

From: [REDACTED] <[REDACTED]>

To: Jeffrey Epstein <jeevacation@gmail.com>

Subject: Fwd: Modern Neuron ...

Date: Sun, 08 Oct 2017 01:14:27 +0000

Attachments: mito_transplatn_mccully_review.pdf

FYI

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

From: [REDACTED] <[REDACTED]>

Date: Sat, Oct 7, 2017 at 6:14 PM

Subject: Modern Neuron ...

To: Casey Tegreene <[REDACTED]>

Cc: Bill Gates <[REDACTED]>, [REDACTED]

Confidential please.

Casey -

Nice to be in back touch, and thanks to Bill (copied) for the suggestion. He also thought maybe Nathan would be interested, so ... Hi Nathan.

Here's the basic context:

Over the past decade or so, I've been thinking a lot more about localized delivery for management of disease. Two areas of specific interest to me are the pathways we use to access pathology and the upstream treatments we deliver to prevent disease.

I'm not an experimental scientist but I am trying to push the boundaries of my own practice as an endovascular neurosurgeon and interact with scientists related to these topics daily. I was also awarded a David Rockefeller Fellowship for my work in endovascular neurosurgery, so I feel like maybe I'm on the right track and these ideas might have merit.

Here's the background:

Last week I presented my ideas to Bill, and I asked him if we could incubate a small business for 12-18 months that we would call Modern Neuron (with Tony Pan's permission...). During this time we would aggressively and quickly act to protect intellectual property and demonstrate proof of concept through translational experiments. At the end of this 12-18 month time period, we would make a go/no-go decision to scale, sell, or shut down based on the IP we built and the experimental outcomes.

Since this has potential for huge scale, Bill asked if we should do as a private company or public good and we decided we would speak with you – if there was valuable IP we would start a company and build towards fair use later. If there was no IP that mattered we would do this as a public good. But we both agreed that a private company seemed more appropriate. Even if the original applications don't work there may be something we can sell off later (specifically, I believe, for cosmetic dermatology).

The business would be based on my two areas of expertise – and passion – rejuvenating neurons and bypassing the blood-brain barrier.

Idea 1 involves autologous mitochondrial transplantation for acute brain ischemia (initially) but also with other applications including cancer, dementia and chronic pain. It is being practiced already in cardiac ischemia, renal failure, and in organ transplantation (there are no regulatory barriers since it is an autologous graft) – and I am attaching a great summary of the work by Dr. McCully and his team. There are three IP areas: **use patents** for endovascular delivery of mitochondria / use patent for nasal delivery of mitochondria; **product patent** that involves creation of an autologous mitochondrial gel that could be reformulated for aerosol, vascular, dermal or muscular delivery that also has a color indicator based on cell lytic products etc; and **device patent** that is able to take tissue and retrieve / formulate mitochondria for immediate use – and based on the gel I've just described, say in an ambulance or a doctor's office or operating room. Dr. McCully and his team are standing by and ready to translate the work from heart to neuro tissue but we are all waiting to see what we can do about the IP.

Idea 2 involves direct access to brain by bypassing the blood-brain barrier. We can do some tricky stuff through endovascular approaches, but I've also discovered that there are perhaps other endoneural approaches that could offer entirely new approaches for drug delivery. If they work, we could be very helpful to an entire industry looking for a back door. I do not know what IP would be appropriate since I know the access pathways and will need to repeat a few experiments to verify them – so it may be use patents or product patents.

Here's the ask:

Can you help with the IP?

Here's the urgency:

November 11 is the Society for Neuroscience meeting and I'm afraid that if word starts to get out, folks will pounce. The concepts and science are both simple and elegant. I've not given this much detail to many people but the transplantation idea is becoming very popular and Lord knows that the blood-brain barrier stuff is kind of the Holy Grail in neuroscience.

I'm Seattle-based and would love to hear your thoughts. Based on your inputs, I will put together a budget and get back to Bill.

Nathan, any thoughts welcome. Always.

Thank you -

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PS: I've attached one good summary paper but there are more if it is helpful.