**From:** Ivins, Bruce E Dr USAMRIID
**To:** '(b) (6) [redacted]
**Subject:** 2003 Anthrax Meeting in Nice
**Date:** Wednesday, February 13, 2002 1:31:57 PM

---

Bonjour, (b) (6) [redacted] Comment allez-vous? Excusez mon francais, si'l vous plait!

I am trying to learn French! I am writing to ask you about the 2003 International Anthrax Meeting. Are we still going to have it in Nice? I hope so! Because of the terrorism on September 11, I have been worried that the meeting might be canceled.

I hope you are doing well. I am looking forward to Nice in 2003!

Sincerely,

- Bruce

**From:** Ivins, Bruce E Dr USAMRIID
**To:** (b) (6) [redacted]
**Subject:** Animal protocol B01-11 - Addendum
**Date:** Monday, February 11, 2002 10:49:04 AM
**Attachments:** [redacted]

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(b) (6) [redacted]

I am sending you an email copy of an addendum to Animal Protocol (b) (2) [redacted] (b) (6) [redacted] who is acting Bacteriology Division Chief this week, has been asked to forward her approval to this addendum.

- Bruce

**From:** Ivins, Bruce E Dr USAMRIID
**To:** (b) (6) [redacted]
**Subject:** FW: A possible discussion
**Date:** Thursday, February 07, 2002 7:38:42 AM

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-----Original Message-----
From: Ivins, Bruce E Dr USAMRIID
Sent: Thursday, February 07, 2002 7:32 AM
To: (b) (6) [redacted]
Subject: RE: A possible discussion

Hi (b) (6)
I'll be happy to give you my personal opinion, but it can't be posted because "we speak with one voice" here, and I am not that voice. I absolutely agree that a lethal dose for an individual who is elderly, immunocompromised, has been a heavy smoker for years (or who otherwise has decreased pulmonary/ airway clearance function) would probably be far less than for a young healthy individual. There is no doubt in my mind that the dose of spores which killed the poor lady in Connecticut probably was inhaled by a number of other, much younger and healthier individuals, who cleared the spores and experienced no ill effects at all. As far as the question about the "other 7,999 spores," inhalation anthrax may be a function of overcoming macrophages by sheer numbers of spores taken up. A macrophage ingesting one or two spores may kill them quite efficiently. Macrophages faced with ingesting and killing large numbers of spores may be unable to completely wipe out the ingested spore population, leaving some to multiply. The "spores per macrophage" ratio may well be a function of both the number of spores inhaled and retained as well as the number of alveolar macrophages available to ingest the spores. Now...where do we find an "old folks" home for rhesus monkeys to test our theory? :)
- Regards,
- Bruce (We don't make anthrax spore powder at USAMRIID) Ivins

-----Original Message-----
From: (b) (6) [redacted]
Sent: Wednesday, February 06, 2002 8:28 PM
To: (b) (6) [redacted]
Subject: A possible discussion

Y'All,

(b) has posed a very simple question, which might form the excuse for a discussion on the realities of a true human LD50 for inhalation anthrax. If there are any illuminating responses, I will gladly post them all. But if (b) question were to just lie there when posted, it is, unfortunately, taking up time & space. So for the purposes of efficiency I would prefer bulk or nothing.

For myself I see the LD50 as being made up of two parcels of spores:

[1] The first 'parcel' is made up of the spores that get swept up by the mucous blanket & ciliary bed and shuffled up the bronchus and tipped out, leaving

[2] The true challenging dose.

Both are a function of age, health, and prior exposure, such that the elderly have a poor capacity to shovel out spores and a poor resistance to the remaining spores. On the other hand a fit 25 yo may be able to shovel away gross volumes of spores and have a significantly high resistance. One can imagine others with a fit "shovel" but a low resistance, and maybe vice-versa. There are, I believe, those who believe that any spores left in the lung after the shovelling will cause disease.

Put another way I suspect that the original research never differentiated between the ages and health statuses of the hundreds of monkeys used in the calculations of LD50 but lumped them altogether, only using exposure as the variable factor.

But that's only my view.

Yours?

(b) (6)

PS: Send any replies to me so that (b) doesn't have to take the time to pass them on. (b)

(b) (6)

"It is imperative not to allow administrative action to get ahead of proved facts"
Paul Fildes, in minute to the UK BW Committee, 1950

----- Original Message -----
> .....
>
> Date: Wed, 06 Feb 2002 16:26:24 -0600
> From: (b) (6)
> Subject: A possible posting
> To: "(b) (6)
>
> I would like for you to consider posting the following question.
>
> "If we accept that the LD50 for cynomolgous monkeys is 8,000 anthrax spores,
> what are the other 7,999 spores doing? This is another way of asking
> whether the need for a larger inoculum is related to some stochastic event
> or a principle of mass action. There must be some data out there with
> mixtures of genetically marked organisms or other data that would help
> understand this little-discussed phenomenon in infectious disease biology."
>
> (b) (6)

> (b) (6) [redacted]
>
>
>

**From:** Ivins, Bruce E Dr USAMRIID
**To:** Ivins, Bruce E Dr USAMRIID
**Subject:** FW: CDE Task Force Phone list
**Date:** Thursday, February 14, 2002 10:25:45 AM

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-----Original Message-----
From: (b) (6) [redacted]
Sent: Thursday, February 14, 2002 9:34 AM
To: Bruce.Ivins@det.amedd.army.mil
Subject: Re: CDE Task Force Phone list

Bruce:

I didn't see any attachment on the e-mail you sent....

Did you have Sertoma Clubs on your list. Also, the newspaper today had a picture of some representing the Korean War Veterans Chapter #142 (I think that was it). Am sure you have Lions Clubs. What about the Chamber of Commerce?

This is all I can think of.

(b) (6) [redacted]

**From:** Ivins, Bruce E Dr USAMRIID
**To:** (b) (6) [redacted]
**Subject:** FW: CpG in non-human primates
**Date:** Friday, January 18, 2002 8:16:29 AM

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-----Original Message-----
From: Ivins, Bruce E Dr USAMRIID
Sent: Thursday, January 17, 2002 2:56 PM
To: (b) (6) [redacted] ; 'Bruce Ivins Home'
Subject: FW: CpG in non-human primates

-----Original Message-----
From: Ivins, Bruce E Dr USAMRIID
Sent: Thursday, January 17, 2002 2:51 PM
To: (b) (6) [redacted]
Subject: RE: CpG in non-human primates

> -----Original Message-----
> From: Ivins, Bruce E Dr USAMRIID
> Sent: Wednesday, January 16, 2002 3:16 PM
> To: (b) (6) [redacted]
> Subject: RE: CpG in non-human primates
>
> (b) (6) [redacted] :
> Your idea to treat A/J mice with CpG ODN and challenge with Sterne is a fine one. If your ICACUC would let you, perhaps you could do LD50s in 2 groups of mice, one given CpG, and the other not given CpG. You could do the work in a BL-2 area lab. Your staff would not be under any risk, since the Sterne strain of B. anthracis (which NEVER reverts to virulence due to its loss of the capsule plasmid) does not cause anthrax or any other disease. You can kill laboratory animals with the strain only by injecting massive numbers of organisms or spores. If you wished, you could use the Sterne spores from the vaccine, or we could make some for you in the lab. I would suggest that the IP or sub cu route of challenge would be sufficient to tell you whether the oligos give any protection. Surprisingly, virulent B. anthracis is a BL-2 agent, although we work with it here at the BL-3 level. You would be working with the vaccine strain, the same bugs that vets spray around the barnyard when they are vaccinating livestock.
> The Sterne strain would not be especially relevant in larger animals, since so many spores would be required for a lethal infection. In the A/J mouse, however, it would be a fine model.
> Excellent idea, (b) (6) [redacted] Just let me know if you would like me to make some spores for you, or whether you wish to use the spores in the vaccine.
> - Bruce
>
> > -----Original Message-----
> > From: (b) (6) [redacted]
> > Sent: Wednesday, January 16, 2002 11:11 AM
> > To: 'Ivins, Bruce E Dr USAMRIID'
> > Subject: RE: CpG in non-human primates
> >
> > Dear Bruce,
> >
> > I'm trying to learn more about the Sterne strain of anthrax. There are some articles from the

late 80's describing the differing susceptibilty of A/J vs other murine strains to infection by Sterne. Apparently, the absence of C5 in the A/j mice significantly increases their susceptibility. They die when Sterne is administered subcutaneously, IP, or intra-tracheally. I don't know how good Sterne is as a model of virulent anthrax, or how difficult it is to work with in the lab. We're certainly not equipped to study virulent anthrax at CBER, but I was wondering if we could treat A/J mice with CpG ODN +/- rPA and challenge with Sterne. How much risk would such experiments pose to my staff? Can you provide the Sterne strain bugs for us to work with? I don't know how many organisms are in the vaccine, but the literature describes using larger numbers of anthrax at high concentration. I suspect the intra-tracheal route is the most relevant, but I don't know how infectious the mice would be to human handlers. What biocontainment level is used for such studies?

I figure that if we can help do screening in mice, while you do the large animal experiments (rabbits and monkeys), we could make progress quicker. On the other hand, Sterne may be more pathogenic than I appreciate, or the mouse model considered unworthy of the effort. Please let me know.

(b) (6)

**From:** Ivins, Bruce E Dr USAMRIID
**To:** '(b) (6) [redacted] "Bruce Ivins Home"
**Subject:** FW: CpG in non-human primates
**Date:** Thursday, January 17, 2002 2:55:56 PM

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-----Original Message-----
From: Ivins, Bruce E Dr USAMRIID
Sent: Thursday, January 17, 2002 2:51 PM
To: (b) (6) [redacted]
Subject: RE: CpG in non-human primates

> -----Original Message-----
> From: Ivins, Bruce E Dr USAMRIID
> Sent: Wednesday, January 16, 2002 3:16 PM
> To: (b) (6) [redacted]
> Subject: RE: CpG in non-human primates

(b) (6) [redacted]

Your idea to treat A/J mice with CpG ODN and challenge with Sterne is a fine one. If your ICACUC would let you, perhaps you could do LD50s in 2 groups of mice, one given CpG, and the other not given CpG. You could do the work in a BL-2 area lab. Your staff would not be under any risk, since the Sterne strain of B. anthracis (which NEVER reverts to virulence due to its loss of the capsule plasmid) does not cause anthrax or any other disease. You can kill laboratory animals with the strain only by injecting massive numbers of organisms or spores. If you wished, you could use the Sterne spores from the vaccine, or we could make some for you in the lab. I would suggest that the IP or sub cu route of challenge would be sufficient to tell you whether the oligos give any protection. Surprisingly, virulent B. anthracis is a BL-2 agent, although we work with it here at the BL-3 level. You would be working with the vaccine strain, the same bugs that vets spray around the barnyard when they are vaccinating livestock.

The Sterne strain would not be especially relevant in larger animals, since so many spores would be required for a lethal infection. In the A/J mouse, however, it would be a fine model.

Excellent idea, (b) (6) [redacted] Just let me know if you would like me to make some spores for you, or whether you wish to use the spores in the vaccine.

- Bruce

> -----Original Message-----
> From: (b) (6) [redacted]
> Sent: Wednesday, January 16, 2002 11:11 AM
> To: 'Ivins, Bruce E Dr USAMRIID'
> Subject: RE: CpG in non-human primates

Dear Bruce,

I'm trying to learn more about the Sterne strain of anthrax. There are some articles from the late 80's describing the differing susceptibilty of A/J vs other murine strains to infection by Sterne. Apparently, the absence of C5 in the A/j mice significantly increases their susceptibility. They die when Sterne is administered subcutaneously, IP, or intra-tracheally. I don't know how good Sterne is as a model of virulent anthrax, or how difficult it is to work with in the lab. We're certainly not equipped to study virulent anthrax at CBER, but I was wondering if we could treat A/J mice with CpG ODN +/- rPA and challenge with Sterne. How much risk would such experiments pose to my staff? Can you provide the Sterne strain bugs for us to work with? I don't know how many organisms are in the vaccine, but the literature describes using larger numbers of anthrax at high concentration. I suspect the intra-

tracheal route is the most relevant, but I don't know how infectious the mice would be to human handlers. What biocontainment level is used for such studies?

I figure that if we can help do screening in mice, while you do the large animal experiments (rabbits and monkeys), we could make progress quicker. On the other hand, Sterne may be more pathogenic than I appreciate, or the mouse model considered unworthy of the effort. Please let me know.

(b) (6)

**From:** Ivins, Bruce E Dr USAMRIID
**To:** "Bruce Ivins Home"
**Subject:** FW: CpG in non-human primates
**Date:** Thursday, January 17, 2002 2:51:51 PM

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-----Original Message-----
From: Ivins, Bruce E Dr USAMRIID
Sent: Thursday, January 17, 2002 2:51 PM
To: (b) (6) [redacted]
Subject: RE: CpG in non-human primates

> -----Original Message-----
> From: Ivins, Bruce E Dr USAMRIID
> Sent: Wednesday, January 16, 2002 3:16 PM
> To: (b) (6) [redacted]
> Subject: RE: CpG in non-human primates
>
> [redacted]
> Your idea to treat A/J mice with CpG ODN and challenge with Sterne is a fine one. If your ICACUC would let you, perhaps you could do LD50s in 2 groups of mice, one given CpG, and the other not given CpG. You could do the work in a BL-2 area lab. Your staff would not be under any risk, since the Sterne strain of B. anthracis (which NEVER reverts to virulence due to its loss of the capsule plasmid) does not cause anthrax or any other disease. You can kill laboratory animals with the strain only by injecting massive numbers of organisms or spores. If you wished, you could use the Sterne spores from the vaccine, or we could make some for you in the lab. I would suggest that the IP or sub cu route of challenge would be sufficient to tell you whether the oligos give any protection. Surprisingly, virulent B. anthracis is a BL-2 agent, although we work with it here at the BL-3 level. You would be working with the vaccine strain, the same bugs that vets spray around the barnyard when they are vaccinating livestock.
> The Sterne strain would not be especially relevant in larger animals, since so many spores would be required for a lethal infection. In the A/J mouse, however, it would be a fine model.
> Excellent idea, (b) (6) [redacted] Just let me know if you would like me to make some spores for you, or whether you wish to use the spores in the vaccine.
> - Bruce
>
> > -----Original Message-----
> > From: (b) (6) [redacted]
> > Sent: Wednesday, January 16, 2002 11:11 AM
> > To: 'Ivins, Bruce E Dr USAMRIID'
> > Subject: RE: CpG in non-human primates
> >
> > Dear Bruce,
> >
> > I'm trying to learn more about the Sterne strain of anthrax. There are some articles from the late 80's describing the differing susceptibilty of A/J vs other murine strains to infection by Sterne. Apparently, the absence of C5 in the A/j mice significantly increases their susceptibility. They die when Sterne is administered subcutaneously, IP, or intra-tracheally. I don't know how good Sterne is as a model of virulent anthrax, or how difficult it is to work with in the lab. We're certainly not equipped to study virulent anthrax at CBER, but I was wondering if we could treat A/J mice with CpG ODN +/- rPA and challenge with Sterne. How much risk would such experiments pose to my staff? Can you provide the Sterne strain bugs for us to work with? I don't know how many organisms are in the vaccine, but the literature describes using larger numbers of anthrax at high concentration. I suspect the intra-

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I figure that if we can help do screening in mice, while you do the large animal experiments (rabbits and monkeys), we could make progress quicker. On the other hand, Sterne may be more pathogenic than I appreciate, or the mouse model considered unworthy of the effort. Please let me know.

(b) (6)

-----Original Message-----
From: Ivins, Bruce E Dr USAMRIID [mailto:Bruce.Ivins@DET.AMEDD.ARMY.MIL]
Sent: Tuesday, January 15, 2002 9:32 AM
To: (b) (6) '
Subject: RE: CpG in non-human primates

No, (b) (6) - How about Tuesday afternoon, about 1:30 pm?
- Bruce

-----Original Message-----
From: (b) (6)
Sent: Tuesday, January 15, 2002 9:31 AM
To: 'Ivins, Bruce E Dr USAMRIID'
Subject: RE: CpG in non-human primates

Bruce,

I was writing this on my calendar, and realized that next monday may be a holiday (Martin Luther King). Are we working that day?

(b) (6)

-----Original Message-----
From: Ivins, Bruce E Dr USAMRIID [mailto:Bruce.Ivins@DET.AMEDD.ARMY.MIL]
Sent: Tuesday, January 15, 2002 9:29 AM
(b) (6)
Subject: RE: CpG in non-human primates

(b) (6) - I'll be there about 1:30.

- Bruce

-----Original Message-----
From: (b) (6)
Sent: Tuesday, January 15, 2002 9:27 AM
To: 'Ivins, Bruce E Dr USAMRIID'
Subject: RE: CpG in non-human primates

Dear Bruce,

Many thanks for your help. I'll contact (b) (6) first, then try (b)

Monday is fine to bring the vaccine. I'll be busy in the morning, but

anytime that's convenient in the afternoon would be fine with me. Just let me know what's most convenient.

(b) (6)

-----Original Message-----
From: Ivins, Bruce E Dr USAMRIID
[mailto:Bruce.Ivins@DET.AMEDD.ARMY.MIL]
Sent: Tuesday, January 15, 2002 9:00 AM
To: (b) (6)
Subject: RE: CpG in non-human primates

(b) (6),
I would recommend (b) (6) email = (b) (6) who is very active in developing vaccines against viral agents. Another possibility would be (b) (6) email = (b) (6) The dose will be 1.0 ml per animal. I'd like to bring the material down to you late Monday morning or early Monday afternoon, whichever is better for you.
- Bruce

-----Original Message-----
From: (b) (6)
Sent: Monday, January 14, 2002 4:23 PM
To: 'Ivins, Bruce E Dr USAMRIID'
Subject: RE: CpG in non-human primates

Dear Bruce,

Next week should be fine. We're still working out the vaccination/bleed schedule for the monkeys.

I plan to vaccinate all 30 animals with whatever dose you decide is best.

One other thing - there's a Keystone Symposium on Gene-based vaccines in early April. The organizers just called to ask if I could recommend someone working on a DNA vaccine against BioT agents. As I recall, there was someone either at USAMRIDD or WRAIR working on a DNA vaccine against Ebola. Do you happen to know his name? Better yet, can you recommend someone from USAMRIID in this general field who's a good speaker?

Many thanks,

(b) (6)

-----Original Message-----
From: Ivins, Bruce E Dr USAMRIID
[mailto:Bruce.Ivins@DET.AMEDD.ARMY.MIL]
Sent: Monday, January 14, 2002 3:59 PM
To: (b) (6)
Subject: RE: CpG in non-human primates

I can bring the vaccine down to you (b) (6) How many doses (ml) would you like me to bring you? When? (How about next week sometime?)

- Bruce

-----Original Message-----
From: (b) (6) [redacted]

(b) (6) [redacted]

Sent: Monday, January 14, 2002 3:03 PM
To: 'Ivins, Bruce E Dr USAMRIID'
Subject: RE: CpG in non-human primates

Dear Bruce,

I've receive permission to go ahead with the Sterne "challenge" from our ACUC. Let me know how to get the vaccine, and I'll take it from there.

(b) (6)

-----Original Message-----
From: Ivins, Bruce E Dr USAMRIID [mailto:Bruce.Ivins@DET.AMEDD.ARMY.MIL]

Sent: Monday, January 07, 2002 1:57 PM
To: (b) (6) [redacted]
Subject: RE: CpG in non-human primates

(b) (6)

Excellent! I will need to write an animal protocol here. In the meantime, we'll get the monkey data from the upcoming Sterne injections and the monkey serum subtyping. I think it would be better to do the immunizations and bleeding all here. (b) (6) [redacted] is very interested in pursuing the CpG work. I will start writing a rabbit protocol as soon as possible. I'll see about rabbit space in our animal rooms.

- Bruce

-----Original Message-----
From: (b) (6) [redacted]

(b) (6) [redacted]

Sent: Monday, January 07, 2002 1:31 PM

To: 'Ivins, Bruce E Dr USAMRIID'
Subject: RE: CpG in non-human primates

Bruce,

We have tested CpG ODN in rabbits, and have ODN of the "K" type that are active. I'd be very interested in helping with a challenge study. Let me know whether we want to start the vaccinations here or there.

(b) (6)

-----Original Message-----
From: Ivins, Bruce E Dr USAMRIID [mailto:Bruce.Ivins@DET.AMEDD.ARMY.MIL]

Sent: Monday, January 07, 2002 1:29 PM

To: (b) (6) [redacted]
Subject: RE: CpG in non-human primates

Hi, (b) (6)

I was not aware that CpG oligos had been developed for rabbits. If so, there are some things that we can certainly do until monkeys become available. We can also challenge the rabbits much more easily than we can the monkeys. If there are CpG oligos, are there "K" types?

- Bruce

-----Original Message-----
From: (b) (6) [redacted]

Sent: Monday, January 07, 2002 1:26 PM

To: 'Ivins, Bruce E Dr USAMRIID'

Subject: RE: CpG in non-human primates

Dear Bruce,

I'll look into the possibility of obtaining additional monkeys for the vaccination studies you suggest, but it could take a number of months (since animals and space are both in short supply). As an aside, we favor the use of alum since it tends to keep the ODN in close proximity to the antigen, but do get higher Ab titers if ODN without alum is co-administered with antigen.

As an interim measure, is there any chance we can do the study you suggest in rabbits, and then challenge??? It would be a lot faster and cheaper. We could do the immunizations here and transfer the rabbits to you for challenge, or give you the ODN to do the immunizations there.

(b) (6)

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

From: Ivins, Bruce E Dr USAMRIID [mailto:Bruce.Ivins@DET.AMEDD.ARMY.MIL]

Sent: Monday, January 07, 2002 10:03 AM

To: (b) (6) [redacted]

Subject: CpG in non-human primates

Hi, (b) (6) [redacted]

I've been talking to (b) (6) [redacted] about our upcoming CpG work. I think we're going to try to do some IgG subtyping of the antiserum you sent us. Also, what about the following experiment in monkeys?

Immunize at 0 and 4 weeks, collecting blood samples every 2 weeks up to about 12 weeks or so. Immunization groups would be:

1) PA
2) PA + Alhydrogel
3) PA + CpG
4) (Possibly) PA + Alhydrogel + CpG

We might think of dropping the PA dose down somewhat to magnify the differences in the immunological responses. We could look at IgM, IgG (and IgG subtypes), cytokine production, and possibly lymphocyte proliferation.

We are just completing an experiment testin the protective immunogenicity in rabbits of rPA versus rPA + Alhydrogel. Since there have been questions raised about long term administration of aluminum-adjuvanted vaccines, this might be an excellent opportunity to replace aluminum hydroxide with "K" type CpG.

I look forward to your comments and opinions. Please let me know when you would like me to bring the Sterne veterinary vaccine to you.

- Bruce

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

From: (b) (6) [redacted]

Sent: Monday, December 10, 2001 4:09 PM

To: 'Ivins, Bruce E Dr USAMRIID'

Subject: RE: Anthrax, mice, and CpG

Dear Bruce,

The data showing that "K" ODN boost both the primary and secondary immune response (especially to the rPA vaccine) is quite interesting. How can we follow up on this to examine protection? We would guess that the ODN treated animals would generate a strong Th1 (IFNg) dominated response. Can you study IgG subtypes in these monkeys? Is there some assay to examine T cell function, or is Ab the "gold standard"?

(b) (6)

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

From: Ivins, Bruce E Dr USAMRIID [mailto:Bruce.Ivins@DET.AMEDD.ARMY.MIL]

Sent: Monday, December 03, 2001 2:31 PM

To: (b) (6) [redacted]

Subject: RE: Anthrax, mice, and CpG

I attached the file below, (b) (6) It looks very interesting. Again, which arm (Th1 or Th2) of the monkey immune system do the K type ODN stimulate? I'll be out of town the next three days, but I'll be back on Friday.

- Bruce

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

From: (b) (6) [redacted]

Sent: Monday, December 03, 2001 2:24 PM

To: 'Ivins, Bruce E Dr USAMRIID'

Subject: RE: Anthrax, mice, and CpG

Dear Bruce,

Looking forward to seeing the data and discussing it with you.

(b) (6)

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

From: Ivins, Bruce E Dr USAMRIID [mailto:Bruce.Ivins@DET.AMEDD.ARMY.MIL]

Sent: Friday, November 30, 2001 2:56 PM

To: (b) (6) [redacted]

Subject: RE: Anthrax, mice, and CpG

We just obtained results from the monkey sera, (b) (6) Briefly, the D oligos didn't appear to have much effect, whereas the K type oligo group at weeks 8 and 11 showed much higher titers to PA than did either rPA vaccine or AVA. The K type oligo group had about 2-fold higher titers. We'll get you the data by email as soon as (b) (6) can mail it to me. Thanks!

- Bruce

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

From: (b) (6) [redacted]

Sent: Tuesday, November 06, 2001 11:16 AM

To: 'Ivins Bruce E'

Subject: RE: Anthrax, mice, and CpG

Dear Bruce,

Any results from the anthrax sera?

(b)

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

From: (b) (6) [redacted]

Sent: Thursday, October 11, 2001 11:17 AM

To: 'Ivins Bruce E'

Subject: RE: Anthrax, mice, and CpG

Dear Bruce,

Hope you are well. I'm just back from the major CpG ODN meeting (held once every 2 years). It is clear that the anti-pathogen role of CpG ODN has been recognized by other groups. DARPA has agreed to support studies of CpG ODN against anthrax (first in mice, then monkeys) by one of my competitors.

If you and I are to succeed in establishing the activity of the "D" ODN against anthrax, we need to get moving. I'd like to send you the sera from the monkeys in which our ODN were used as adjuvants immediately for you to test titers. If the titers are significantly elevated, would it be possible to use the animals in an aerosol challenge test? Given what's happened in Florida, I believe evidence of protection in a primate model would be most relevant. Finally, if we see that the ODN act as adjuvants, I'd like to have you test them alone as protective agents (given before or immediately after exposure).

I'd be happy to meet with whoever in the chain of command needs to be persuaded to move forward with these studies. Given the evidence of a clear and present danger, we should start immediately.

As an aside, several dozen subjects have now been treated with CpG ODN without major side effects.

(b) [redacted]

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

From: Ivins Bruce E [mailto:Bruce.Ivins@DET.AMEDD.ARMY.MIL]

Sent: Thursday, October 07, 1999 8:40 AM

To: (b) (6) [redacted]

Subject: Anthrax, mice, and CpG

Hi, (b) (6) [redacted]

As you remember, in our first experiment with the mice, we got some time-to-death extension with CpG for mice challenged with virulent B. anthracis spores. In the second experiment, we demonstrated not only time-to-death extension, but also protection from death with the CpG. In this last experiment which we just concluded, we strangely got no protection at all, in terms of either survival or increased time-to-death. I believe that the main problem is that the mouse is such a generally poor and unpredictable model for anthrax. The guinea pig is a MUCH better model for anthrax infection/protection, and our guinea pig protocol for CpG has been approved, so I think the next step should be (when we get the funds released) to go into the guinea pigs. We'll be able to look at specific as well as non-specific protection, and if we get some promising results, we can head into non-human primates. Hopefully we'll get some money released within a few weeks and we can get started then. I'll let you know. I'm sure that mice are an excellent animal model for a number of diseases, but anthrax isn't one of them.

- Bruce

**From:** Ivins, Bruce E Dr USAMRIID
**To:** (b) (6) [redacted]
**Subject:** FW: CpG in non-human primates
**Date:** Friday, January 18, 2002 8:25:02 AM

---

(b) (6) [redacted]

Your idea to treat A/J mice with CpG ODN and challenge with Sterne is a fine one. If your ICACUC would let you, perhaps you could do LD50s in 2 groups of mice, one given CpG, and the other not given CpG. You could do the work in a BL-2 area lab. Your staff would not be under any risk, since the Sterne strain of B. anthracis (which NEVER reverts to virulence due to its loss of the capsule plasmid) does not cause anthrax or any other disease. You can kill laboratory animals with the strain only by injecting massive numbers of organisms or spores. If you wished, you could use the Sterne spores from the vaccine, or we could make some for you in the lab. I would suggest that the IP or sub cu route of challenge would be sufficient to tell you whether the oligos give any protection. Surprisingly, virulent B. anthracis is a BL-2 agent, although we work with it here at the BL-3 level. You would be working with the vaccine strain, the same bugs that vets spray around the barnyard when they are vaccinating livestock.

The Sterne strain would not be especially relevant in larger animals, since so many spores would be required for a lethal infection. In the A/J mouse, however, it would be a fine model.

Excellent idea, (b) (6) [redacted] Just let me know if you would like me to make some spores for you, or whether you wish to use the spores in the vaccine.

- Bruce

-----Original Message-----
From: (b) (6) [redacted]
Sent: Wednesday, January 16, 2002 11:11 AM
To: 'Ivins, Bruce E Dr USAMRIID'
Subject: RE: CpG in non-human primates

Dear Bruce,

I'm trying to learn more about the Sterne strain of anthrax. There are some articles from the late 80's describing the differing susceptibilty of A/J vs other murine strains to infection by Sterne. Apparently, the absence of C5 in the A/j mice significantly increases their susceptibility. They die when Sterne is administered subcutaneously, IP, or intra-tracheally. I don't know how good Sterne is as a model of virulent anthrax, or how difficult it is to work with in the lab. We're certainly not equipped to study virulent anthrax at CBER, but I was wondering if we could treat A/J mice with CpG ODN +/- rPA and challenge with Sterne. How much risk would such experiments pose to my staff? Can you provide the Sterne strain bugs for us to work with? I don't know how many organisms are in the vaccine, but the literature describes using larger numbers of anthrax at high concentration. I suspect the intra-tracheal route is the most relevant, but I don't know how infectious the mice would be to human handlers. What biocontainment level is used for such studies?

I figure that if we can help do screening in mice, while you do the large animal experiments (rabbits and monkeys), we could make progress quicker. On the other hand, Sterne may be more pathogenic than I appreciate, or the mouse model considered unworthy of the effort. Please let me know.

(b) (6) [redacted]

**From:** Ivins, Bruce E Dr USAMRIID
**To:** Ivins, Bruce E Dr USAMRIID
**Subject:** FW: Disaster Training Update
**Date:** Friday, February 15, 2002 11:19:47 AM

---

-----Original Message-----
From: (b) (6) [redacted]
Sent: Thursday, February 14, 2002 10:52 AM
To: (b) (6) [redacted]
Subject: Disaster Training Update

To: All Frederick County Disaster Volunteers
From: (b) (6) [redacted]

Here are some very important training updates including the Health Services courses many of our nurses have been waiting for:

Saturday, March 9th 9 a.m. - 5 p.m. Family Services: Providing Emergency Assistance

Tuesday, March 12th 6 p.m-10 p.m. Introduction to Disaster Services

Tuesday, March 12th 6 p.m. - 10 p.m. Mass Care Overview (highly recommended for everyone in Disaster Services)

Saturday, April 20th 9 a.m. - 5: p.m. Shelter Operations/Shelter Simulations (highly recommended for all including nurses)

Tuesday, April 23rd 6 p.m. - 10 p.m. Human Resources in Disaster

Friday, April 26th 6 - 10 p.m. Health Services Overview (open to anyone who has completed Intro. - you do not need to be a nurse to take the Overview)

Saturday, April 27th 9 a.m. - 5 p.m. Health Services Simulation

Additionally - Saturday, May 18th is Walkersville Days. Last year Disaster Services sponsored a Yard Sale etc. during this event. If we are interested it's an excellent fundraiser.

Remember to register for any course you must speak to (b) (6) [redacted] directly. To register, or if you have questions concerning the prerequisites for any course, please contact me at (b) (6) [redacted]

**From:** Ivins, Bruce E Dr USAMRIID
**To:** (b) (6) [redacted]
**Subject:** FW: IG Visit Next Week
**Date:** Friday, January 18, 2002 10:12:19 AM

---

Here you are, (b) [redacted]
- Bruce

> -----Original Message-----
>From: Ivins, Bruce E Dr USAMRIID
>Sent: Tuesday, November 13, 2001 8:34 AM
>To: (b) (6) [redacted]
>Subject: RE: IG Visit Next Week
[redacted]
>(b) (2) [redacted]
(b) (6) [redacted]
>
>- Bruce
>
>
>
>
>
>
>-----Original Message-----
>From: (b) (6) [redacted]
>Sent: Friday, November 09, 2001 10:04 AM
>To: (b) (6) [redacted]
>Subject: IG Visit Next Week
>
>
>All:
>
>There will be an IG investigation team visiting RIID next week. Some of us may be selected for an interview. The questions anticipated will deal with biosecurity. I urge you all to re-familiarize yourselves with the Institute regs, and think about how you will respond to questions regarding this topic. The focus (obviously) will be on anthrax. Thanks.
>
>Please pass the info along to those I haven't captured on the mailing list. (b) (6)

>
>----------
(b) (6)
[redacted]
>

**From:** Ivins, Bruce E Dr USAMRIID
**To:** (b) (6) [redacted]
**Subject:** FW: Preparation of rPA vaccine + Alhydrogel
**Date:** Tuesday, January 22, 2002 9:34:42 AM

---

> -----Original Message-----
>From: Ivins, Bruce E Dr USAMRIID
>Sent: Wednesday, February 21, 2001 10:46 AM
>To: (b) (6) [redacted]
>Subject: Preparation of rPA vaccine + Alhydrogel
>
>Here is how we prepare our rPA vaccine with aluminum hydroxide adjuvant:
>
>Materials:
>
> 1) Dulbecco's phosphate buffered saline (PBS) without calcium and without magnesium, pH 7.4 - sterile
> 2) Aluminum hydroxide (Alhydrogel) (2% Aluminum oxide) - sterilized by autoclaving
> 3) PA in ammonim acetate buffer, pH 8.9
>
>The PA we have been using has a concentration of 1.18 mg/ml. (This can be measured by absorbance at 280 nm, since 1.0 mg/ml of PA gives a reading of 1.0.) We dilute the commercial Alhydrogel stock above 1:10.64 (final dilution in vaccine) to get 0.5 mg of metallic aluminum per 0.5 ml dose of vaccine. (I believe that the maximum allowed is 0.85 mg per dose. The current human anthrax vaccine has about 0.725 mg aluminum per dose. Below is how we would make up 10 0.5-ml doses of vaccine containing 50 micrograms of PA per dose and 0.5 mg of aluminum per dose:
>
>
> 0.424 ml of PA (500 micrograms of the 1.18 mg/ml material)
> 0.470 ml of Alhydrogel
> 4.106 ml of PBS
>
>Add the Alhydrogel to the PBS in a sterile vaccine vial and mix by swirling until an even suspension is achieved. Add the PA and swirl immediately to mix. Put on ice and allow to stand from 1 hour to overnight on ice. If desired, a small, sterile stirring bar can be added to the PBS + Alhydrogel. While on a magnetic mixer, add the PA. (We've never had a problem doing it the former way, without a stirring bar.)
>
>Hope this has been helpful.
>
>- Bruce
>

**From:** Ivins, Bruce E Dr USAMRIID
**To:** (b) (6) [redacted]
**Subject:** Isoform animal protocol
**Date:** Thursday, January 31, 2002 4:07:11 PM

---

(b) [redacted]

When you submit your protocol, it looks as if 0.1 microgram of PA per dose (with two doses for each animal) should give you about 50% protection.
Please let me know when you submit your animal protocol. Thanks!

- Bruce

**From:** Ivins, Bruce E Dr USAMRIID
**To:** (b) (6) [redacted]
**Subject:** Isoform study
**Date:** Monday, February 11, 2002 1:38:57 PM

---

(b) [redacted] - How is the animal protocol for the isoform study? I went back and looked at the data from the 2-dose study with (b) (6) [redacted] The 50% protection point for two doses is 2 doses at 0.12 micrograms of rPA per doses. Is there anything I can help with on the protocol? Would you like me to review it before submission? If you are simply looking at the difference between two isoforms, you could use a sub cu challenge instead of an aerosol challenge.

- Bruce

**From:** Ivins, Bruce E Dr USAMRIID
**To:** (b) (6) [redacted]
**Date:** Thursday, January 31, 2002 8:30:15 AM
**Attachments:** [redacted]

---

**From:** bruce.ivins@amedd.army.mil
**To:** Bruce.ivins@amedd.army.mil
**Subject:** NYTimes.com Article: Geographic Gaffe Misguides Anthrax Inquiry
**Date:** Wednesday, January 30, 2002 3:59:20 PM

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This article from NYTimes.com
has been sent to you by bruce.ivins@amedd.army.mil.

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Geographic Gaffe Misguides Anthrax Inquiry

January 30, 2002

By WILLIAM J. BROAD

The postmarks on the deadly letters laced with anthrax made clear from the start that they came from Trenton. But tracing the origin of the strain of anthrax that killed five people last fall has been a far murkier venture. And it now turns out that scientists and investigators have been on the wrong trail all along.

Federal investigators have found in recent weeks that the so-called Ames strain was first identified not in Ames, Iowa, its reputed home, but a thousand miles south, in Texas. The strain of the bacteria was found on a dead cow near the Mexican border in 1981, and the geographic gaffe was the result of a clerical error by a scientific researcher.

It was of little consequence until last October, when investigators determined that the anthrax in the nation's first major bioterrorism attack matched the "Ames strain." Then the clerical error wound up taking the investigation on several wrong turns.

Investigators spent considerable effort trying to find the genesis of the strain in Iowa, issuing a subpoena to Iowa State University, which was known to have a sizable library of anthrax samples. Investigators persisted, even though Iowa state officials said they could find no evidence of the Ames strain.

The discovery of the true origin of Ames "looks like it gets Iowa off the hook," a senior law enforcement official said yesterday.

The criminal investigation also focused on the possibility that the anthrax used in the attacks was left over from the nation's bioweapons program, which was shut down in 1969. A scientific paper published in 2000 said Ames anthrax was a strain used in the program. But now, with the discovery that Ames emerged from Texas in 1981, that part of the investigation has also lost steam.

The discovery of the error also sheds a disturbing light on the prevalence of the virulent Ames strain. Until recently, Ames was seen as a germ that had an uncertain origin in nature and was locked away in several laboratories around the country. But now scientists and veterinary doctors say they believe that Ames is common throughout Texas.

This raises a possible public health concern and increases the possibility that last fall's bioterrorist could have simply dug anthrax out of the dirt in Texas.

"We isolate a lot of anthrax here," said Lelve G. Gayle, director of the Texas Veterinary Medical Diagnostic Laboratory in College Station. He said the Ames strain now appeared to be widely scattered in natural settings. It was found in a dead goat on a Texas ranch in 1997.

The new history of Ames, some of which was reported yesterday in The Washington Post, is being investigated by the F.B.I. along with the National Intelligence Council, which does federal threat assessments, and the Central Intelligence Agency.

"This one is the true Ames," a C.I.A. analyst said of the Texas germ. He added that the anthrax that panicked the nation last fall "all came from Texas."

That history starts in late 1980 when Gregory B. Knudson, a biologist working at the Army's biodefense laboratory at Fort Detrick, Md., was searching for new anthrax strains to use in tests of the military's vaccine. In December 1980, he wrote Texas A&M veterinary officials, according to documents obtained from Dr. Knudson.

"Unfortunately, I have discarded all my pathogenic cultures," Howard W. Whitford replied in January 1981. But he said warmer weather would probably bring new outbreaks.

Indeed, in May 1981, the disease struck a herd of 900 cows at a ranch near the Mexican border.

"This heifer in excellent flesh was found in the morning unable to rise," Michael L. Vickers, a veterinarian in Falfurrias, Tex., wrote in his case report. "By noon she was dead."

In an interview, Dr. Vickers said: "This is a very lethal strain of anthrax we have down here. It's nothing to play

with. I've seen as many as 30 head of cattle die a day until they're inoculated."

Dr. Vickers sent anthrax specimens to the Texas Veterinary Medical Diagnostics Laboratory, an arm of Texas A&M. The Texas laboratory, remembering Dr. Knudson's request, sent a sample along to Fort Detrick.

That is where the mix-up began. The Texas lab sent the iced specimens to Fort Detrick with a prepaid mailing label that Dr. Knudson has carefully preserved among his papers. Its return address is not Texas A&M at College Station but rather the National Veterinary Services Laboratories, in Ames, Iowa, an arm of the federal Agriculture Department that does diagnostic tests for state and foreign veterinary labs.

The Texas laboratory frequently sent shipments to Ames using prelabeled boxes with prepaid postage. In this case, it put on an additional label to redirect the box to Fort Detrick, with the national laboratory in Ames as the return address.

The return address blur soon became a scientific muddle.

At Fort Detrick, Dr. Knudson had gathered 27 anthrax strains. "I called this `Ames' since it came from Ames," he recalled in an interview.

In May 1986, his vaccine study and the Ames strain made their public debut. Dr. Knudson and Stephen F. Little of Fort Detrick reported in a science paper that the highly lethal strain, which killed six out of six vaccinated guinea pigs, had come from an Iowa cow.

Biologists recycled the mistake. The issue grew muddier in May 2000 when a scientific paper claimed incorrectly that Ames had been used in the American germ weapons program that was shut down in 1969.

The academic confusion became a public drama last fall. After federal experts identified the strain in the bioattacks as Ames, reporters and investigators descended on the city in Iowa.

Gov. Tom Vilsack of Iowa sent armed troopers and Iowa National Guard soldiers to safeguard Iowa State University's cache of anthrax microbes, which were kept in more than 100 vials. Some news reports said the attack germs had been stolen.

Officials in the College of Veterinary Medicine tore through old files and read cryptic labels on vials but could find no documentation that any of their germs were the Ames strain. They could find nothing to support Dr. Knudson's 1986 paper that said Ames had originated in an Iowa cow.

"We figured it had to have come through here, but we

couldn't prove it," recalled James A. Roth, an assistant dean.

In early October, the college destroyed its anthrax collection after deciding that the germs were not worth the trouble of the new high security. In an Oct. 12 statement, the college pointed a finger at its neighbor, the National Veterinary Services Laboratories, saying it "appears" to have shipped the Ames strain to Fort Detrick.

But officials there could also find no evidence of Ames. "The Army said they got it from us," recalled Tom Bunn, head of diagnostic bacteriology there. "But we have no records of this being in our laboratory."

Still, most federal and private analysts concluded that the germ had arisen in Iowa, been isolated at Iowa State, shared with the agriculture lab and from there shipped to Fort Detrick.

By December, analysts were speculating that since Iowa State had destroyed anthrax cultures dating to 1925, perhaps one of those early strains was the true Ames.

Based on that interpretation, Barbara Hatch Rosenberg, a private expert in biological weapons at the State University of New York at Purchase, concluded in widely cited December report that the powdered anthrax in the attack letters "may be a remnant of the U.S. biological weapons program."

But in December, based on interviews and a review of documents, some from Dr. Knudson's file, investigators began to unravel the true Ames story.

Dr. Knudson acknowledges his mistake, saying, "It's good to get this clarified."

Officials at Iowa State could not agree more. Critics had widely faulted the university for destroying its anthrax collection, saying important evidence in the attacks might have gone up in smoke.

"My life would have been a lot easier if it was known as the College Station strain rather than the Ames strain," Dr. Roth said.

Questions linger. An official of Iowa State's veterinary school has been subpoenaed to testify in early February before a federal grand jury in Washington about the school's handling of anthrax germs.

But the discovery of the true history of Ames has raised new concerns in Texas, where the soils appear to be widely contaminated with the lethal strain. In 1997, a goat on a Texas ranch hundreds of miles from the original site of the Ames discovery died from a type of anthrax that turned out to be genetically identical to Ames.

Ames contamination could become a safety issue if would-be

terrorists hunt for lethal germs in Texas soils, experts say.

Timothy W. Tobiason, a self-taught scientist who sells germ-weapon cookbooks at gun shows across the West, has suggested that old cattle trails in Texas and Oklahoma are ideal places to dig for anthrax microbes, and scientists say his logic is accurate enough to be dangerous.

"A lot of big cattle drives originated in this area," said Dr. Vickers, the Texas veterinarian who first isolated Ames. "It could be quite simple" for a terrorist to acquire the lethal spores.

http://www.nytimes.com/2002/01/30/national/30AMES.html?ex=1013422100&ei=1&en=aee406b3910ca259

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**From:** bruce.ivins@amedd.army.mil
**To:** bruce.ivins@amedd.army.mil
**Subject:** NYTimes.com Article: Terrorist Strain of Anthrax Studied
**Date:** Thursday, January 31, 2002 7:23:43 AM

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This article from NYTimes.com
has been sent to you by bruce.ivins@amedd.army.mil.

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Terrorist Strain of Anthrax Studied

January 30, 2002

By THE ASSOCIATED PRESS

Filed at 8:30 p.m. ET

WASHINGTON (AP) -- To Dr. Michael L. Vickers, a dead cow lying in a remote pasture of a South Texas ranch in 1981 was no different from the hundreds of other felled cattle he had seen.

Vickers, who has a private veterinary practice in nearby Falfurrias, sliced out tissue from the animal -- the liver, the spleen and other organs -- put them into a plastic ice chest and sent them by bus to a laboratory in College Station, home of Texas A&M.

He was sure the animal had died of anthrax -- the blackberry color of the spleen was the main clue -- but he sought confirmation from the Texas Veterinary Medical Diagnostic Laboratory.

``It was just another anthrax,'' recalls Vickers. ``In the field, anthrax is just anthrax. We see it just about every year.''

Vickers had no idea that 21 years later bacteria perhaps descended from those specimens he collected would be at the center of a bioterrorism attack that would kill five people, infect a dozen more and force the evacuation and sterilization of buildings in Florida, New York and Washington.

Back in 1981, workers at the College Station lab received Vickers' package and cultured specimens from the organs of the dead cow. They quickly confirmed that the specimens were loaded with bacteria with the characteristic bamboo-jointed rods of anthrax.

Dr. Konrad Eugster, chief of the diagnostic lab in 1981, remembered that the Army had earlier requested a fresh field isolate of anthrax. He said two vials filled with the anthrax cultures were packaged in ice and shipped to Fort Detrick, Md., headquarters of the Army's biological warfare research center.

Eugster said the box bore a prepaid label with the return address of the National Veterinary Services Laboratory in Ames, Iowa, an Agriculture Department facility.

According to The Washington Post and The New York Times, the specimens from Texas A&M were among 27 anthrax strains that were collected at Fort Detrick. Since the box bore an Ames, Iowa, return address, researchers called the anthrax isolate ``Ames.''

Five years later, two researchers at Fort Detrick published a science paper in which they reported the Ames strain was highly lethal when tested on laboratory animals. They also said the anthrax strain came from Iowa, continuing the mistake prompted by the mailing label.

It was a mistake that would matter little until last fall, when investigators determined that the spores used in the anthrax-by-mail attacks in Florida, New York and Washington were all the Ames strain.

This prompted investigators and the media to start asking questions in Ames, Iowa. Officials at Iowa State's College of Veterinary Medicine, which had a collection of anthrax cultures, dug through old files, but found no documentation that any of their isolates were the Ames strain, according to the Times.

The true origin of the killer strain -- that dead cow 21 years ago in Texas -- was confirmed in old Army documents, according to the Washington Post.

Vickers said he was not surprised that the spores used in the deadly anthrax attacks came from Texas.

``We have a really virulent strain,'' he said. ``I have seen 30 head (of cattle) die in just 24 hours.''

Vickers said that natural anthrax, present as spores in the mesquite and grassy prairies of south and central Texas, routinely kills scores of deer annually. Most ranchers inoculate their cattle, but some strays still get sick nearly every year, he said. Vickers recommends that ranchers avoid sick and dying cattle because the bacteria is dangerous to humans.

``I tell ranchers to pile on mesquite logs and burn the animal on the spot,'' said Vickers. To protect himself, the vet says he disposes of instruments, equipment and even clothes that have come into contact with contaminated specimens.

And as a final precaution, Vickers said he takes a full course of antibiotics after dealing with an animal that has been killed by anthrax.

``I've never had anthrax,'' he said, ``but I am very cautious.''

http://www.nytimes.com/aponline/national/AP-Anthrax-Origin.html?ex=1013488208&ei=1&en=22189606b747926f

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**From:** Ivins, Bruce E Dr USAMRIID
**To:** Ivins, Bruce E Dr USAMRIID
**Subject:** Phone Number
**Date:** Thursday, January 31, 2002 8:57:47 AM

---

Red Cross Phone Number:

(b) (6) [redacted]

**From:** Ivins, Bruce E Dr USAMRIID
**To:** (b) (6) [redacted]
**Cc:** (b) (6) [redacted]
**Subject:** Proprietary - not for Public Distribution
**Date:** Tuesday, January 22, 2002 8:06:27 AM

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Proprietary - Not for Public Distribution

This morning's Washington Post described the genomic sequencing of Ames strains. They mentioned the "USAMRIID" strain, but which USAMRIID Ames strain are they talking about? (b) (6) [redacted] and I have the original seed stock Ames strain from the agar slant received from Ames, Iowa USDA. We also have Ames spores that Dugway made for us. (b) (6) [redacted] and DSD (and possibly others) have (b) (6) [redacted] version of the Ames strain (BA 1004). This version was apparently passaged an unknown number of times while (b) (6) [redacted] was here.

The point is...when someone talks about the "USAMRIID" Ames strain, there are actually three versions of this "USAMRIID" Ames strain, with only one of them being the original slant seed stock.

- Bruce

**From:** Ivins, Bruce E Dr USAMRIID
**To:** '(b) (6)
**Subject:** RE:
**Date:** Friday, January 18, 2002 1:44:07 PM

---

Hi, (b) (6)
I hope this reaches you. I would be happy to have people in our lab make some spores for you. I'll see you on Tuesday with the Sterne spore vaccine which arrived freshly today. Have a fine weekend!
- Bruce

-----Original Message-----
From: (b) (6)
Sent: Friday, January 18, 2002 11:42 AM
To: 'Bruce.Ivins@DET.AMEDD.ARMY.MIL'
Subject:

Dear Bruce,

Thanks for the voice message and FAX. I'm sending this E mail "de novo" to you (not as an answer to earlier E mails). Maybe when the chain gets too long, my E mail system fails. In any case, I have been receiving E mails from some sources.

It's good to know that the Sterne strain is completely safe. While I'd be perfectly happy to let you do all of the challenge work, I'm taking some heat from upper level bureaucrats about not doing enough experiments in house.

I'd very much appreciate it if you could provide the Sterne bacteria. For other bugs, such as listeria, we generate a large batch and freeze them down in glycerol in 1 ml aliquots containing multiple LD 50's. If you think the A/J mice are an appropriate target (as I understand it, the succumb to infection with only require a few thousand spores), we can proceed. Naturally, I'd consider you a collaborator. Heck, I'll probably need you to interpret the results for me. Also, if I could continue to send you serum from the mice to test for Ab levels, that would be terrific.

Many thanks,

(b) (6)

**From:** Ivins, Bruce E Dr USAMRIID
**To:** (b) (6) [redacted]
**Subject:** RE:
**Date:** Thursday, January 24, 2002 10:15:28 AM

---

(b) (6) [redacted],
This is the "34F2" Sterne veterinary vaccine strain of B. anthracis. The fully virulent strain is a BSL-2 agent. If she needs to call our Safety officer, it's (b) (6) [redacted] I would also be happy to talk to her. My number is (b) (6) [redacted] This strain is lacking the capsule plasmid, pXO2, and is not pathogenic for animals or humans.
- Bruce

-----Original Message-----
From: (b) (6) [redacted]
Sent: Thursday, January 24, 2002 8:44 AM
To: 'Ivins, Bruce E Dr USAMRIID'
Subject: RE:

Dear Bruce,

The Animal Care and Use Committee has a safety officer who is requesting to know "which strain of Sterne" we'll be using in the mouse experiments. She says it's a biosafety level 2 agent, that there are multiple strains, and I need to provide her with detailed information before she'll approve the mouse work.

I know from past experience that this safety officer frequently gets things wrong. If she's right, and there are different Sterne strains, please provide what information you can. If she's wrong, and there's only one strain and it's not a BSL 2 agent, let me know and I'll contact her supervisor to put things right (I have to do that all the time with this safety officer).

Many thanks,
(b) (6) [redacted]

PS - the monkeys will be challenged this coming Tuesday, and bled after 2 and 5 weeks.

-----Original Message-----
From: Ivins, Bruce E Dr USAMRIID [mailto:Bruce.Ivins@DET.AMEDD.ARMY.MIL]
Sent: Friday, January 18, 2002 1:44 PM
To: (b) (6) [redacted]
Subject: RE:

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- Bruce

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Sent: Friday, January 18, 2002 11:42 AM
To: 'Bruce.Ivins@DET.AMEDD.ARMY.MIL'
Subject:

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Many thanks,

(b) (6)

**From:** Ivins, Bruce E Dr USAMRIID
**To:** (b) (6) [redacted]
**Subject:** RE: A possible discussion
**Date:** Thursday, February 07, 2002 7:32:04 AM

---

H(b) (6) [redacted]
I'll be happy to give you my personal opinion, but it can't be posted because "we speak with one voice" here, and I am not that voice. I absolutely agree that a lethal dose for an individual who is elderly, immunocompromised, has been a heavy smoker for years (or who otherwise has decreased pulmonary/ airway clearance function) would probably be far less than for a young healthy individual. There is no doubt in my mind that the dose of spores which killed the poor lady in Connecticut probably was inhaled by a number of other, much younger and healthier individuals, who cleared the spores and experienced no ill effects at all. As far as the question about the "other 7,999 spores," inhalation anthrax may be a function of overcoming macrophages by sheer numbers of spores taken up. A macrophage ingesting one or two spores may kill them quite efficiently. Macrophages faced with ingesting and killing large numbers of spores may be unable to completely wipe out the ingested spore population, leaving some to multiply. The "spores per macrophage" ratio may well be a function of both the number of spores inhaled and retained as well as the number of alveolar macrophages available to ingest the spores. Now...where do we find an "old folks" home for rhesus monkeys to test our theory? :)
- Regards,
- Bruce (We don't make anthrax spore powder at USAMRIID) Ivins

-----Original Message-----
From: (b) (6) [redacted]
Sent: Wednesday, February 06, 2002 8:28 PM
To: (b) (6) [redacted]
Subject: A possible discussion

Y'All,

(b [redacted] has posed a very simple question, which might form the excuse for a discussion on the realities of a true human LD50 for inhalation anthrax. If there are any illuminating responses, I will gladly post them all. But if (b)s question were to just lie there when posted, it is, unfortunately, taking up time & space. So for the purposes of efficiency I would prefer bulk or nothing.

For myself I see the LD50 as being made up of two parcels of spores:

[1] The first 'parcel' is made up of the spores that get swept up by the mucous blanket & ciliary bed and shuffled up the bronchus and tipped out, leaving

[2] The true challenging dose.

Both are a function of age, health, and prior exposure, such that the elderly have a poor capacity to shovel out spores and a poor resistance to the remaining spores. On the other hand a fit 25 yo may be able to shovel away gross volumes of spores and have a significantly high resistance. One can imagine others with a fit "shovel" but a low resistance, and maybe vice-versa. There are, I believe, those who believe that any spores left in

the lung after the shovelling will cause disease.

Put another way I suspect that the original research never differentiated between the ages and health statuses of the hundreds of monkeys used in the calculations of LD50 but lumped them altogether, only using exposure as the variable factor.

But that's only my view.

Yours?

(b) (6)

PS: Send any replies to me so that (b) (6) doesn't have to take the time to pass them on. (b) (6)

(b) (6)

"It is imperative not to allow administrative action to get ahead of proved facts"
Paul Fildes, in minute to the UK BW Committee, 1950

----- Original Message -----
> .....
>
> Date: Wed, 06 Feb 2002 16:26:24 -0600
> From: '(b) (6)
> Subject: A possible posting
> To: (b) (6)
>
> I would like for you to consider posting the following question.
>
> "If we accept that the LD50 for cynomolgous monkeys is 8,000 anthrax spores,
> what are the other 7,999 spores doing? This is another way of asking
> whether the need for a larger inoculum is related to some stochastic event
> or a principle of mass action. There must be some data out there with
> mixtures of genetically marked organisms or other data that would help
> understand this little-discussed phenomenon in infectious disease biology."
>
> (b) (6)

>

>
>

**From:** Ivins, Bruce E Dr USAMRIID
**To:** '(b) (6) [redacted]
**Subject:** RE: A possible discussion
**Date:** Thursday, February 07, 2002 11:15:54 AM

---

(b) (6),
The only place that I know of that makes the anthrax spore powder is Dugway Proving Ground. They also made Ames spores (liquid suspensions) for us in 1997 in several fermentor runs. We work with anthrax spore suspensions here and have neither the expertise nor the equipment for generating "spore powder."
- Bruce

-----Original Message-----
From: (b) ) (6) [redacted]
Sent: Thursday, February 07, 2002 10:31 AM
To: Ivins, Bruce E Dr USAMRIID
Subject: Re: A possible discussion

Bruce,

I like your idea of spores / macrophage. I may steal it and put my brand on this maverick.

OK, but who did make dry A-powders for field trials?

Best wishes,

(b) (6)

[redacted]

"It is imperative not to allow administrative action to get ahead of proved facts"
Paul Fildes, in minute to the UK BW Committee, 1950

----- Original Message -----
From: Ivins, Bruce E Dr USAMRIID <mailto:Bruce.Ivins@DET.AMEDD.ARMY.MIL>
To: (b) (6) [redacted]
Sent: Thursday, February 07, 2002 6:32 AM
Subject: RE: A possible discussion

Hi (b) (6),
I'll be happy to give you my personal opinion, but it can't be posted because "we speak with one voice" here, and I am not that voice. I absolutely agree that a lethal dose for an individual who is elderly, immunocompromised, has been a heavy smoker for years (or who otherwise has decreased pulmonary/ airway clearance function) would probably be far less than for a young healthy individual. There is no doubt in my mind that the dose of spores which killed the poor lady in Connecticut probably was inhaled by a number of other, much younger and healthier individuals, who cleared the spores and experienced no ill effects at all. As far as the question about the "other 7,999 spores," inhalation

anthrax may be a function of overcoming macrophages by sheer numbers of spores taken up. A macrophage ingesting one or two spores may kill them quite efficiently. Macrophages faced with ingesting and killing large numbers of spores may be unable to completely wipe out the ingested spore population, leaving some to multiply. The "spores per macrophage" ratio may well be a function of both the number of spores inhaled and retained as well as the number of alveolar macrophages available to ingest the spores. Now...where do we find an "old folks" home for rhesus monkeys to test our theory? :)

- Regards,
- Bruce (We don't make anthrax spore powder at USAMRIID) Ivins

-----Original Message-----
From: (b) (6) [redacted]
Sent: Wednesday, February 06, 2002 8:28 PM
To: (b) (6) [redacted]
Subject: A possible discussion

Y'All,

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Yours?

(b) (6)

PS: Send any replies to me so that (b) (6) doesn't have to take the time to pass

them on. (b) [redacted]

(b) (6) [redacted]

"It is imperative not to allow administrative action to get ahead of proved facts"
Paul Fildes, in minute to the UK BW Committee, 1950

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> .....
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> From: '(b) (6) [redacted]
> Subject: A possible posting
> To: "(b) (6) [redacted]
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> I would like for you to consider posting the following question.
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> or a principle of mass action. There must be some data out there with
> mixtures of genetically marked organisms or other data that would help
> understand this little-discussed phenomenon in infectious disease biology."
>
> (b) (6) [redacted]
>
>
>

**From:** Ivins, Bruce E Dr USAMRIID
**To:** (b) (6) [redacted]
**Subject:** Rabbit space
**Date:** Friday, February 15, 2002 10:43:19 AM

---

(b) (6) [redacted]

For an approved addendum to protocol B01-11, we are planning to order 52 New Zealand white rabbits (26 males, 26 females) for a study that will last 10 weeks total (from arrival to euthanasia). We will need 7 weeks total cold space and 3 weeks total hot space. Can you tell me what date we should order these animals for?

Thank you.

- Bruce Ivins

**From:** Ivins, Bruce E Dr USAMRIID
**To:** (b) (6) [redacted]
**Subject:** RE: Ames Spores
**Date:** Saturday, February 16, 2002 8:45:34 PM

---

We could send them to you, (b ) This is an aerosol study, right? When would you like them? We can send you the spores in the 1% phenol suspension in which they are presently kept. Not a problem sending them to you.
- Bruce

-----Original Message-----
From: (b) (6) [redacted]
Sent: Friday, February 15, 2002 6:10 PM
To: 'Ivins, Bruce E Dr USAMRIID'
Subject: FW: Ames Spores

> -----Original Message-----
> From: (b) (6) [redacted]
> Sent: Friday, February 15, 2002 6:04 PM
> To: 'bruce.ivins@det.amedd.arm.mil'
> Cc: (b) (6) [redacted]
> Subject: Ames Spores
>
> Bruce: We have a new project from (b) (6) shop to test the efficacy of the
> UK vaccine in rabbits against AVA in the same manner as we tested the two
> lots of spores for BioPort in the aerosol rabbit study last June/July.
> Would you consider providing the Ames spores for (b) (6) study since they
> would be the same as we used in the previous BioPort rabbit study? It
> would require enough for approximately 40 rabbits against a 200LD50
> challenge. Looking forward to your response.
>
> Thanks
[redacted] (b) [redacted]
>
>

**From:** Ivins, Bruce E Dr USAMRIID
**To:** (b) (6) [redacted]
**Subject:** RE: BD Devices
**Date:** Friday, January 18, 2002 8:19:53 AM

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Good idea, (b) [redacted] Go ahead and send it.
- Bruce

> -----Original Message-----
>From: (b) (6) [redacted]
>Sent: Friday, January 18, 2002 8:19 AM
>To: Ivins, Bruce E Dr USAMRIID
>Cc: (b) (6) [redacted]
>Subject: FW: BD Devices
>
>Bruce:
>
>Is (b) (6) [redacted] aware of the FY03 research plan that we (b) (6) [redacted] You and I) are putting together? Maybe it would be worthwhile to forward a copy of the draft (or just tell her about it).
>
(b) (6) [redacted]
>
>
> -----Original Message-----
>From: (b) (6) [redacted]
>Sent: Friday, January 18, 2002 8:16 AM
>To: (b) (6) [redacted]
>Subject: BD Devices
>
>(b) (6) [redacted]
>
>Are either of you plnning to submit an FY03 research proposal using the Becton Dickinson devices?
>
>We would like to do side-by-side comparisons of gene gun to the 3 BD devices (the intradermal and aerosol) and to a transcutaneous chemical method that we a company in DC (Genetic Immunity) is testing for HIV. We haven't chosen an agent(s) to do this with yet, but we are leaning toward anthrax PA (rabbits) and VEE (mice) or Marburg (guinea pigs).
>
>Do you think it would be worthwhile doing the anthrax comparison at the same time you do the rPA protein study? Would you use rabbits? Our current anthrax rabbit study, in which we got high levels of antibodies by gene gun, won't go to challenge until the last week of Feb because of animal space problems.
>
>I am going to be away from this afternoon through the 26th. Because the FY03 BD proposal are due Feb 1, I don't know that I will have time to prepare another proposal (for anthrax) anyway, but would appreciate your thoughts.
>
>Bruce Ivins and (b) (6) [redacted] went with us to visit Genetic Immunity and would be willing to do the anthrax challenges.
>
(b) (6) [redacted]

**From:** Ivins, Bruce E Dr USAMRIID
**To:** (b) (6) [redacted]
**Subject:** RE: CDE Task Force Phone list
**Date:** Wednesday, February 06, 2002 7:24:03 AM

---

If any of you come up with more organizations (especially phone numbers and points of contact!)please forward them to me, and I'll include them on the spreadsheet. Thanks!!
- Bruce

-----Original Message-----
From: (b) (6) [redacted]
Sent: Tuesday, February 05, 2002 8:18 AM
To: (b) (6) [redacted]
(b) (6) [redacted]
Subject: RE: CDE Task Force Phone list

Hi Guys,
Here's the CDE Task Force phone list. It is on an Excell file. If you can't open it please e-mail me back and I will put in a word table for you .
(b) (6) [redacted]

**From:** Ivins, Bruce E Dr USAMRIID
**To:** (b) (6) [redacted]
**Subject:** RE: CDE Task Force Phone list
**Date:** Wednesday, February 06, 2002 7:24:03 AM

---

If any of you come up with more organizations (especially phone numbers and points of contact!)please forward them to me, and I'll include them on the spreadsheet. Thanks!!
- Bruce

-----Original Message-----
From: (b) (6) [redacted]
Sent: Tuesday, February 05, 2002 8:18 AM
To: (b) (6) [redacted]
Subject: RE: CDE Task Force Phone list

Hi Guys,
Here's the CDE Task Force phone list. It is on an Excell file. If you can't open it please e-mail me back and I will put in a word table for you .
(b)(b) [redacted]

**From:** Ivins, Bruce E Dr USAMRIID
**To:** (b) (6) [redacted]
**Subject:** RE: CpG in non-human primates
**Date:** Thursday, January 17, 2002 2:50:47 PM

---

-----Original Message-----
From: Ivins, Bruce E Dr USAMRIID
Sent: Wednesday, January 16, 2002 3:16 PM
To: (b) (6) [redacted]
Subject: RE: CpG in non-human primates

(b) (6) [redacted]

Your idea to treat A/J mice with CpG ODN and challenge with Sterne is a fine one. If your ICACUC would let you, perhaps you could do LD50s in 2 groups of mice, one given CpG, and the other not given CpG. You could do the work in a BL-2 area lab. Your staff would not be under any risk, since the Sterne strain of B. anthracis (which NEVER reverts to virulence due to its loss of the capsule plasmid) does not cause anthrax or any other disease. You can kill laboratory animals with the strain only by injecting massive numbers of organisms or spores. If you wished, you could use the Sterne spores from the vaccine, or we could make some for you in the lab. I would suggest that the IP or sub cu route of challenge would be sufficient to tell you whether the oligos give any protection. Surprisingly, virulent B. anthracis is a BL-2 agent, although we work with it here at the BL-3 level. You would be working with the vaccine strain, the same bugs that vets spray around the barnyard when they are vaccinating livestock.

The Sterne strain would not be especially relevant in larger animals, since so many spores would be required for a lethal infection. In the A/J mouse, however, it would be a fine model.

Excellent idea, (b) (6) [redacted] Just let me know if you would like me to make some spores for you, or whether you wish to use the spores in the vaccine.

- Bruce

-----Original Message-----
From: (b) (6) [redacted]
Sent: Wednesday, January 16, 2002 11:11 AM
To: 'Ivins, Bruce E Dr USAMRIID'
Subject: RE: CpG in non-human primates

Dear Bruce,

I'm trying to learn more about the Sterne strain of anthrax. There are some articles from the late 80's describing the differing susceptibilty of A/J vs other murine strains to infection by Sterne. Apparently, the absence of C5 in the A/j mice significantly increases their susceptibility. They die when Sterne is administered subcutaneously, IP, or intra-tracheally. I don't know how good Sterne is as a model of virulent anthrax, or how difficult it is to work with in the lab. We're certainly not equipped to study virulent anthrax at CBER, but I was wondering if we could treat A/J mice with CpG ODN +/- rPA and challenge with Sterne. How much risk would such experiments pose to my staff? Can you provide the Sterne strain bugs for us to work with? I don't know how many organisms are in the vaccine, but the literature describes using larger numbers of anthrax at high concentration. I suspect the intra-tracheal route is the most relevant, but I don't know how infectious the mice would be to human handlers. What biocontainment level is used for such studies?

I figure that if we can help do screening in mice, while you do the large animal experiments (rabbits and monkeys), we could make progress quicker. On the other hand, Sterne may be more pathogenic than I appreciate, or the mouse model considered unworthy of the effort. Please let me know.

(b) (6)

-----Original Message-----
From: Ivins, Bruce E Dr USAMRIID [mailto:Bruce.Ivins@DET.AMEDD.ARMY.MIL]
Sent: Tuesday, January 15, 2002 9:32 AM
To: (b) (6)
Subject: RE: CpG in non-human primates

No, (b) (6) How about Tuesday afternoon, about 1:30 pm?
- Bruce

-----Original Message-----
From: (b) (6)
Sent: Tuesday, January 15, 2002 9:31 AM
To: 'Ivins, Bruce E Dr USAMRIID'
Subject: RE: CpG in non-human primates

Bruce,

I was writing this on my calendar, and realized that next monday may be a holiday (Martin Luther King). Are we working that day?

(b) (6)

-----Original Message-----
From: Ivins, Bruce E Dr USAMRIID [mailto:Bruce.Ivins@DET.AMEDD.ARMY.MIL]
Sent: Tuesday, January 15, 2002 9:29 AM
To: (b) (6)
Subject: RE: CpG in non-human primates

(b) (6) - I'll be there about 1:30.

- Bruce

-----Original Message-----
From: (b) (6)
Sent: Tuesday, January 15, 2002 9:27 AM
To: 'Ivins, Bruce E Dr USAMRIID'
Subject: RE: CpG in non-human primates

Dear Bruce,

Many thanks for your help. I'll contact (b) (6) first, then try (b)

Monday is fine to bring the vaccine. I'll be busy in the morning, but anytime that's convenient in the afternoon would be fine with me. Just let me know what's most convenient.

(b) (6)

-----Original Message-----
From: Ivins, Bruce E Dr USAMRIID [mailto:Bruce.Ivins@DET.AMEDD.ARMY.MIL]

Sent: Tuesday, January 15, 2002 9:00 AM
To: (b) (6)
Subject: RE: CpG in non-human primates

(b) (6)
I would recommend (b) (6) (b) (6) who is very active in developing vaccines against viral agents. Another possibility would be (b) (6) email = (b) (6) The dose will be 1.0 ml per animal. I'd like to bring the material down to you late Monday morning or early Monday afternoon, whichever is better for you.
- Bruce

-----Original Message-----
From: (b) (6)
Sent: Monday, January 14, 2002 4:23 PM
To: 'Ivins, Bruce E Dr USAMRIID'
Subject: RE: CpG in non-human primates

Dear Bruce,

Next week should be fine. We're still working out the vaccination/bleed schedule for the monkeys.

I plan to vaccinate all 30 animals with whatever dose you decide is best.

One other thing - there's a Keystone Symposium on Gene-based vaccines in early April. The organizers just called to ask if I could recommend someone working on a DNA vaccine against BioT agents. As I recall, there was someone either at USAMRIDD or WRAIR working on a DNA vaccine against Ebola. Do you happen to know his name? Better yet, can you recommend someone from USAMRIID in this general field who's a good speaker?

Many thanks,

(b) (6)

-----Original Message-----
From: Ivins, Bruce E Dr USAMRIID [mailto:Bruce.Ivins@DET.AMEDD.ARMY.MIL]
Sent: Monday, January 14, 2002 3:59 PM
To: (b) (6)
Subject: RE: CpG in non-human primates

I can bring the vaccine down to you (b) (6) How many doses (ml) would you like me to bring you? When? (How about next week sometime?)

- Bruce

-----Original Message-----
From: (b) (6)
(b) (6)

Sent: Monday, January 14, 2002 3:03 PM
To: 'Ivins, Bruce E Dr USAMRIID'
Subject: RE: CpG in non-human primates

Dear Bruce,

I've receive permission to go ahead with the Sterne "challenge" from our ACUC. Let me know how to get the vaccine, and I'll take it from there.

(b) (6)

-----Original Message-----
From: Ivins, Bruce E Dr USAMRIID [mailto:Bruce.Ivins@DET.AMEDD.ARMY.MIL]
Sent: Monday, January 07, 2002 1:57 PM
To: (b) (6)
Subject: RE: CpG in non-human primates

(b) (6)

Excellent! I will need to write an animal protocol here. In the meantime, we'll get the monkey data from the upcoming Sterne injections and the monkey serum subtyping. I think it would be better to do the immunizations and bleeding all here. (b) (6) s very interested in pursuing the CpG work. I will start writing a rabbit protocol as soon as possible. I'll see about rabbit space in our animal rooms.

- Bruce

-----Original Message-----
From: (b) (6)
Sent: Monday, January 07, 2002 1:31 PM
To: 'Ivins, Bruce E Dr USAMRIID'
Subject: RE: CpG in non-human primates

(b) (6)

Bruce,

We have tested CpG ODN in rabbits, and have ODN of the "K" type that are active. I'd be very interested in helping with a challenge study. Let me know whether we want to start the vaccinations here or there.

(b) (6)

-----Original Message-----
From: Ivins, Bruce E Dr USAMRIID [mailto:Bruce.Ivins@DET.AMEDD.ARMY.MIL]
Sent: Monday, January 07, 2002 1:29 PM
To: (b) (6)
Subject: RE: CpG in non-human primates

Hi, (b) (6)

I was not aware that CpG oligos had been developed for rabbits. If so, there are some things that we can certainly do until monkeys become available. We can also challenge the rabbits much more easily than we can the monkeys. If there are CpG oligos, are there "K" types?

- Bruce

-----Original Message-----
From: (b) (6)

(b) (6) [redacted]

Sent: Monday, January 07, 2002 1:26 PM

To: 'Ivins, Bruce E Dr USAMRIID'

Subject: RE: CpG in non-human primates

Dear Bruce,

I'll look into the possibility of obtaining additional monkeys for the vaccination studies you suggest, but it could take a number of months (since animals and space are both in short supply). As an aside, we favor the use of alum since it tends to keep the ODN in close proximity to the antigen, but do get higher Ab titers if ODN without alum is co-administered with antigen.

As an interim measure, is there any chance we can do the study you suggest in rabbits, and then challenge??? It would be a lot faster and cheaper. We could do the immunizations here and transfer the rabbits to you for challenge, or give you the ODN to do the immunizations there.

(b) [redacted]

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

From: Ivins, Bruce E Dr USAMRIID [mailto:Bruce.Ivins@DET.AMEDD.ARMY.MIL]

Sent: Monday, January 07, 2002 10:03 AM

To: (b) (6) [redacted]

Subject: CpG in non-human primates

Hi, (b) (6) [redacted] I've been talking to (b) (6) [redacted] about our upcoming CpG work. I think we're going to try to do some IgG subtyping of the antiserum you sent us. Also, what about the following experiment in monkeys? Immunize at 0 and 4 weeks, collecting blood samples every 2 weeks up to about 12 weeks or so. Immunization groups would be:

1) PA
2) PA + Alhydrogel
3) PA + CpG
4) (Possibly) PA + Alhydrogel + CpG

We might think of dropping the PA dose down somewhat to magnify the differences in the immunological responses. We could look at IgM, IgG (and IgG subtypes), cytokine production, and possibly lymphocyte proliferation.

We are just completing an experiment testin the protective immunogenicity in rabbits of rPA versus rPA + Alhydrogel. Since there have been questions raised about long term administration of aluminum-adjuvanted vaccines, this might be an excellent opportunity to replace aluminum hydroxide with "K" type CpG.

I look forward to your comments and opinions. Please let me know when you would like me to bring the Sterne veterinary vaccine to you.

- Bruce

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

From: (b) (6) [redacted]

Sent: Monday, December 10, 2001 4:09 PM

To: 'Ivins, Bruce E Dr USAMRIID'

Subject: RE: Anthrax, mice, and CpG

Dear Bruce,

The data showing that "K" ODN boost both the primary and secondary immune response (especially to the rPA vaccine) is quite interesting. How can we follow up on this to examine protection? We would guess that the ODN treated animals would generate a strong Th1 (IFNg) dominated response. Can you study IgG subtypes in these monkeys? Is there some assay to examine T cell function, or is Ab the "gold standard"?

(b) (6) [redacted]

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

From: Ivins, Bruce E Dr USAMRIID [mailto:Bruce.Ivins@DET.AMEDD.ARMY.MIL]

Sent: Monday, December 03, 2001 2:31 PM

To: (b) (6) [redacted]

Subject: RE: Anthrax, mice, and CpG

I attached the file below, (b) (6) [redacted] It looks very interesting. Again, which arm (Th1 or Th2) of the monkey immune system do the K type ODN stimulate? I'll be out of town the next three days, but I'll be back on Friday.

- Bruce

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

From: (b) (6) [redacted]

Sent: Monday, December 03, 2001 2:24 PM

To: 'Ivins, Bruce E Dr USAMRIID'

Subject: RE: Anthrax, mice, and CpG

Dear Bruce,

Looking forward to seeing the data and discussing it with you.

(b) (6)

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

From: Ivins, Bruce E Dr USAMRIID [mailto:Bruce.Ivins@DET.AMEDD.ARMY.MIL]

Sent: Friday, November 30, 2001 2:56 PM

To: (b) (6)

Subject: RE: Anthrax, mice, and CpG

We just obtained results from the monkey sera, (b) (6) Briefly, the D oligos didn't appear to have much effect, whereas the K type oligo group at weeks 8 and 11 showed much higher titers to PA than did either rPA vaccine or AVA. The K type oligo group had about 2-fold higher titers. We'll get you the data by email as soon as (b) (6) can mail it to me. Thanks!

- Bruce

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

From: (b) (6)

Sent: Tuesday, November 06, 2001 11:16 AM

To: 'Ivins Bruce E'

Subject: RE: Anthrax, mice, and CpG

Dear Bruce,

Any results from the anthrax sera?

(b)

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

From: (b) (6)

Sent: Thursday, October 11, 2001 11:17 AM

To: 'Ivins Bruce E'

Subject: RE: Anthrax, mice, and CpG

Dear Bruce,

Hope you are well. I'm just back from the major CpG ODN meeting (held once every 2 years). It is clear that the anti-pathogen role of CpG ODN has been recognized by other groups. DARPA has agreed to support studies of CpG ODN against anthrax (first in mice, then monkeys) by one of my competitors.

If you and I are to succeed in establishing the activity of the "D" ODN against anthrax, we need to get moving. I'd like to send you the sera from the monkeys in which our ODN were used as adjuvants immediately for you to test titers. If the titers are significantly elevated, would it be possible to use the animals in an aerosol challenge test? Given what's happened in Florida, I believe evidence of protection in a primate model would be most relevant. Finally, if we see that the ODN act as adjuvants, I'd like to have you test them alone as protective agents (given before or immediately after exposure).

I'd be happy to meet with whoever in the chain of command needs to be persuaded to move forward with these studies. Given the evidence of a clear and present danger, we should start immediately.

As an aside, several dozen subjects have now been treated with CpG ODN without major side effects.

(b) (6)

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

From: Ivins Bruce E [mailto:Bruce.Ivins@DET.AMEDD.ARMY.MIL]

Sent: Thursday, October 07, 1999 8:40 AM

To: (b) (6) [redacted]

Subject: Anthrax, mice, and CpG

Hi, (b) (6) [redacted]

As you remember, in our first experiment with the mice, we got some time-to-death extension with CpG for mice challenged with virulent B. anthracis spores. In the second experiment, we demonstrated not only time-to-death extension, but also protection from death with the CpG. In this last experiment which we just concluded, we strangely got no protection at all, in terms of either survival or increased time-to-death. I believe that the main problem is that the mouse is such a generally poor and unpredictable model for anthrax. The guinea pig is a MUCH better model for anthrax infection/protection, and our guinea pig protocol for CpG has been approved, so I think the next step should be (when we get the funds released) to go into the guinea pigs. We'll be able to look at specific as well as non-specific protection, and if we get some promising results, we can head into non-human primates. Hopefully we'll get some money released within a few weeks and we can get started then. I'll let you know. I'm sure that mice are an excellent animal model for a number of diseases, but anthrax isn't one of them.

- Bruce

**From:** Ivins, Bruce E Dr USAMRIID
**To:** (b) (6) [redacted]
**Subject:** RE: Isoform animal protocol
**Date:** Friday, February 01, 2002 7:25:10 AM

---

Sounds good, (b) [redacted]
- Bruce

> -----Original Message-----
>From: (b) (6) [redacted]
>Sent: Thursday, January 31, 2002 4:13 PM
>To: Ivins, Bruce E Dr USAMRIID
>Subject: RE: Isoform animal protocol
>
>Thanks Bruce,
>I'll be attending the Commanders' Conference in Baltimore next week, so that should be a good time for me to finish polishing the protocol on my laptop. - I'll probably have an electronic draft for you to look at by Wed which we can forward to (b) (6) [redacted] at the end of the week?
(b) [redacted]
>
>
> -----Original Message-----
> From: Ivins, Bruce E Dr USAMRIID
> Sent: Thursday, January 31, 2002 4:07 PM
> To: (b) (6) [redacted]
> Subject: Isoform animal protocol
>
> (b) [redacted]
[redacted] (6) When you submit your protocol, it looks as if 0.1 microgram of PA per dose (with two doses for each animal) should give you about 50% protection.
> Please let me know when you submit your animal protocol. Thanks!
>
> - Bruce

**From:** Ivins, Bruce E Dr USAMRIID
**To:** (b) (6) [redacted]
**Subject:** RE: LACUC Review of Addendum to Animal protocol B01-11
**Date:** Thursday, February 14, 2002 10:21:48 AM
**Attachments:** [redacted]

---

Thanks, (b) (6) [redacted]. I've done the following to the addendum to address concerns:

1) I've put the request for 52 animals up in number 1.
2) In the 2nd paragraph, "vaccine" was changed to "group."
3) Concern number 2 was addressed in number 3.
4) Concern number 3 was addressed in number 5.

I hope this satisfies all concerns. Thanks!

- Bruce

> -----Original Message-----
>From: (b) (6) [redacted]
>Sent: Thursday, February 14, 2002 9:23 AM
>To: Ivins, Bruce E Dr USAMRIID
>Subject: LACUC Review of Addendum to Animal protocol B01-11
>
>
>Bruce, The following comments/questions were received from LACUC members regarding the subject addendum:
>
>1. In paragraph 2, last line, change “vaccine” to “group.”
>
>2. If the presence of formaldehyde substantially (significantly) increases the vacccine's protective efficacy, isn't that a good reason to argue with the FDA to keep it in the vaccine?
>
>3. There is some concern about licensure of vaccines via the FDA’s proposed animal rule which is soon to be real. How should this be addressed in this addendum?
>
>Thanks.
(
b [redacted]
>
> Animal Protocol Officer, USAMRIID
> (b) (6) [redacted]
> Email: (b) (6) [redacted]
>
> -----Original Message-----
> From: Ivins, Bruce E Dr USAMRIID
> Sent: Monday, February 11, 2002 10:49 AM
> To: (b) (6) [redacted]
[redacted]
> Subject: Animal protocol (b) (2) [redacted] - Addendum
> Request that you review the attached memorandum and provide me with your comments/approval within two business days. The protocol is on file in my office if you wish to review it, and/or you may contact Dr. Ivins if you have any questions regarding this addendum request.
>
> Thanks.
>
> (b) (6) [redacted]
>

>
>

**From:** Ivins, Bruce E Dr USAMRIID
**To:** Ivins, Bruce E Dr USAMRIID (b) (6) [redacted]
**Cc:** (b) (6) [redacted]
**Subject:** RE: Message on Ames Strain
**Date:** Tuesday, January 29, 2002 9:09:52 AM

---

I just spoke on the phone with (b) (6) [redacted] at AFRRI. He is going to FAX me whatever information he has on the Ames strain. He told me that the strain was definitely sent to him from the NVSL in Ames, Iowa. He also said that it is possible that the actual case (dead cow) may have been in Texas, and that the strain may have then gone from Texas to Ames, Iowa, and then to (b) [redacted] If that is the case, then USAMRIID is third in line as far the origin of the "Ames strain," and we have no idea as to where the Texas lab or the NVSL in Ames sent the strain. I will keep everyone informed on this as soon as I get more information from (b) [redacted]
- Bruce

> -----Original Message-----
>From: Ivins, Bruce E Dr USAMRIID
>Sent: Tuesday, January 29, 2002 7:34 AM
>To: (b) (6) [redacted]
>Cc: (b) (6) [redacted]
>Subject: RE: Message on Ames Strain
>
>More information - The actual label on the strain is "Ames 255414B." Again, we have a copy of the mailing label from the USDA. A few days ago I went back to the USAMRIID library and USAMRIID Library archives and looked through everyone of (b) (6) [redacted] notebooks. Unfortunately, he never mentions writing for the strain or receiving it in any notebook. The first mention of the strain is in September, 1981, when he also says he looks at the Sterne, Vollum (probably Vollum 1B), Colorado, Ames and Texas strains. Hope this helps.
>- Bruce
>
> -----Original Message-----
> From: Ivins, Bruce E Dr USAMRIID
> Sent: Tuesday, January 29, 2002 7:23 AM
> To: (b) (6) [redacted]
> Cc: (b) (6) [redacted]
> Subject: RE: Message on Ames Strain
> Importance: High
>
> Everyone,
> We most certainly DID get the "Ames strain" from the USDA, Animal and Plant Health Inspection Services, National Veterinary Services Laboratories, P.O. Box 844, Ames, Iowa 50010. We have a Xerox copy of the original mailing label from them. Also, to our good fortune, we (b) (6) [redacted] actually) (b) (2) [redacted] We can supply you with the actual strain number (put on it by the NVSL labs) if desired. I have tried repeatedly, without success, to talk to (b) (6) [redacted] about this. He is at AFRRI and has failed to return my calls. He can be reached at
> (b) (6) [redacted]
>

> Again, if you would like the specific number on the strain that is on the slant, please let me know. I remember it coming from Iowa, however. About the same time that we received the Ames strain, we received the "Texas" strain from (b) (6) [redacted] at Texas A&M.
>
> Let me know if there's more info that we can provide.
>
> - Bruce
>
> -----Original Message-----
> From: (b) (6) [redacted]
> Sent: Tuesday, January 29, 2002 7:05 AM
> To: (b) (6) [redacted]
> Cc: (b) (6) [redacted]
> Subject: Message on Ames Strain
> Importance: High
>
> (b) (6) [redacted] Bruce: Please see message below, which was forwarded to me (b) (6) [redacted] who works in Homeland Security in the White House. Can you clarify at all for me as to assertion that Ames never came from Iowa and that we got Ames from a lab in Texas? Have any of you been contacted by the press on this? Obviously, would like to get ahead of the curve on this if press is going to make these assertions. Immediate feedback, please. (b [redacted]
>
>
> Record Type: Record
>
>
> To: (b) (6) [redacted] EOP
>
> cc:
> Subject: Heads Up
>
>
>
>
> We have been working with (b) (6) [redacted] at the Wash Post on an Anthrax story for
> several months.
> He initiatially submitted a FOIA on information. We hooked him up with folks at
> our lab in Ames. (b) (6) [redacted] think I emailed earlier on this). Friday, the NYT
> called for the same information. Essentially both reporters are doing stories
> on the history of the Ames strain. Evidence is becoming more clear that show
> the so called Ames strain never even came from Iowa...the NYT reporter somehow
> had the info that showed this. We can expect possible stories on this within
> the next few days..They have both contacted the Army.
> The investigation is turning up info that shows that the Army may have gotten
> from a lab in Texas..
>
> Our key points are:
> Anthrax strains are similiar and it is difficult to distinguish, but USDA
> has no evidence to indicate that the 'ames' strain was ever in our lab in Iowa.
>
> I'd like to give the Army folks a heads up...do you have a contact?
>
> (b) (6) [redacted]

>
>
>
>

**From:** Ivins, Bruce E Dr USAMRIID
**To:** (b) (6) [redacted]
**Subject:** RE: Message on Ames Strain
**Date:** Tuesday, January 29, 2002 7:33:39 AM

---

More information - The actual label on the strain is "Ames 255414B." Again, we have a copy of the mailing label from the USDA. A few days ago I went back to the USAMRIID library and USAMRIID Library archives and looked through everyone of (b) (6) [redacted] notebooks. Unfortunately, he never mentions writing for the strain or receiving it in any notebook. The first mention of the strain is in September, 1981, when he also says he looks at the Sterne, Vollum (probably Vollum 1B), Colorado, Ames and Texas strains. Hope this helps.
- Bruce

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> (b) (6) [redacted]
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>Again, if you would like the specific number on the strain that is on the slant, please let me know. I remember it coming from Iowa, however. About the same time that we received the Ames strain, we received the "Texas" strain from (b) (6) [redacted] at Texas A&M.
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>
>- Bruce
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> -----Original Message-----
> From: (b) (6) [redacted]
> Sent: Tuesday, January 29, 2002 7:05 AM
> To: (b) (6) [redacted]
> Subject: Message on Ames Strain
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>
> (b) (6) [redacted]
>
>
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>
> (b) (6) [redacted]

**From:** Ivins, Bruce E Dr USAMRIID
**To:** Ivins, Bruce E Dr USAMRIID; (b) (6) [redacted]
**Subject:** RE: Message on Ames Strain
**Date:** Tuesday, January 29, 2002 9:09:52 AM

---

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> Subject: Message on Ames Strain
> Importance: High
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>
> I'd like to give the Army folks a heads up...do you have a contact?
>
> (b) (6)

>
>
>
>

**From:** Ivins, Bruce E Dr USAMRIID
**To:** (b) (6) [redacted]
**Subject:** RE: Renewal of MTA with Corixa
**Date:** Thursday, February 07, 2002 1:02:27 PM

---

Sounds good, (b) (6) [redacted]
- Bruce

-----Original Message-----
From: (b) (6) [redacted] ]
Sent: Thursday, February 07, 2002 1:01 PM
To: 'bruce.ivins@amedd.army.mil'; (b) (6) [redacted]
Cc: (b) (6) [redacted]
Subject: Renewal of MTA with Corixa

(b) [redacted] Bruce,

I apologize for not being familiar with your agreement process but I thought it would be best to start with both of you.

Our current 1999 agreement with USAMRIID does appear to expire on March 4th of this year. In an attempt to keep things as simple as possible I am going to try to make the extension a simple 1 page addendum. The current agreement covers only MPL-AF and is for "intranasal" use with anthrax and plague. If I recall our conversations from January correctly, the following items need to be added to the agreement to address your current interests:

1) an extension of the basic MPL-AF intranasal use, in case there are still pending studies
2) the inclusion of Ribi.529-AF (the newer adjuvant with an existing drug master file)
3) the use of MPL and 529 for "pulmonary" application studies
4) the inclusion of RICIN and Staph enterotoxin B evaluations

If you think this sufficiently covers your areas of interest, please let me know. I would also appreciate it if you could advise me of the best office to start the renewal process (i.e. the Judge Advocate Officer or (b) [redacted] office). (6)

Regards,

(b) (6) [redacted]

[redacted]

**From:** Ivins, Bruce E Dr USAMRIID
**To:** (b) (6) [redacted]
**Subject:** RE: Research Plan Draft
**Date:** Tuesday, January 22, 2002 10:52:26 AM
**Attachments:** [redacted]

---

OK, (b) [redacted] - looks good. A few comments

1) For the budget, please include me at 10% of salary. Go ahead and put animals down for the whole list of vaccines.
2) I'd like to write the actual animal protocol for the anthrax work.
3) I'd like to include spore antigens (and possibly other antigens) along with rPA in the studies.

Thanks.
- Bruce

> -----Original Message-----
>From: (b) (6) [redacted]
>Sent: Tuesday, January 15, 2002 12:03 PM
>To: (b) (6) [redacted]
>Subject: Research Plan Draft
>
>Hi
>
>Per our last meeting, I have drafted (draft is the key word) a research plan that I think captures the essence of the DTO and what we are trying to accomplish at a team as it relates to preclinical studies. I would like each of you to comment on this draft using the "track changes" function in MS Word when you e-mail me back this document.
>
>Everything is open at this point - by producing this draft, I don't mean to infer that all of the details are "taken care of", b/c a lot of things are still not set (e.g., animal housing rooms, technicians, etc.)
>
>As for work duties (responsibilities) - I propose the following:
>
(b) (6) [redacted] Overall management of the effort; SEB, acquisition/adjuvants; aerosol vaccinations
>Bruce: rPA + B. anthracis
(b) (6) [redacted] F1V + Y. Pestis
(b) (6) [redacted] Ricin
(b) (6) [redacted]: This has got to be some kind of conflict - your my supervisor. I dare not say; fill in blank here _____ (maybe aerosol challenge of vaccinates?)
>
>I am presently working on the budget (which I have subsequently not attached) - please e-mail or call immediately if you want to contribute to that effort.
>
>I need this back by the end of the week (at the latest) - the suspense for this plan is 21 Jan (my deadline).
>
>Thanks
>
(b) (6) [redacted]
>
> << File: CJR Fiscal Year 2003 Research Plan.doc >>
>
>

**From:** Ivins, Bruce E Dr USAMRIID
**To:** (b) (6) [redacted]
**Subject:** RE: Sterne Spores
**Date:** Monday, February 11, 2002 1:15:46 PM

---

(b) (6) I could have the spores ready tomorrow or any other day this week. Would you or anybody else be able to pick them up at the Post Office on 7th Street? I will give you tubes of spores (about 16 ml per tube) in 1% phenol, 1 X 10^8 per ml. Please let me know the most convenient time, and I'll have them ready.

- Bruce

-----Original Message-----
From: (b) (6) [redacted]
Sent: Monday, February 11, 2002 12:12 PM
To: 'Ivins, Bruce E Dr USAMRIID'; Aaron, Leslyn
Subject: RE: Sterne Spores

Dear Bruce,

Good news. Our proposed studies involving Sterne strain anthrax have been approved. Whenever it's convenient for me to pick up the spores, let me know. If you're heading down in this direction, that would be fine as well

(b) (6)

-----Original Message-----
From: Ivins, Bruce E Dr USAMRIID [mailto:Bruce.Ivins@DET.AMEDD.ARMY.MIL]
Sent: Tuesday, February 05, 2002 12:50 PM
To: (b) (6) [redacted]
Subject: RE: Sterne Spores

(b) (6),
...adequate, not terrific...but thanks, anyway! The spores should be stable for months in the fridge. You won't need to wash them prior to challenge. You can simply dilute them into sterile, distilled water prior to challenge.

- Bruce

-----Original Message-----
From: (b) (6) [redacted]
Sent: Tuesday, February 05, 2002 11:08 AM
To: 'Ivins, Bruce E Dr USAMRIID'
Subject: RE: Sterne Spores

Dear Bruce,

As always, you're terrific. How long are they stable in the phenol at 4 degrees? Is there any reason to aliquot them? Will you include your protocol for washing them prior to challenge?

Many thanks,

(b) (6)

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

From: Ivins, Bruce E Dr USAMRIID [mailto:Bruce.Ivins@DET.AMEDD.ARMY.MIL]
Sent: Tuesday, February 05, 2002 9:38 AM
To: (b) (6) [redacted]'
Subject: RE: Sterne Spores

(b) (6) :

I'll give you Sterne spores in 1% phenol, which can be stored in the refrigerator. You won't need to freeze them. I'll provide them to you at a concentration of 10^8 per ml.

- Bruce

-----Original Message-----
From: (b) (6) [redacted]
Sent: Monday, February 04, 2002 9:54 AM
To: 'Ivins, Bruce E Dr USAMRIID'
Subject: RE: Sterne Spores

Dear Bruce,

Many thanks. The ACUC hasn't met yet to approve the procotol. Based on what I understand of the sensitivity of A/J mice, I suspect I'll want to inject approximately 100,000 spores/animal (in 0.1 ml). Thus, if you can provide the spores in a form where they'll remain stable (do we freeze them at -70?) at a concentration of perhaps 10^7 or 10^8 per ml, that would be great. We could then store 100 - 200 vials, which can be thawed, diluted 1:10 or 1:100, and injected. This allows us to use the same pathogen population for a prolonged period.

If you don't want to do the aliquoting, just bring the spores and the correct medium to maintain their viability, and we can do it here.

I'll let you know as soon as I hear from the ACUC.

Many thanks.
(b) (6)

-----Original Message-----
From: Ivins, Bruce E Dr USAMRIID [mailto:Bruce.Ivins@DET.AMEDD.ARMY.MIL]
Sent: Monday, February 04, 2002 9:41 AM
(b) (6) [redacted]
Subject: Sterne Spores

Hi, (b) (6)

I hope you had a good weekend. I have some Sterne spores for your studies, 10 ml at 3.5 X 10^9 per ml. When you know the amount that you would like for your studies, please let me know, and I'll get them to you. Be sure and add in "extra" spores to your request, so that you won't run short!!

- Bruce

**From:** Ivins, Bruce E Dr USAMRIID
**To:** (b) (6) [redacted]
**Subject:** RE: Sterne Spores
**Date:** Tuesday, February 05, 2002 12:49:41 PM

---

(b) (6) [redacted]
...adequate, not terrific...but thanks, anyway! The spores should be stable for months in the fridge. You won't need to wash them prior to challenge. You can simply dilute them into sterile, distilled water prior to challenge.

- Bruce

> -----Original Message-----
> From: (b) (6) [redacted]
> Sent: Tuesday, February 05, 2002 11:08 AM
> To: 'Ivins, Bruce E Dr USAMRIID'
> Subject: RE: Sterne Spores
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> Dear Bruce,
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> As always, you're terrific. How long are they stable in the phenol at 4 degrees? Is there any reason to aliquot them? Will you include your protocol for washing them prior to challenge?
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> Many thanks,
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> (b) (6) [redacted]
>
> > -----Original Message-----
> > From: Ivins, Bruce E Dr USAMRIID [mailto:Bruce.Ivins@DET.AMEDD.ARMY.MIL]
> > Sent: Tuesday, February 05, 2002 9:38 AM
> > To: (b) (6) [redacted]
> > Subject: RE: Sterne Spores
> >
> > (b) (6) [redacted]
> > I'll give you Sterne spores in 1% phenol, which can be stored in the refrigerator. You won't need to freeze them. I'll provide them to you at a concentration of 10^8 per ml.
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> > - Bruce
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> > > From: (b) (6) [redacted]
> > > Sent: Monday, February 04, 2002 9:54 AM
> > > To: 'Ivins, Bruce E Dr USAMRIID'
> > > Subject: RE: Sterne Spores
> > >
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- Bruce

**From:** Ivins, Bruce E Dr USAMRIID
**To:** (b) (6) [redacted]
**Subject:** RE: Sterne Spores
**Date:** Tuesday, February 05, 2002 9:37:36 AM

---

(b) (6) [redacted]
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From: Ivins, Bruce E Dr USAMRIID [mailto:Bruce.Ivins@DET.AMEDD.ARMY.MIL]
Sent: Monday, February 04, 2002 9:41 AM
To: (b) (6) [redacted]
Subject: Sterne Spores

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- Bruce

**From:** Ivins, Bruce E Dr USAMRIID
**To:** (b) (6) [redacted]
**Subject:** RE: Sterne Spores
**Date:** Thursday, February 14, 2002 1:16:42 PM

---

I'll look into getting some PA, (b) (6) [redacted]
- Bruce

-----Original Message-----
From: (b) (6) [redacted]
Sent: Thursday, February 14, 2002 11:20 AM
To: 'Ivins, Bruce E Dr USAMRIID'
Subject: RE: Sterne Spores

Dear Bruce,

Thanks again for your help yesterday. I made it back to the NIH is only 35 minutes, compared with nearly 50 minutes in the other direction. I was only a little late for my meeting.

My lab is interested in examining whether liposome encapsulation of rPA with CpG ODN generates a significantly more effective vaccine than "free" antigen plus ODN, or alum-conjugated rPA plus ODN. We have data from other other antigens where liposome encapsulation was of real benefit. Is there any way I can get 2 mg of rPA (unformulated in alum) for the liposome encapsulation studies?

Many thanks,

(b) (6) [redacted]

-----Original Message-----
From: Ivins, Bruce E Dr USAMRIID [mailto:Bruce.Ivins@DET.AMEDD.ARMY.MIL]
Sent: Tuesday, February 12, 2002 11:14 AM
(b) (6) [redacted]
Subject: RE: Sterne Spores

Hi, (b) (6) [redacted],
You can park in the post office lot on your right. I'll meet you there. As you come off the 7th Street Exit on route 15, go under the bridge, bearing right, and turn right where the post office is, then turn right again just a few dozen feet later into the post office lot.

By the way, I didn't receive the form. See you tomorrow!

- Bruce

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

From: (b) (6) [redacted]
Sent: Tuesday, February 12, 2002 9:12 AM

To: 'Ivins, Bruce E Dr USAMRIID'
Subject: RE: Sterne Spores

Bruce,

I'll call you tomorrow morning as I'm about to leave, and plan to meet you approximately 45 minutes later at the post office (which is on the R side of the stree as I approach USAMRIID). Do I park in that large shopping center on the R, or is the post office further down?

Also, enclosed is an "employee invention report". Our tech transfer office asked that I fill out this form. Could you look it over, make whatever changes you think best, fill in the requested information on you as a co-inventor, and E mail it back? Many thanks,

(b) (6)

(b) (6)
Original Message-----
From: Ivins, Bruce E Dr USAMRIID [mailto:Bruce.Ivins@DET.AMEDD.ARMY.MIL]
Sent: Monday, February 11, 2002 1:19 PM
To: (b) (6) '
Subject: RE: Sterne Spores

SOunds good,(b) (6)
- Bruce

-----Original Message-----
From: (b) (6)
Sent: Monday, February 11, 2002 1:18 PM
To: 'Ivins, Bruce E Dr USAMRIID'
Subject: RE: Sterne Spores

Dear Bruce,

I'm busty tomorrow, but Wednesday looks good. Could I come up in the morning after rush hour? If that works for you, let me know. I'll call before leaving.

(b) (6)

-----Original Message-----
From: Ivins, Bruce E Dr USAMRIID [mailto:Bruce.Ivins@DET.AMEDD.ARMY.MIL]
Sent: Monday, February 11, 2002 1:16 PM
To: (b) (6)
Subject: RE: Sterne Spores

(b) (6), I could have the spores ready tomorrow or any other day this week. Would you or anybody else be able to pick them up at the Post Office on 7th Street? I will give you tubes of spores (about 16 ml per tube) in 1% phenol, 1 X 10^8 per ml. Please let me know the most convenient time, and I'll have them ready.

- Bruce

-----Original Message-----
From: (b) (6) [redacted]
Sent: Monday, February 11, 2002 12:12 PM
To: 'Ivins, Bruce E Dr USAMRIID'; Aaron, Leslyn
Subject: RE: Sterne Spores

Dear Bruce,

Good news. Our proposed studies involving Sterne strain anthrax have been approved. Whenever it's convenient for me to pick up the spores, let me know. If you're heading down in this direction, that would be fine as well

(b) (6)

-----Original Message-----
From: Ivins, Bruce E Dr USAMRIID [mailto:Bruce.Ivins@DET.AMEDD.ARMY.MIL]
Sent: Tuesday, February 05, 2002 12:50 PM
To: (b) (6) [redacted]
Subject: RE: Sterne Spores

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(b) (6) [redacted]
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(b) (6) [redacted]

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To: 'Ivins, Bruce E Dr USAMRIID'
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- Bruce

**From:** Ivins, Bruce E Dr USAMRIID
**To:** (b) (6) [redacted]
**Subject:** Research Plans
**Date:** Wednesday, January 30, 2002 1:57:10 PM
**Attachments:** [redacted]

---

Here you are, (b) (6)

- Bruce

**From:** Ivins, Bruce E Dr USAMRIID
**To:** (b) (6) [redacted]
**Subject:** rPA/Alhydrogel studies
**Date:** Friday, February 15, 2002 11:09:04 AM

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(b) [redacted]

We are about to repeat the rabbit study in which we immunized with rPA/Alhydrogel with Formaldehyde, and also rPA/Alhydrogel without Formaldehyde. For the last study you eluted PA off the Alhydrogel and looked at it on SDS PAGE. I think you also looked at the supernatant of the vaccine before desorption. Could you do the same for this next experiment. There will be 50 micrograms of PA per 1/2 ml dose. How much material (5 ml? 10 ml?) of each vaccine would you need?

Thanks!

- Bruce

**From:** Ivins, Bruce E Dr USAMRIID
**To:** (b) (6) [redacted]
**Subject:** Sterne Spores
**Date:** Monday, February 04, 2002 9:40:53 AM

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