6)>

**Subject:** Re: VRC -- please review

This makes sense to me.

Thanks

John

Sent from my iPhone

On Apr 19, 2020, at 18:32, Billet, Courtney (NIH/NIAID) [E] <(b) (6)> wrote:

I wonder if (b) (5)  
(b) (5)

(b) (5)

---

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

**Sent:** Sunday, April 19, 2020 5:54 PM

**To:** Billet, Courtney (NIH/NIAID) [E] (b) (6)>; Graham, Barney (NIH/VRC) [E]

(b) (6)>; Daucher, Marybeth (NIH/NIAID) [E] (b) (6)>; Harris, Christina (NIH/NIAID) [E] (b) (6)

**Cc:** Routh, Jennifer (NIH/NIAID) [E] (b) (6)

**Subject:** RE: VRC -- please review

Hi Courtney,

Some suggested edits.

(b) (5)

(b) (5)

(b) (5) hence some of the suggested edits.

Thanks,  
John

---

**From:** Billet, Courtney (NIH/NIAID) [E] (b) (6) >

**Sent:** Sunday, April 19, 2020 11:32 AM

**To:** Mascola, John (NIH/VRC) [E] (b) (6); Graham, Barney (NIH/VRC) [E] (b) (6); Daucher, Marybeth (NIH/NIAID) [E] (b) (6); Harris, Christina (NIH/NIAID) [E] (b) (6) >

**Cc:** Routh, Jennifer (NIH/NIAID) [E] (b) (6)

**Subject:** VRC -- please review

We propose to use this language in response to inquiries about media/public/congressional inquiries

(b) (5)

**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Sat, 28 Mar 2020 13:23:10 +0000  
**To:** Reilly, Deborah (NIH/VRC) [E]  
**Subject:** Accepted: COVID-19 Daily Check-in

**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Thu, 5 Mar 2020 20:39:23 +0000  
**To:** Mascola, John (NIH/VRC) [E]; Austin, Sarah (NIH/NIAID) [E]; Daucher, Marybeth (NIH/NIAID) [E]; Hiatt, Nissa (NIH/VRC) [C]; Harris, Christina (NIH/NIAID) [E]; Prince, Tasheema (NIH/VRC) [C]  
**Cc:** Hartman, Brenda (NIH/VRC) [E]; Ledgerwood, Julie (NIH/NIAID) [E]; Koup, Richard (NIH/VRC) [E]; Gall, Jason (NIH/VRC) [C]  
**Subject:** RE: VIP Tour

Looks good. Dr. Fauci's quote was especially gratifying.

BG

---

**From:** Mascola, John (NIH/VRC) [E] (b) (6) >  
**Sent:** Thursday, March 5, 2020 3:34 PM  
**To:** Austin, Sarah (NIH/NIAID) [E] (b) (6) >; Daucher, Marybeth (NIH/NIAID) [E] (b) (6) >; Hiatt, Nissa (NIH/VRC) [C] (b) (6) Harris, Christina (NIH/NIAID) [E] (b) (6); Prince, Tasheema (NIH/VRC) [C] (b) (6) >  
**Cc:** Graham, Barney (NIH/VRC) [E] (b) (6) Hartman, Brenda (NIH/VRC) [E] (b) (6) Ledgerwood, Julie (NIH/NIAID) [E] (b) (6); Koup, Richard (NIH/VRC) [E] (b) (6) >; Gall, Jason (NIH/VRC) [C] (b) (6) >  
**Subject:** RE: VIP Tour

Very nice. Some polishing changes – so here is my version below – please read for any mistakes and polish. If anyone here sees key omissions, please feel free to add.

Thanks,  
John  
-----

(b) (5)

John R. Mascola, MD  
Director, Vaccine Research Center  
NIAID, NIH

---

**From:** Austin, Sarah (NIH/NIAID) [E] (b) (6)>

**Sent:** Thursday, March 5, 2020 1:04 PM

**To:** Mascola, John (NIH/VRC) [E] (b) (6); Daucher, Marybeth (NIH/NIAID) [E]  
(b) (6); Hiatt, Nissa (NIH/VRC) [C] (b) (6); Harris, Christina  
(NIH/NIAID) [E] (b) (6)>; Prince, Tasheema (NIH/VRC) [C]  
(b) (6)

**Cc:** Graham, Barney (NIH/VRC) [E] (b) (6)>; Hartman, Brenda (NIH/VRC) [E]  
(b) (6); Ledgerwood, Julie (NIH/NIAID) [E] (b) (6); Koup, Richard

(NIH/VRC) [E] <[REDACTED] (b) (6)>; Gall, Jason (NIH/VRC) [C] <[REDACTED] (b) (6)>

**Subject:** Re: VIP Tour

Hi John,

Draft text for VRC-wide email is below for review:

(b) (5)



John R. Mascola, MD  
Director, Vaccine Research Center  
NIAID, NIH

---

**From:** "Mascola, John (NIH/VRC) [E]"

**Date:** Tue, Mar 3, 2020, 9:16 PM

**To:** "Daucher, Marybeth (NIH/NIAID) [E]" , "Hiatt, Nissa (NIH/VRC) [C]" , "Austin, Sarah (NIH/NIAID) [E]" , "Harris, Christina (NIH/NIAID) [E]" , "Prince, Tasheema (NIH/VRC) [C]"

**CC:** "Graham, Barney (NIH/VRC) [E]" , "Hartman, Brenda (NIH/VRC) [E]" , "Ledgerwood, Julie (NIH/NIAID) [E]" , "Koup, Richard (NIH/VRC) [E]" , "Gall, Jason (NIH/VRC) [C]"

**Subject:** RE: VIP Tour

While I'm thinking of it – I'd like to put out a brief note from me to all staff, (b) (5)

(b) (5)

Thanks,

John

---

**From:** Daucher, Marybeth (NIH/NIAID) [E] (b) (6)

**Sent:** Tuesday, March 3, 2020 4:27 PM

**To:** Mascola, John (NIH/VRC) [E] (b) (6); Hiatt, Nissa (NIH/VRC) [C]  
(b) (6)>

**Cc:** Prince, Tasheema (NIH/VRC) [C] (b) (6); Harris, Christina (NIH/NIAID) [E]  
(b) (6); Graham, Barney (NIH/VRC) [E] (b) (6); Hartman, Brenda  
(NIH/VRC) [E] (b) (6)

**Subject:** RE: VIP Tour

Thanks John,

We agree! And we will work with NIH and the WH (b) (5)

---

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

**Sent:** Tuesday, March 3, 2020 4:18 PM

**To:** Hiatt, Nissa (NIH/VRC) [C] < (b) (6) >

**Cc:** Prince, Tasheema (NIH/VRC) [C] (b) (6); Harris, Christina (NIH/NIAID) [E] (b) (6); Daucher, Marybeth (NIH/NIAID) [E] (b) (6) >; Graham, Barney (NIH/VRC) [E] (b) (6)

**Subject:** VIP Tour

Nissa,

Thanks for your great work helping to coordinate this VIP tour – it went very well!

(b) (5)

Thanks,

John

John R. Mascola, M.D.

Director, Vaccine Research Center

National Institute of Allergy and Infectious Diseases

National Institutes of Health

**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Wed, 29 Jan 2020 11:32:41 +0000  
**To:** Gershoni, Jonathan  
**Cc:** Jonathan Gershoni  
**Subject:** Re: Hope your flight was fine

It would also help [REDACTED] (b) (4)

BG

Sent from my iPhone

On Jan 29, 2020, at 12:04 PM, Graham, Barney (NIH/VRC) [E] <[REDACTED] (b) (6)> wrote:

I think it's OK because of the [REDACTED] (b) (4)

My main hesitation is that [REDACTED] (b) (4)  
[REDACTED] (b) (4)

Barney

---

**From:** Gershoni, Jonathan [REDACTED] (b) (6) >  
**Sent:** Wednesday, January 29, 2020 5:50 AM  
**To:** Graham, Barney (NIH/VRC) [E] [REDACTED] (b) (6)  
**Cc:** Jonathan Gershoni [REDACTED] (b) (6)  
**Subject:** Re: Hope your flight was fine

thanks for the comments and suggestions,

[REDACTED] (b) (4)

Thanks very much,

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:** Wednesday, January 29, 2020 12:40  
**To:** Gershoni, Jonathan (b) (6)  
**Cc:** Jonathan Gershoni (b) (6)  
**Subject:** RE: Hope your flight was fine

Thanks Jonathan,

I've tracked some suggested edits and comments. I think (b) (4)

(b) (4)

Figures 4 & 5 need better labeling.

Figure 6 and Table. It is likely if they are interested that you will be limited to 4 displays.

Best wishes,

Barney

---

**From:** Gershoni, Jonathan (b) (6) >  
**Sent:** Tuesday, January 28, 2020 10:41 AM  
**To:** Graham, Barney (NIH/VRC) [E] (b) (6) >

**Cc:** Jonathan Gershoni [REDACTED] (b) (6) >

**Subject:** Re: Hope your flight was fine

Oooops, I guess I am tired, here are the attachments

J

---

**From:** Gershoni, Jonathan [REDACTED] (b) (6) >

**Sent:** Tuesday, January 28, 2020 17:40

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

**Cc:** Jonathan Gershoni [REDACTED] (b) (6)

**Subject:** Hope your flight was fine

Hi

Hope that your flight was uneventful and all is good in Spain!

I am 99% finished and will send it out tomorrow (Wednesday the 29th). [REDACTED] (b) (4)

Please just let me know if that is ok, thanks.

I have made final corrections and everything but the legends to figures are complete. I will finish the legends and then submit.

I am attaching the final versions,

[REDACTED] (b) (4)

Thanks again,

Best,

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

(b) (6)

website: <http://gershoni.wixsite.com/labsite>

---

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

**Sent:** Monday, January 27, 2020 19:57

**To:** Gershoni, Jonathan (b) (6)

**Cc:** Jonathan Gershoni (b) (6)

**Subject:** Re: Any thoughts?

Hi Jonathan. I am swamped over here with meetings, calls, emails, interviews, etc. I'll getting on a plane to Spain later this evening and may be able to look it over then. (b) (4)

(b) (6)

Barney

Sent from my iPhone

On Jan 27, 2020, at 12:21 PM, Gershoni, Jonathan (b) (6) > wrote:

Hi Barney,

I have pretty much finalized the article and would like to send it out tomorrow or Wednesday at the latest. (b) (4)

(b) (4)

Many 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:** Tuesday, January 21, 2020 03:24  
**To:** Gershoni, Jonathan (b) (6) >  
**Subject:** Re: Can we chat?

I can look for a time this week early in my morning. You are 7 hours ahead and I would be calling about 7 am. Which day would work best for you.

Barney

Sent from my iPhone

On Jan 17, 2020, at 5:49 AM, Gershoni, Jonathan (b) (6) > wrote:

Hi Barney

I would like to chat with you about the new Coronavirus in China.

Please send me your mobile and a time that is convenient for you,

I am in Israel as you know so we need to coordinate times,

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]  
**Sent:** Thu, 26 Mar 2020 13:13:25 +0000  
**To:** Corbett, Kizzmekia (NIH/VRC) [E]  
**Cc:** Morabito, Kaitlyn (NIH/VRC) [E]; Bok, Karin (NIH/VRC) [E]; Alvarado, Gabriela (NIH/VRC) [C]  
**Subject:** Fwd: [REDACTED] (b) (4)  
[REDACTED] - INTERNAL

Hi Kizzmekia,

In your response to this [REDACTED] (b) (4)

Barney

Sent from my iPhone

Begin forwarded message:

**From:** Rolando Pajon <[REDACTED] (b) (6)>  
**Date:** March 26, 2020 at 8:51:53 AM EDT  
**To:** "Corbett, Kizzmekia (NIH/VRC) [E]" [REDACTED] (b) (6)>, "Graham, Barney (NIH/VRC) [E]" [REDACTED] (b) (6), "Gall, Jason (NIH/VRC) [C]" <[REDACTED] (b) (6)>, "Stein, Judy (NIH/VRC) [C]" [REDACTED] (b) (6)>, "Morabito, Kaitlyn (NIH/VRC) [E]" [REDACTED] (b) (6), "Alvarado, Gabriela (NIH/VRC) [C]" [REDACTED] (b) (6)>, "Bok, Karin (NIH/VRC) [E]" [REDACTED] (b) (6), "Petrik, Amy (NIH/NIAID) [E]" [REDACTED] (b) (6)>, Sunny Himansu [REDACTED] (b) (6), Andrea Carfi [REDACTED] (b) (6), Bennett Hamilton [REDACTED] (b) (6), Guillaume Stewart-Jones <[REDACTED] (b) (6)>, Darin Edwards [REDACTED] (b) (6)>, Kai Wu [REDACTED] (b) (6), "Young, Monique (NIH/VRC) [E]" [REDACTED] (b) (6)>, "Chapman, Latanya (NIH/VRC) [C]" [REDACTED] (b) (6), "Grier, Shardae (NIH/VRC) [E]" [REDACTED] (b) (6)>  
**Subject: RE:** [REDACTED] (b) (4).

Hi Kizzmekia and Team,

We also need the [REDACTED] (b) (4)  
[REDACTED] (b) (4)

Please share the information you may have as soon as it is possible.

Thanks,

Rolando

**Rolando Pajon, Ph.D.**

Associate Director, Clinical Assays and Biomarkers | Moderna, Inc.

Mobile: (b) (6)

(b) (6) | [modernatx.com](http://modernatx.com)




---

**From:** Corbett, Kizzmekia (NIH/VRC) [E] (b) (6) >  
**Sent:** Tuesday, March 24, 2020 2:39 PM  
**To:** Graham, Barney (NIH/VRC) [E] (b) (6); Corbett, Kizzmekia (NIH/VRC) [E] <(b) (6)>; Gall, Jason (NIH/VRC) [C] (b) (6)>; Stein, Judy (NIH/VRC) [C] (b) (6)>; Morabito, Kaitlyn (NIH/VRC) [E] (b) (6)>; Alvarado, Gabriela (NIH/VRC) [C] (b) (6)>; Bok, Karin (NIH/VRC) [E] <(b) (6)>; Petrik, Amy (NIH/NIAID) [E] (b) (6)>; Sunny Himansu <(b) (6)>; Andrea Carfi (b) (6)>; Hamilton Bennett (b) (6); Guillaume Stewart-Jones (b) (6)>; Darin Edwards (b) (6); Kai Wu (b) (6); Rolando Pajon (b) (6)>; Young, Monique (NIH/VRC) [E] (b) (6); Chapman, Latanya (NIH/VRC) [C] (b) (6)>; Grier, Shardae (NIH/VRC) [E] (b) (6)  
**Subject:** (b) (4)

Good afternoon,  
 I am attaching the (b) (4) here. Let us know if you have any questions.

--

**Kizzmekia S. Corbett, PhD**

Senior Research Fellow | Scientific Lead

**Coronavirus Vaccines & Immunopathogenesis (coVip) Team**

Viral Pathogenesis Laboratory | Vaccine Research Center

National Institutes of Allergy and Infectious Diseases

National Institutes of Health

Building 40 Room 2608

40 Convent Drive

Bethesda MD 20892

Laboratory: (b) (6)

Personal: (b) (6)

Fax: (301) 480-2771

---

**From:** (b) (6)

**When:** 2:00 PM - 3:00 PM March 24, 2020

**Subject:** (b) (4)

**Location:** Virtual (Goto Meeting)

**\*\*CONFIRMATION\*\***

**Title of Meeting:** (b) (4)

**Principal Meeting Organizers:** Kaitlyn Morabito and Gabriela Alvarado

**Goal of Meeting:** To discuss the (b) (4)

**Date:** Tue Mar 24<sup>th</sup> 2020

**Time:** 2:00 pm

**Allotted Time:** 1 Hour

**Location:** Virtual (Goto Meeting)

**VRC Participants:** Barney Graham, Kizzmekia Corbett, Jason Gall, Judy Stein, Kaitlyn Morabito, Gabriela Alvarado, and Karin Bok

**Other NIAID Participant:** Amy Petrik

**Moderna Participants:** Sunny Himansu, Andrea Carfi, Hamilton Bennett, Guillaume Stewart-Jones, Darin Edwards, and Kai Wu

**Draft Agenda:**

(b) (4)

Thanks...Monique

(b) (6)

\*\*\*\*\*

**Meet Anytime (K)**

Please join my meeting from your computer, tablet or smartphone.

(b) (6)

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United States (Toll Free): (b) (6)

United States: (b) (6)

Access Code: (b) (6)

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**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Mon, 6 Apr 2020 20:33:24 +0000  
**To:** Shabir Madhi  
**Subject:** RE: Covid

Hi Shabir,

I would be glad to give a Zoom lecture to your group in South Africa. Let me know a time that works. Starting something at 7AM my time could work well because most days are very booked up.

Strange times, but having Zoom has made it more workable. If this had happened in 2003 with the first SARS, we would be lost.

Best wishes and take care,

Barney

---

**From:** Shabir Madhi (b) (6) >  
**Sent:** Thursday, April 2, 2020 8:28 AM  
**To:** Graham, Barney (NIH/VRC) [E] <(b) (6)>  
**Subject:** Covid

Hi Barney- realise that you very likely to be super busy, however, was wondering whether could impose for you to do a Zoom call for ALIVE with regard to SARS-COV-2 vaccine development. This will extend beyond the MSC students and will include other scientist in SA. anytime that suites you will work. Unfortunately I forgot to register for todays ADVAC alumni call  
PS! Great seeing you on Al-Jazera with AF and DT!  
RGds  
shabir



**Shabir A. Madhi**

Professor of Vaccinology: University of Witwatersrand  
Director: MRC Respiratory and Meningeal Pathogens Research Unit  
DST/NRF South African Research Chair: Vaccine Preventable Diseases  
Co-director African Leadership in Vaccinology Expertise (ALIVE)  
Address: 11th Floor, Central West Wing, ||  
Chris Hani Baragwanath Hospital, Chris Hani Road  
Diepkloof, Soweto|Gauteng, South Africa|Webpage: [www.rmpru.com](http://www.rmpru.com)  
E-mail: (b) (6) Tel: (b) (6) Switchboard:

PA: (b) (6)  
E-mail: (b) (6)  
(b) (6) Fax: 086 683 0362

---

**From:** Graham, Barney (NIH/VRC) [E] (b) (6)  
**Sent:** Thursday, 19 March 2020 00:18  
**To:** GIERSSING, Birgitte; Sinead Delany-Moretlwe; Bernard Fritzell; Shabir Madhi; Karron, Ruth; Klaus Cichutek; G Kang; Marian Wentworth; Papania, Mark (CDC/DDPHSIS/CGH/GID); Yshao; Jerome Kim;

Peter Smith; Claudio Lanata; (b) (6) Alejandro Cravioto

**Cc:** Kaslow, David; SPARROW, Erin Grace; VEKEMANS, Johan; Hasso-Agopsowicz, Mateusz; FRIEDE, Martin Howell; GRIFFIN, Geraldine Margaret

**Subject:** RE: Information on the 2020 PDVAC meeting

Thanks Gitte,

I think 2 hours a month or 4-6 hours every 2—3 months by videoteleconference could work well.

Barney

---

**From:** GIERSSING, Birgitte (b) (6) >

**Sent:** Wednesday, March 18, 2020 5:15 PM

**To:** Graham, Barney (NIH/VRC) [E] (b) (6) >; Sinead Delany-Moretlwe

(b) (6) >; Bernard Fritzell (b) (6) >; (SPmig) Shabir Madhi

(b) (6) >; Karron, Ruth (b) (6) >; Klaus Cichutek (b) (6) >; G

Kang (b) (6) >; Marian Wentworth (b) (6) >; Papania, Mark

(CDC/DDPHSIS/CGH/GID) < (b) (6) >; Yshao (b) (6) >; Jerome Kim

(b) (6) >; Peter Smith (b) (6) >; Claudio Lanata (b) (6) >;

(b) (6) >; Alejandro Cravioto (b) (6) >

**Cc:** Kaslow, David < (b) (6) >; SPARROW, Erin Grace (b) (6) >; VEKEMANS, Johan

(b) (6) >; Hasso-Agopsowicz, Mateusz (b) (6) >; FRIEDE, Martin

Howell (b) (6) >; GRIFFIN, Geraldine Margaret (b) (6) >

**Subject:** Information on the 2020 PDVAC meeting

Dear PDVAC,

Thank you for your input on the PDVAC meeting agenda last month. Since then, the situation for everyone has changed dramatically, and as you'd expect, we will be deferring the June F2F meeting. But - there are a number of important topics that we'd planned to discuss and we'd like to propose an alternative format to engage with you over the near term.

We are proposing to convene 2-3 hour virtual mini-PDVAC sessions on dedicated topics, every 4-6 weeks. To accommodate the various time zones that you are all operating over, it seems that between 2-5pm Geneva suits most people best (see below), but I apologise to those of you who'll be awake either very early or very late!

The list of proposed meeting topics below with tentative dates is based on alignment with Martin, Kate and David. We're planning to structure each Zoom call with presentations from subject matter experts, as we would in the F2F format. We hope to include approximately 10 invited observers (including industry) for the open discussion. Each meeting would then conclude with at least 30 mins closed session to address specific questions and develop recommendations. We'd like to solicit your (light touch) input as we plan these sessions.

**Could you let me know if you think this is a reasonable way to proceed? Our aim is to maintain presence and momentum for PDVAC through this challenging period, whilst prioritizing flexibility to all of you. The first meeting will likely be at the end of April.**

If you're happy to proceed, Erin Sparrow, on cc here is part of the new Vaccine Platforms & Prioritization Team within the Vaccine Product and Delivery Research – PDR - Unit (formerly IVR), and will reach out to you to schedule some placeholders for these meetings. We will also investigate the feasibility of identifying a 2 day block later in the year for a F2F meeting, but we acknowledge that there are many meetings that are being rescheduled for this time.

In follow up to the questions that you had related to how PDVAC and the R&D Blueprint interact and overlap, I did have a discussion with them and the summary of this is also pasted below.

Please don't hesitate to reach out with questions or concerns.

Very best,

Gitte

\*\*\*\*\*

Proposed list of topics and tentative dates:

- Review of existing PPCs, discussion of any required updates – April
- RSV, monoclonals (new MAb PPCs) – May
- TB – June
- ETEC (Etvax) results, burden and new PPC – July
- HIV - Sept
- CHIM – Oct
- GC - Nov

Alignment of timezones for PDVAC meetings:

Geneva	Johannesburg	London	Abuja	Washington DC	Lima	Seattle	New Delhi	Beijing	Seoul
Tue 14:00 *	Tue 14:00	Tue 13:00 *	Tue 13:00	Tue 08:00 *	Tue 07:00	Tue 05:00 *	Tue 17:30	Tue 20:00	Tue 21:00
Tue 15:00 *	Tue 15:00	Tue 14:00 *	Tue 14:00	Tue 09:00 *	Tue 08:00	Tue 06:00 *	Tue 18:30	Tue 21:00	Tue 22:00
Tue 16:00 *	Tue 16:00	Tue 15:00 *	Tue 15:00	Tue 10:00 *	Tue 09:00	Tue 07:00 *	Tue 19:30	Tue 22:00	Tue 23:00
Tue 17:00 *	Tue 17:00	Tue 16:00 *	Tue 16:00	Tue 11:00 *	Tue 10:00	Tue 08:00 *	Tue 20:30	Tue 23:00	Wed 00:00

Outcome of the meeting with R&D Blueprint:

- The R&D Blueprint covers vaccines, therapeutics and diagnostics. They have their own Scientific Advisory Group (SAG) and Global Co-ordination Meetings (GCM) to provide strategic oversight and communicate about activities related to Blueprint activities.
- The SAG reports to the STAG HI (Hazardous Infections), not SAGE.
- David Kaslow sits on the GCM but there is no overlap with the SAG and PDVAC.
- The R&D Blueprint is a member of the CEPI board, and there is close collaboration between the two.
- The list of priority vaccines is updated based on input from the SAG. TPPs and Roadmaps are developed for priority vaccines by the Blueprint team. They do not prioritize manufacturing or delivery platforms.

- Platform types that can move fastest into Phase I tend to be prioritized for funding, but there is not much focus on longer term bottlenecks - such as access issues.
- There was some concern that PDVAC was proposing to prioritise manufacturing platforms (it is not at this time). We are proposing to collaborate on product development, regulatory, acceptability aspects for novel manufacturing platforms that are common to both the PDVAC and Blueprint portfolios.
- We agreed it's important to communicate about the work that each are doing to ensure we don't duplicate or contradict. The Blueprint now has its own website and will be circulating a regular newsletter. PDVAC will inform the R&D Blueprint with respect to any consultations that might be synergistic.

**Birgitte Giersing, PhD**

Acting Team Lead Vaccine Platforms & Prioritization

Vaccine Product and Delivery Research (PDR)

Dept of Immunization, Vaccines and Biologicals (IVB) | World Health Organization (WHO)

(o) M135 (t) (b) (6) (m) (b) (6) (e) (b) (6) [t](#)

**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Mon, 30 Mar 2020 12:50:32 +0000  
**To:** Carlton, Kevin (NIH/VRC) [E]  
**Cc:** McDermott, Adrian (NIH/VRC) [E]  
**Subject:** Fwd: Assays for COVID trial

FYI. Something else for Wednesday's meeting.

Barney

Sent from my iPhone

Begin forwarded message:

**From:** "Graham, Barney (NIH/VRC) [E]" <(b) (6)>  
**Date:** March 30, 2020 at 8:48:48 AM EDT  
**To:** Tom Evans <(b) (6)>  
**Cc:** "Lee, Marina (NIH/NIAID) [E]" <(b) (6)>, Sarah Sebastian  
(b) (6)>  
**Subject:** Re: Assays for COVID trial

Hi Tom. I guess you know that (b) (4)  
(b) (4)  
(b) (4) It  
is pretty busy over here (b) (4).

Barney

Sent from my iPhone

On Mar 27, 2020, at 4:09 AM, Tom Evans (b) (6)> wrote:  
Hi Barney

(b) (4)

(b) (4)

Best  
Tom Evans MD

**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Sat, 4 Apr 2020 21:08:25 +0000  
**To:** Handley, Gray (NIH/NIAID) [E]; Bok, Karin (NIH/VRC) [E]  
**Subject:** RE: Inquiry about a potential (b) (4) proposal with (b) (4) COVID-19

Thanks Gray. (b) (5)

Take care,

Barney

---

**From:** Handley, Gray (NIH/NIAID) [E] (b) (6)  
**Sent:** Thursday, April 2, 2020 6:11 PM  
**To:** Graham, Barney (NIH/VRC) [E] <(b) (6)>; Bok, Karin (NIH/VRC) [E]  
(b) (6) >  
**Subject:** FW: Inquiry about a potential (b) (4) proposal with (b) (4) COVID-19  
**Importance:** High

I think I recall that (b) (5), (b) (4). (b) (5), (b) (4)

Gray

---

**From:** "Dong, Chunming" (b) (6) >  
**Date:** Friday, March 27, 2020 at 5:57 PM  
**To:** "Handley, Gray (NIH/NIAID) [E]" (b) (6) >  
**Cc:** "Booth, Mason (NIH/NIAID) [C]" (b) (6) >, "Myerburg, Robert J., M.D." (b) (6) >, "Goldberger, Jeffrey" (b) (6)  
**Subject:** Re: Inquiry about a potential (b) (4) proposal with (b) (4) COVID-19

Dear Gray,

Thank you so much for your response. I truly appreciate it.

(b) (4)

(b) (4)

Thank you and best regards,

Chunming

---

**From:** "Handley, Gray (NIH/NIAID) [E]" (b) (6) >  
**Date:** Friday, March 27, 2020 at 5:31 PM  
**To:** "Dong, Chunming" (b) (6) >  
**Cc:** "Booth, Mason (NIH/NIAID) [C]" <(b) (6)>  
**Subject:** FW: Inquiry about a potential (b) (4) proposal (b) (4) COVID-19

Dear Dr. Dong,

I am responding to your note addressed to Dr. Fauci and Dr. Booth.

(b) (4)

I look forward to hearing from you.

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

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(b) (6)

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**From:** "Dong, Chunming" <(b) (6)>

**Date:** Thursday, March 26, 2020 at 11:22 AM

**To:** "Fauci, Anthony (NIH/NIAID) [E]" (b) (6)>, "Booth, Mason (NIH/NIAID) [C]" (b) (6)>

**Cc:** "Jayaweera, Dushyantha (NIH)" (b) (6)>, "Dykxhoorn, Derek M." (b) (6)>, "Mirsaedi, Mehdi S. (Miami VA)" (b) (6)>, "Weiss, Roy E." (b) (6)>, "Bixby, John L" (b) (6)>, "Kobetz, Erin" <(b) (6)>

**Subject:** Inquiry about a potential (b) (4) proposal (b) (4) on COVID-19

Dear Dr. Fauci,

First thank you for being a stabilizing force and a knowledge source for the American people during this incredible period of time in history.

My name is Chunming Dong and I am a faculty member in the Department of Medicine at the University of Miami. (b) (4)

(b) (4)

I know how busy you are and I thank you for your consideration.

Best regards,

Chunming

Chunming Dong, MD, FACC  
Professor of Medicine

**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Thu, 13 Feb 2020 17:42:04 +0000  
**To:** Pittman, Iris (NIH/VRC) [E]  
**Cc:** Rothwell, Ro Shauna (NIH/VRC) [C]  
**Subject:** RE: 717- update needed- as soon as possible

I just need to be home to look it up. I have no idea about what he asked. I'm returning from the Geneva meeting on coronavirus

---

**From:** Pittman, Iris (NIH/VRC) [E] (b) (6)>  
**Sent:** Thursday, February 13, 2020 9:51 AM  
**To:** Graham, Barney (NIH/VRC) [E] (b) (6)  
**Cc:** Rothwell, Ro Shauna (NIH/VRC) [C] (b) (6)  
**Subject:** 717- update needed- as soon as possible  
**Importance:** High

Good morning Dr. Graham,  
Please respond as soon as possible to the email request from Colton Neubauer in the ethics department. He needs some updates to your information on the 717 form. We need this clearance for our VRC 607 CR.

Best Regards,  
Iris

Iris R. Pittman, B.A. ,CCRP

Program Analyst/IRB Specialist  
Clinical Trials Program  
VRC/NIAID  
9000 Rockville Pike  
Blg 40, Room 1202  
Bethesda, MD 20892  
Telephone: (b) (6)  
Email: (b) (6)

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**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Fri, 31 Jan 2020 19:44:16 +0000  
**To:** Hiatt, Nissa (NIH/VRC) [C]; Routh, Jennifer (NIH/NIAID) [E]  
**Subject:** Fwd: MEDIA REQUEST - Canadian Broadcasting Corp - Coronavirus vaccine

FYI.

Thanks for helping. I'm still in Spain and after two more conference calls planning to go to sleep for early flight tomorrow.

BG

Sent from my iPhone

Begin forwarded message:

**From:** BENJAMIN JAMIESON [REDACTED] (b) (6) >  
**Date:** January 31, 2020 at 8:11:38 PM GMT+1  
**To:** "Graham, Barney (NIH/VRC) [E]" [REDACTED] (b) (6)  
**Subject:** MEDIA REQUEST - Canadian Broadcasting Corp - Coronavirus vaccine

Hello Dr. Graham

My name is Ben Jamieson, I'm a radio producer with Canada's national broadcaster. I'm reaching out to see if you'd be available to speak with me today about possible vaccine solutions for Coronavirus and how this compares to SARS, and how you go about creating vaccines on this sort of timeline.

Would then potentially be looking to book a LIVE interview with you for this coming Monday February 3rd on our national current affairs radio show The Current.

The interview would be at 730am EST.

Please let me know if you're available today to speak.

Thank you so much,  
Ben

**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Sun, 12 Jan 2020 21:34:03 +0000  
**To:** Jason McLellan  
**Cc:** Corbett, Kizzmekia (NIH/VRC) [E]; Abiona, Olubukola (NIH/VRC) [F]; Morabito, Kaitlyn (NIH/VRC) [E]; Wang, Lingshu (NIH/VRC) [E]; Hutchinson, Geoffrey (NIH/VRC) [F]; Daniel P. Wrapp  
**Subject:** Re: Initial genome release of novel coronavirus - Novel 2019 coronavirus - Virological

(b) (4)

BG

Sent from my iPhone

On Jan 12, 2020, at 11:23 AM, Jason McLellan (b) (6) > wrote:

(b) (4)

J

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**From:** Graham, Barney (NIH/VRC) [E] (b) (6)  
**Sent:** Saturday, January 11, 2020 4:50 PM  
**To:** Jason McLellan (b) (6) >  
**Cc:** Corbett, Kizzmekia (NIH/VRC) [E] (b) (6) >; Abiona, Olubukola (NIH/VRC) [F] (b) (6) >; Morabito, Kaitlyn (NIH/VRC) [E] (b) (6) >; Wang, Lingshu (NIH/VRC) [E] (b) (6) >; Hutchinson, Geoffrey (NIH/VRC) [F] (b) (6) >; Daniel P. Wrapp (b) (6)  
**Subject:** Re: Initial genome release of novel coronavirus - Novel 2019 coronavirus - Virological

Hi All,

(b) (4)

Barney

Sent from my iPhone

On Jan 11, 2020, at 11:16 AM, Jason McLellan <(b) (6)> wrote:

Hi Kizzie,

(b) (4)

Happy Saturday!  
Jason

---

**From:** Corbett, Kizzmekia (NIH/VRC) [E] <(b) (6)>  
**Sent:** Saturday, January 11, 2020 8:42 AM  
**To:** Jason McLellan <(b) (6)>  
**Cc:** Abiona, Olubukola (NIH/VRC) [F] <(b) (6)>; Graham, Barney (NIH/VRC) [E] <(b) (6)>; Morabito, Kaitlyn (NIH/VRC) [E] <(b) (6)>; Wang, Lingshu (NIH/VRC) [E] <(b) (6)>; Hutchinson, Geoffrey (NIH/VRC) [F] <(b) (6)>

**Subject:** Fwd: Initial genome release of novel coronavirus - Novel 2019 coronavirus - Virological

Good morning Jason,

Below is the initial sequence of Wuhan coronavirus. Per my discussions with Dr. Graham, (b) (4)

(b) (4)

Could you tell me who will be leading this from your lab so I can hop on a call with them?

Happy Saturday.

Sent from the mobile device of:

Kizzmekia S. Corbett, PhD

Senior Research Fellow

NIH | NIAID | VRC

(b) (6)

---

**From:** "Kizzmekia Corbett" <(b) (6)>  
**Date:** Saturday, January 11, 2020 at 9:28:30 AM  
**To:** "Corbett, Kizzmekia (NIH/VRC) [E]" <(b) (6)>, "Graham, Barney (NIH/VRC) [E]"

(b) (6)

**Subject:** Initial genome release of novel coronavirus - Novel 2019 coronavirus - Virological

Initial genome release of novel coronavirus - Novel 2019 coronavirus - Virological

<http://virological.org/t/initial-genome-release-of-novel-coronavirus/319>

**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Fri, 17 Apr 2020 22:11:14 +0000  
**To:** Corbett, Kizzmekia (NIH/VRC) [E]  
**Cc:** Ruckwardt, Tracy (NIH/VRC) [E]; Morabito, Kaitlyn (NIH/VRC) [E]; Phung, Emily (NIH/VRC) [F]  
**Subject:** FW: (b) (5) Graphs  
**Attachments:** (b) (5)

(b) (5)

Barney

---

**From:** Corbett, Kizzmekia (NIH/VRC) [E] (b) (6)  
**Sent:** Friday, April 17, 2020 8:52 AM  
**To:** Morabito, Kaitlyn (NIH/VRC) [E] (b) (6); Graham, Barney (NIH/VRC) [E]  
(b) (6)  
**Subject:** FW: (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: (b) (6)  
Personal (b) (6)  
Fax: (301) 480-2771

---

**From:** "Phung, Emily (NIH/VRC) [F]" (b) (6)  
**Date:** Tuesday, April 14, 2020 at 12:55 PM  
**To:** Kizzmekia Corbett (b) (6);>  
**Cc:** "Chang, Lauren (NIH/VRC) [F]" (b) (6), "Abiona, Olubukola (NIH/VRC) [F]"

(b) (6)

**Subject:** (b) (5) Graphs

Hi Kizzmekia,

Attached is the PRISM file with the new graphs. The formatted graphs are highlighted in red (also attached below).

These can be accessed in /CoVip Team Sharing/Curated Prisms/Lauren and Emily  
Analyses/20200412\_2019-nCoV mRNA (b) (5)

(b) (5)

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

Thank you,  
Emily

**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Fri, 20 Mar 2020 00:28:35 +0000  
**To:** Richard J Sugrue (Assoc Prof)  
**Subject:** Re: sections

Hi Richard ,

Thanks for letting me know.

(b) (4)

Best wishes,

Barney

Sent from my iPhone

On Mar 19, 2020, at 8:08 PM, Richard J Sugrue (Assoc Prof) <(b) (6)> wrote:

Dear Barney, (b) (4)  
the covid-19 infections placed quite a bit of restriction on things that we can do (and a degree of refocus). Although things are not back to normal they have reached a status quo (for the time being anyway), and the SARS CoV2 may also be occupy a bit of my time in the coming few weeks.

(b) (4)

(b) (4)

Anyway I will let you know once we are able to (soonish) move on the

(b) (4)

Best regards,

Richard

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

**Sent:** Friday, 6 December 2019 7:21 AM

**To:** Richard J Sugrue (Assoc Prof) (b) (6) >

**Cc:** Morabito, Kaitlyn (NIH/VRC) [E] (b) (6)

**Subject:** RE: sections

Hi Richard,

Since Dr. Kaitlyn Morabito is on her way to Singapore tomorrow for a Nipah meeting, (b) (4)  
(b) (4)

(b) (4) I hope the meeting venue is not far from your lab and  
that your (b) (4).

I've attached the original paper again here for reference.

Best wishes,

Barney

---

**From:** Richard J Sugrue (Assoc Prof) (b) (6)

**Sent:** Monday, October 14, 2019 1:45 AM

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

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

**Subject:** RE: sections

Barney, I have had some discussions with people here (those that got back to me) and the consensus is

(b) (6)

(b) (4)

(b) (4). If Dr Morabito attends the meeting I will be sure to meet up with her.

Best regards

Richard

---

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

**Sent:** Monday, 30 September 2019 6:26 PM

**To:** Richard J Sugrue (Assoc Prof) <(b) (6)>

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

**Subject:** Re: sections

(b) (4)

Dr. Morabito, copied here, will be coming to Singapore for a Nipah meeting in December. She manages our RSV and emerging infection projects in the lab.

Best wishes,

Barney

Sent from my iPhone

On Sep 30, 2019, at 4:09 AM, Richard J Sugrue (Assoc Prof) <(b) (6)> wrote:

To be honest this is not something we do often. We are interested in (b) (4). I have been waiting for advice from (b) (4).

somebody local; but they have yet to get back to me about this. We have previously (b) (4)

Richard

---

**From:** Graham, Barney (NIH/VRC) [E] (b) (6)>  
**Sent:** Tuesday, 24 September 2019 11:18 PM  
**To:** Richard J Sugrue (Assoc Prof) (b) (6)  
**Cc:** Morabito, Kaitlyn (NIH/VRC) [E] (b) (6)  
**Subject:** RE: sections

OK. (b) (4)

Barney

---

**From:** Richard J Sugrue (Assoc Prof) (b) (6)  
**Sent:** Tuesday, September 24, 2019 7:24 AM  
**To:** Graham, Barney (NIH/VRC) [E] (b) (6)>  
**Cc:** Morabito, Kaitlyn (NIH/VRC) [E] (b) (6)>  
**Subject:** RE: sections

Barney, many thanks. To be honest given that (b) (4)

(b) (4)

Best regards,

Richard

---

**From:** Graham, Barney (NIH/VRC) [E] (b) (6)  
**Sent:** Tuesday, 10 September 2019 3:33 AM  
**To:** Richard J Sugrue (Assoc Prof) <(b) (6)>  
**Cc:** Morabito, Kaitlyn (NIH/VRC) [E] (b) (6)  
**Subject:** RE: sections

Hi Richard,

(b) (4)

Barney

---

**From:** Richard J Sugrue (Assoc Prof) <[REDACTED] (b) (6)>  
**Sent:** Sunday, September 8, 2019 8:23 PM  
**To:** Graham, Barney (NIH/VRC) [E] [REDACTED] (b) (6)>  
**Subject:** Re: sections

Hi Barney, many thanks for your reply. Sorry that I missed you in Singapore, if I had realised that you were attending I would have tried to make contact. I understand that things can change when a person moves institution, but would be grateful if you could see what is possible [REDACTED] (b) (4) I am just in the process of finishing off some items before embarking of newer (more translational) areas of work.

Yes would will hope to catch up at the RSV meeting in Belfast. Was there for the SGM last April; quite a good meeting. [REDACTED] (b) (6) [REDACTED] so a double incentive to attend! My current problem in Singapore is that the academic year at NTU is divided into two semesters, and my teaching commitment is pretty intensive and time consuming over the first semester i.e. semester 1 (August to mid November). It's very difficult to get off the island for most of the semester during this period. The current situation is far from ideal, [REDACTED] (b) (6) I am still here.

Anyway my best regards

Richard

---

**From:** Graham, Barney (NIH/VRC) [E] (b) (6)  
**Sent:** Wednesday, 4 September 2019 2:13 AM  
**To:** Richard J Sugrue (Assoc Prof) (b) (6)  
**Subject:** RE: sections

Hi Richard,

We haven't met, but I feel like I know you because I have followed your work on RSV/membrane interactions for over a decade, so we share a common interest.

Since I left Vanderbilt it has been difficult to (b) (4)  
(b) (4)

Hope to see you at one of the upcoming RSV meetings, perhaps the one in Belfast in Sept 2020. I was just in Singapore for the first time at the Options X ISIRV meeting on influenza. Although I didn't make it out of the hotel complex, I wish I had thought to connect with you ahead of time.

Best wishes,

Barney

---

**From:** Richard J Sugrue (Assoc Prof) (b) (6)>  
**Sent:** Tuesday, September 3, 2019 7:39 AM  
**To:** Graham, Barney (NIH/VRC) [E] (b) (6)>  
**Subject:** sections

Dear Professor Graham, we have not met before. I am a British virologist currently working in Singapore and one of my areas of interest is RSV. (b) (4)  
(b) (4)

(b) (4) and in this case if you could direct me to someone that may be able to help it would be much appreciated.

Best regards,

Richard

<image001.j  
pg> **Assoc Prof Richard J SUGRUE**  
Associate Professor, School of Biological Sciences  
50 Nanyang Avenue, SBS-03s-63, Singapore 639798  
T [REDACTED] (b) (6) [www.ntu.edu.sg](http://www.ntu.edu.sg)

<image002.jpg>

[<image003.j  
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pg>](#) [<image005.j  
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pg>](#)

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Towards a sustainable earth: Print only when necessary. Thank you.

**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Fri, 10 Apr 2020 18:56:58 +0000  
**To:** Andrea Carfi  
**Subject:** RE: Preclinical workstream  
**Attachments:** mRNA-1273 Efficacy and Vaccine-Enhanced Disease Animal Study  
Plans\_TR\_KC\_KMM\_BG trimmed\_except comments.docx

Hi Andrea,

This is a draft document that still needs a little work and resolution of the comments. Definitely not for distribution.

Why don't you look this over and then we can try to talk at 4:30.

BG

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

From: Andrea Carfi (b) (6)  
Sent: Friday, April 10, 2020 2:32 PM  
To: Graham, Barney (NIH/VRC) [E] (b) (6)  
Subject: Re: Preclinical workstream

Barney,

Not sure what document (ie topic/content) you will send out but It would be useful - to me at least - that we talk before it goes out to the larger team.

Best,  
Andrea

> On Apr 10, 2020, at 7:32 AM, Graham, Barney (NIH/VRC) [E] <(b) (6)> wrote:

>

> Let's find a time late today. We should be sending a document mid-day that will help.

>

> Barney

>

>

>

>

> Sent from my iPhone

>

>> On Apr 9, 2020, at 8:10 PM, Andrea Carfi (b) (6) wrote:

>>

>> Hi Barney,

>> I was wondered if we could talk in the next few days to see how to best coordinate preclinical experiments (b) (4)  
(b) (6) between Moderna and VRC for the coming weeks/months.

>> Best,

>> Andrea

>>

>>

>> P Please consider the environment before printing this email

>>

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>>

**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Fri, 7 Feb 2020 13:52:36 +0000  
**To:** Yates, Laura Y  
**Cc:** Boonyaratanakornkit, Jim B  
**Subject:** RE: Biosketch for Jim's K08 Resubmission  
**Attachments:** Graham BioSketch for flu 2020.docx

Here is a recent biosketch.

BG

---

**From:** Yates, Laura Y (b) (6) >  
**Sent:** Thursday, February 6, 2020 5:42 PM  
**To:** Graham, Barney (NIH/VRC) [E] <(b) (6)>  
**Cc:** Boonyaratanakornkit, Jim B (b) (6)  
**Subject:** Biosketch for Jim's K08 Resubmission

Hi Dr. Graham,

I'm reaching out regarding Jim Boonyaratanakornkit's K08 resubmission. I've reviewed and discussed with coworkers, and since you are listed as an other significant contributor on the proposal, we will need to include your biosketch. Will you please provide it by February 26th?

If you have any questions, feel free to let me know.

Thank you!  
Laura

**Laura Yates**  
Grants & Contracts Specialist - Immunology & Vaccine Development (IVD)  
Vaccine & Infectious Disease Division (VIDD)  
O (b) (6)  
(b) (6)



Fred Hutchinson Cancer Research Center  
1100 Fairview Ave. N., Mail Stop E5-110  
Seattle, WA 98109  
[fredhutch.org](http://fredhutch.org)

**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Tue, 14 Apr 2020 15:56:54 +0000  
**To:** Mascola, John (NIH/VRC) [E]; Gall, Jason (NIH/VRC) [C]; Petrik, Amy (NIH/NIAID) [E]  
**Cc:** Stein, Judy (NIH/VRC) [C]  
**Subject:** RE: AbCellera/VRC/Lilly - (b) (4), (b) (5)

It would be easier to answer (b) (4), (b) (5).

BG

---

**From:** Mascola, John (NIH/VRC) [E] (b) (6)>  
**Sent:** Tuesday, April 14, 2020 11:54 AM  
**To:** Graham, Barney (NIH/VRC) [E] (b) (6)>; Gall, Jason (NIH/VRC) [C] (b) (6)>; Petrik, Amy (NIH/NIAID) [E] (b) (6)  
**Cc:** Stein, Judy (NIH/VRC) [C] (b) (6)  
**Subject:** RE: AbCellera/VRC/Lilly - (b) (4), (b) (5)

So Barney – do you know how to respond to the inquiry from AbCellera?

---

**From:** Graham, Barney (NIH/VRC) [E] (b) (6)  
**Sent:** Tuesday, April 14, 2020 11:18 AM  
**To:** Mascola, John (NIH/VRC) [E] (b) (6)>; Gall, Jason (NIH/VRC) [C] (b) (6); Petrik, Amy (NIH/NIAID) [E] (b) (6)>  
**Cc:** Stein, Judy (NIH/VRC) [C] (b) (6)  
**Subject:** RE: AbCellera/VRC/Lilly - (b) (4)

OK. I think Lingshu provided (b) (4), (b) (5)  
(b) (4), (b) (5) but I think  
you have enough to start.

Barney

---

**From:** Mascola, John (NIH/VRC) [E] (b) (6)  
**Sent:** Tuesday, April 14, 2020 11:15 AM  
**To:** Gall, Jason (NIH/VRC) [C] (b) (6)>; Petrik, Amy (NIH/NIAID) [E] (b) (6)>;  
Graham, Barney (NIH/VRC) [E] (b) (6)>  
**Cc:** Stein, Judy (NIH/VRC) [C] (b) (6)  
**Subject:** RE: AbCellera/VRC/Lilly - (b) (4), (b) (5)

Thanks all – this is clarifying. (b) (4), (b) (5)

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

(b) (4), (b) (5) But one step at a time.

John

---

**From:** Gall, Jason (NIH/VRC) [C] (b) (6)>  
**Sent:** Tuesday, April 14, 2020 11:13 AM  
**To:** Petrik, Amy (NIH/NIAID) [E] (b) (6)>; Graham, Barney (NIH/VRC) [E] (b) (6)>; Mascola, John (NIH/VRC) [E] <(b) (6)>  
**Cc:** Stein, Judy (NIH/VRC) [C] (b) (6)>  
**Subject:** Re: AbCellera/VRC/Lilly - (b) (4), (b) (5)

I agree with everything Amy said, (b) (4), (b) (5)

---

**From:** "Petrik, Amy (NIH/NIAID) [E]" (b) (6)>  
**Date:** Tuesday, April 14, 2020 at 11:11 AM  
**To:** "Graham, Barney (NIH/VRC) [E]" (b) (6), "Mascola, John (NIH/VRC) [E]" (b) (6)>, "Gall, Jason (NIH/VRC) [C]" (b) (6)>  
**Cc:** Judy Stein (b) (6)>  
**Subject:** RE: AbCellera/VRC/Lilly - (b) (4), (b) (5)

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

---

**From:** Graham, Barney (NIH/VRC) [E] (b) (6)  
**Sent:** Tuesday, April 14, 2020 11:07 AM  
**To:** Petrik, Amy (NIH/NIAID) [E] (b) (6)>; Mascola, John (NIH/VRC) [E] (b) (6)>; Gall, Jason (NIH/VRC) [C] (b) (6)>  
**Cc:** Stein, Judy (NIH/VRC) [C] (b) (6)  
**Subject:** RE: AbCellera/VRC/Lilly - (b) (4), (b) (5)

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

Barney

---

**From:** Petrik, Amy (NIH/NIAID) [E] (b) (6)>  
**Sent:** Tuesday, April 14, 2020 10:50 AM  
**To:** Mascola, John (NIH/VRC) [E] (b) (6)>; Graham, Barney (NIH/VRC) [E] (b) (6); Gall, Jason (NIH/VRC) [C] (b) (6)  
**Cc:** Stein, Judy (NIH/VRC) [C] (b) (6)>  
**Subject:** RE: AbCellera/VRC/Lilly - (b) (4), (b) (5)

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

---

**From:** Mascola, John (NIH/VRC) [E] (b) (6)>  
**Sent:** Tuesday, April 14, 2020 10:43 AM  
**To:** Graham, Barney (NIH/VRC) [E] (b) (6)>; Gall, Jason (NIH/VRC) [C] (b) (6)>  
**Cc:** Stein, Judy (NIH/VRC) [C] (b) (6)>; Petrik, Amy (NIH/NIAID) [E] (b) (6)>  
**Subject:** RE: AbCellera/VRC/Lilly - (b) (4), (b) (5)

Adding Amy here.

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

Jason, Amy – does this make sense (b) (4), (b) (5)

Thanks,  
John

---

**From:** Graham, Barney (NIH/VRC) [E] (b) (6)  
**Sent:** Tuesday, April 14, 2020 10:32 AM  
**To:** Gall, Jason (NIH/VRC) [C] (b) (6)  
**Cc:** Stein, Judy (NIH/VRC) [C] (b) (6)>; Mascola, John (NIH/VRC) [E] (b) (6)  
**Subject:** FW: AbCellera/VRC/Lilly - (b) (4), (b) (5)

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

Barney

**From:** Tryn Stimart (b) (6) >  
**Sent:** Tuesday, April 14, 2020 7:51 AM  
**To:** Graham, Barney (NIH/VRC) [E] (b) (6) >  
**Cc:** Ester Falconer <(b) (6)>; Mascola, John (NIH/VRC) [E]  
(b) (6) >; Petrik, Amy (NIH/NIAID) [E] (b) (6); Tryn Stimart  
(b) (6) >  
**Subject:** AbCellera/VRC/Lilly - (b) (4)

Good morning Dr. Graham,

We are preparing the (b) (4)  
(b) (4)

Thank you very much for any guidance you can provide.

I have copied Ester, John as well as Amy Petrik.

Best regards,

Tryn Stimart  
AbCellera Biologics Inc.

**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Sun, 26 Jan 2020 18:52:31 +0000  
**To:** Marston, Hilary (NIH/NIAID) [E]  
**Cc:** Mascola, John (NIH/VRC) [E]; Bok, Karin (NIH/VRC) [E]; Morabito, Kaitlyn (NIH/VRC) [E]; Embry, Alan (NIH/NIAID) [E]; Ledgerwood, Julie (NIH/NIAID) [E]; Chen, Grace (NIH/NIAID) [E]  
**Subject:** Re: Patient with coronavirus

I could talk at 4pm.

As John has noted, we think [REDACTED] (b) (5)

Barney

Sent from my iPhone

On Jan 26, 2020, at 1:46 PM, Marston, Hilary (NIH/NIAID) [E] [REDACTED] (b) (6) >  
wrote:

We're all working today – should we just do today before calendars fill up tomorrow? Maybe 4pm for folks not as quick on email?

And just so I'm clear on the objectives here:

[REDACTED] (b) (5)

And how wide a net are we casting – add Amy Jenkins and Jim Crowe? Looping in Alan who is the other primary contact for CDC on these [REDACTED] (b) (5)

---

**From:** "Graham, Barney (NIH/VRC) [E]" [REDACTED] (b) (6)  
**Date:** Sunday, January 26, 2020 at 1:38 PM  
**To:** Helen Y Chu [REDACTED] (b) (6)  
**Cc:** "Mascola, John (NIH/VRC) [E]" [REDACTED] (b) (6) >, Anna Wald [REDACTED] (b) (6), "Suhana, Tina (NIH/VRC) [E]" [REDACTED] (b) (6), "Corey MD, Larry" [REDACTED] (b) (6), Julie McElrath [REDACTED] (b) (6) >, Kathleen Neuzil [REDACTED] (b) (6)

(b) (6)>, "Wesley C. Van Voorhis" (b) (6), "Corbett, Kizzmekia (NIH/VRC) [E]" (b) (6), "Morabito, Kaitlyn (NIH/VRC) [E]" (b) (6)>, Karin Bok (b) (6), "Stein, Judy (NIH/VRC) [C]" (b) (6), Julie Ledgerwood (b) (6), "Chen, Grace (NIH/NIAID) [E]" (b) (6)>, Hilary Marston (b) (6), "Austin, Sarah (NIH/NIAID) [E]" (b) (6), "Shendure, Jay" (b) (6)>, Trevor Bedford (b) (6)>

**Subject:** Re: Patient with coronavirus

Hi Helen,

(b) (5)

(b) (4) Kaitlyn Morabito is the program manager and is best POC. Kizzmekia Corbett is scientific lead and should be copied on emails. Would be good to copy other VRC people listed here as well so everyone is informed.

Best wishes,

Barney

Sent from my iPhone

On Jan 26, 2020, at 1:28 PM, Helen Y Chu (b) (6)> wrote:

Dear John,  
That sounds perfect. We will wait to hear from you about setting up a call as soon as possible.

Helen

---

**From:** Mascola, John (NIH/VRC) [E] (b) (6)>  
**Sent:** Sunday, January 26, 2020 10:18 AM  
**To:** Anna Wald; Suhana, Tina (NIH/VRC) [E]

**Cc:** Corey MD, Larry; Helen Y Chu; Julie McElrath; Kathleen Neuzil; Wesley C. Van Voorhis; Graham, Barney (NIH/VRC) [E]; Corbett, Kizzmekia (NIH/VRC) [E]; Morabito, Kaitlyn (NIH/VRC) [E]; Bok, Karin (NIH/VRC) [E]; Stein, Judy (NIH/VRC) [C]; Ledgerwood, Julie (NIH/NIAID) [E]; Chen, Grace (NIH/NIAID) [E]; Marston, Hilary (NIH/NIAID) [E]; Austin, Sarah (NIH/NIAID) [E]

**Subject:** RE: Patient with coronavirus

Great.

Helen – I just talked to Barney who will be out of town next week, but suggested we proceed with a call. Kaitlyn Morabito is coordinating efforts for his lab and our clinical staff now also copied.

So lets wait to get confirmation for Hilary Marson from Tony's office – and then Tina can find time for a call.

A key goal is to discuss [REDACTED] (b) (4)

John

---

**From:** Anna Wald [REDACTED] (b) (6)

**Sent:** Sunday, January 26, 2020 12:56 PM

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

**Cc:** Corey MD, Larry [REDACTED] (b) (6); Helen Y Chu [REDACTED] (b) (6); Julie McElrath [REDACTED] (b) (6); Kathleen Neuzil [REDACTED] (b) (6); Wesley C. Van Voorhis [REDACTED] (b) (6); Graham, Barney (NIH/VRC) [E] [REDACTED] (b) (6); Corbett, Kizzmekia (NIH/VRC) [E] [REDACTED] (b) (6); Morabito, Kaitlyn (NIH/VRC) [E] [REDACTED] (b) (6); Bok, Karin (NIH/VRC) [E] [REDACTED] (b) (6); Stein, Judy (NIH/VRC) [C] [REDACTED] (b) (6)

**Subject:** Re: Patient with coronavirus

Dear John,

That sounds perfect. While I would like to remain in the loop, I am teaching in subSaharan Africa for the next 2 weeks so calls may be hard to coordinate with my schedule and I don't want to delay the discussions. Please go ahead and work with Helen directly- I know she is excited to collaborate. Helen and I will talk so she can update me.

Please don't hesitate to call my cell if there is anything we should discuss.

Best, Anna

---

Anna Wald, MD, MPH

Head of Allergy and Infectious Diseases Division

Professor of Medicine, Laboratory Medicine & Epidemiology, University of Washington

tel. (b) (6)

fax. 206/520-4371

University of Washington Virology Research Clinic

<http://depts.washington.edu/herpes/>

**PHYSICAL LOCATION:**

908 Jefferson St, Suite 11NJ-1166, Seattle, WA 98104

**MAILING ADDRESS:**

Harborview Medical Center, 325 9th Ave, Box #359928, Seattle, WA 98104

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**From:** Mascola, John (NIH/VRC) [E] (b) (6)

**Sent:** Sunday, January 26, 2020 9:49:31 AM

**To:** Anna Wald (b) (6)

**Cc:** Corey MD, Larry (b) (6)>; Helen Y Chu (b) (6)>; Julie McElrath (b) (6); Kathleen Neuzil (b) (6)>; Wesley C. Van Voorhis (b) (6); Graham, Barney (NIH/VRC) [E] (b) (6)>; Corbett, Kizzmekia (NIH/VRC) [E] (b) (6)>; Morabito, Kaitlyn (NIH/VRC) [E] (b) (6)>; Bok, Karin (NIH/VRC) [E] (b) (6); Stein, Judy (NIH/VRC) [C] (b) (6)

**Subject:** RE: Patient with coronavirus

Dear Anna,

Thank you for this important email. We have had discussion with CDC leadership that NIAID/NIH should be primarily involved here. I'm copying the NIH POC, Dr. Hillary Marston, special assistant to Dr. Fauci.

(b) (4)

Hilary, with help from Karin Bock on our end, can help set up a call, which I suggest would first be between your group and our NIH staff.

Thank you,

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

---

**From:** Anna Wald (b) (6)  
**Sent:** Sunday, January 26, 2020 12:02 PM  
**To:** Mascola, John (NIH/VRC) [E] (b) (6)>  
**Cc:** Corey MD, Larry (b) (6)>; Helen Y Chu (b) (6)>; Julie McElrath  
(b) (6)>; Kathleen Neuzil (b) (6)>; Wesley C. Van Voorhis  
(b) (6)  
**Subject:** Patient with coronavirus

Dear Dr. Mascola,

I am reaching out on

(b) (6)

(b) (4)

I am heading to the airport in few hours for a trip to Kenya so will not be on email. However, if anyone is trying to reach me, my cell phone is (b) (6).

Thank you, Anna

---

Anna Wald, MD, MPH

Head of Allergy and Infectious Diseases Division,  
Professor of Medicine, Laboratory Medicine & Epidemiology,  
University of Washington

tel. (b) (6)

fax. 206/520-4371

University of Washington Virology Research Clinic

<http://depts.washington.edu/herpes/>

pronouns: she/her/hers

**PHYSICAL LOCATION:**

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**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Thu, 30 Apr 2020 18:36:40 +0000  
**To:** Mascola, John (NIH/VRC) [E]  
**Cc:** Gall, Jason (NIH/VRC) [C]  
**Subject:** Re: [REDACTED] (b) (4)

Emilio has a lot of experience with [REDACTED] (b) (5) time at Merck. I could talk to Lynda because I am supposed to touch base on something else with her and you could talk to Emilio.

Barney

Sent from my iPhone

On Apr 30, 2020, at 2:32 PM, Mascola, John (NIH/VRC) [E] <[REDACTED] (b) (6)> wrote:

Who should we start with – Lynda? Or should I go to Emilio?

---

**From:** Graham, Barney (NIH/VRC) [E] [REDACTED] (b) (6)>  
**Sent:** Thursday, April 30, 2020 2:19 PM  
**To:** Mascola, John (NIH/VRC) [E] [REDACTED] (b) (6); Gall, Jason (NIH/VRC) [C]  
[REDACTED] (b) (6)>  
**Subject:** RE: [REDACTED] (b) (4)

I think that's appropriate. [REDACTED] (b) (4), (b) (5)

Barney

---

**From:** Mascola, John (NIH/VRC) [E] [REDACTED] (b) (6)>  
**Sent:** Thursday, April 30, 2020 2:18 PM  
**To:** Graham, Barney (NIH/VRC) [E] [REDACTED] (b) (6)>; Gall, Jason (NIH/VRC) [C]  
[REDACTED] (b) (6)>  
**Subject:** RE: [REDACTED] (b) (4)

Should we ask [REDACTED] (b) (4), (b) (5)

---

**From:** Graham, Barney (NIH/VRC) [E] [REDACTED] (b) (6)>  
**Sent:** Thursday, April 30, 2020 2:17 PM  
**To:** Mascola, John (NIH/VRC) [E] [REDACTED] (b) (6)>; Gall, Jason (NIH/VRC) [C]

(b) (6)  
**Subject:** RE: (b) (4)

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

Barney

---

**From:** Mascola, John (NIH/VRC) [E] (b) (6)  
**Sent:** Thursday, April 30, 2020 2:14 PM  
**To:** Gall, Jason (NIH/VRC) [C] (b) (6)  
**Cc:** Graham, Barney (NIH/VRC) [E] (b) (6)>  
**Subject:** RE: (b) (4)

Jason, Barney,

Would you remind me about (b) (4), (b) (5)

---

**From:** Gall, Jason (NIH/VRC) [C] (b) (6)  
**Sent:** Thursday, April 30, 2020 2:11 PM  
**To:** Wang, Lingshu (NIH/VRC) [E] (b) (6)>  
**Cc:** Mascola, John (NIH/VRC) [E] (b) (6)>; Graham, Barney (NIH/VRC) [E] (b) (6)  
**Subject:** Re: (b) (4)

Hi Lingshu,  
Thank you for looking into it. Yes, I think about (b) (4), (b) (5)

JG

---

**From:** "Wang, Lingshu (NIH/VRC) [E]" (b) (6)  
**Date:** Thursday, April 30, 2020 at 1:49 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:** Re: (b) (4)

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

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

By the way, it looks that

(b) (5)

(b) (5)

Thanks,  
lingshu

---

**From:** "Gall, Jason (NIH/VRC) [C]" (b) (6)

**Date:** Thursday, April 30, 2020 at 10:03 AM

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

**Subject:** (b) (4)

Hi Lingshu,

How are you? I imagine you are really busy!

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

Thank you,  
Jason

**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Sun, 15 Mar 2020 14:31:10 +0000  
**To:** Petrik, Amy (NIH/NIAID) [E]; Morabito, Kaitlyn (NIH/VRC) [E]  
**Cc:** Stein, Judy (NIH/VRC) [C]; Mascola, John (NIH/VRC) [E]  
**Subject:** RE: future plans with (b) (4)

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

Barney

---

**From:** Petrik, Amy (NIH/NIAID) [E] (b) (6) >  
**Sent:** Thursday, March 12, 2020 5:30 PM  
**To:** Morabito, Kaitlyn (NIH/VRC) [E] (b) (6) >; Graham, Barney (NIH/VRC) [E]  
(b) (6) >  
**Cc:** Stein, Judy (NIH/VRC) [C] (b) (6)  
**Subject:** future plans with (b) (4)

Hi Barney and Kaitlyn,

I just had a conversation with (b) (4) during which they (b) (4), (b) (5)  
(b) (4), (b) (5)

Thanks,  
Amy

**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Wed, 11 Mar 2020 13:21:23 +0000  
**To:** Nigel Theobald  
**Cc:** [REDACTED] (b) (4)  
**Subject:** Re: Covid-19 [REDACTED] (b) (4)

Thank you for your interest. [REDACTED] (b) (4)

Barney

Sent from my iPhone

On Mar 11, 2020, at 7:13 AM, Nigel Theobald [REDACTED] (b) (6) wrote:

Dear Barney

[REDACTED] (b) (4)

Kind regards

Nigel

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Virus-free. [www.avg.com](http://www.avg.com)

**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Wed, 18 Mar 2020 16:06:53 +0000  
**To:** Hiatt, Nissa (NIH/VRC) [C]  
**Cc:** Prince, Tasheema (NIH/VRC) [C]; Bok, Karin (NIH/VRC) [E]; Corbett, Kizzmekia (NIH/VRC) [E]  
**Subject:** RE: Interview request: BBC World Service

Was this ever cleared or scheduled?

BG

---

**From:** Hiatt, Nissa (NIH/VRC) [C] (b) (6) >  
**Sent:** Monday, March 16, 2020 5:30 PM  
**To:** Graham, Barney (NIH/VRC) [E] (b) (6) >  
**Cc:** Prince, Tasheema (NIH/VRC) [C] (b) (6) >; Bok, Karin (NIH/VRC) [E] (b) (6) >; Corbett, Kizzmekia (NIH/VRC) [E] (b) (6)  
**Subject:** Fwd: Interview request: BBC World Service

Hi Barney,

Are you interested in doing a 15 minute radio interview for a science program on the BBC World Service? They would like to tape audio on Wednesday morning if you are interested and available.

Please let me know if they should send for clearance and any availability you might have.

Best,  
Nissa

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

Begin forwarded message:

**From:** "Deatrick, Elizabeth (NIH/NIAID) [C]" (b) (6)  
**Date:** March 16, 2020 at 5:17:43 PM EDT  
**To:** "Hiatt, Nissa (NIH/VRC) [C]" (b) (6) "Prince, Tasheema (NIH/VRC) [C]" (b) (6) >

**Cc:** NIAID Media Inquiries <[mediainquiries@niaid.nih.gov](mailto:mediainquiries@niaid.nih.gov)>

**Subject:** Interview request: BBC World Service

Hi Nissa,

We've received an interview request from the BBC World Service—specifically, BBC Science Radio--for somebody from the VRC, to talk about the COVID-19 vaccine development process. This would be a 15-20 minute "internet audio link" (so, like a fancier Skype), which would be recorded for radio. They're hoping to do this on Wednesday morning.

Would Dr. Graham, or another expert, be interested?

Best,

Elizabeth Deatrick

*Scientific Communications Editor*

*Employee of Cape Fox Shared Services*

*Contracted to work for the National Institute of Allergy and Infectious Diseases (NIAID)*

(b) (6)

(b) (6)

*Please note that I am not a spokesperson for NIAID and should not be quoted as such.*

**From:** Graham, Barney (NIH/VRC) [E]  
**Sent:** Mon, 20 Apr 2020 22:28:14 +0000  
**To:** Hutchinson, Geoffrey (NIH/VRC) [F]; Neil King; Corbett, Kizzmekia (NIH/VRC) [E]  
**Cc:** Daniel Ellis; Ruckwardt, Tracy (NIH/VRC) [E]; Fisher, Brian (NIH/VRC) [E]  
(b) (6)  
**Subject:** RE: SARS-CoV-2 sequence for (b) (4)

We can just take our current (b) (5), (b) (4) Let's talk to Brian and Tracy about that.

BG

---

**From:** Hutchinson, Geoffrey (NIH/VRC) [F] (b) (6)  
**Sent:** Monday, April 20, 2020 6:03 PM  
**To:** Graham, Barney (NIH/VRC) [E] (b) (6); Neil King (b) (6); Corbett, Kizzmekia (NIH/VRC) [E] (b) (6)  
**Cc:** Daniel Ellis (b) (6)  
**Subject:** Re: SARS-CoV-2 sequence for (b) (4)

Hi Dr. Graham,

(b) (4)  
(b) (4). Perhaps somebody more experienced could help?

Geoff

---

**From:** "Graham, Barney (NIH/VRC) [E]" (b) (6)>  
**Date:** Monday, April 20, 2020 at 5:30 PM  
**To:** Neil King (b) (6)>, "Hutchinson, Geoffrey (NIH/VRC) [F]" (b) (6)>, "Corbett, Kizzmekia (NIH/VRC) [E]" (b) (6)  
**Subject:** SARS-CoV-2 sequence for (b) (4)

Hi everyone. (b) (4)  
(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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