

**To:** Jeffrey Epstein[jeevacation@gmail.com]  
**From:** Joi Ito  
**Sent:** Fri 6/6/2014 4:09:18 PM  
**Subject:** Fwd: DARPA-BTO Polymaths  
[signature.asc](#)

I'm on a funny new group advising DRPA's biological technology office. First call is today. Maybe a good tie-in with CCC stuff.

Begin forwarded message:

**From:** "Jonathan Sackner-Bernstein, MD" <[REDACTED]>  
**Subject:** DARPA-BTO Polymaths  
**Date:** June 4, 2014 at 09:05:30 -0400  
**To:** Joi Ito <[REDACTED]>, Melinda Richter <[REDACTED]>, Alex McDowell <[REDACTED]>, Farnam Jahanian <[REDACTED]>  
**Cc:** Minh Miran <[REDACTED]>, Danielle Nadeau <[REDACTED]>, Mika Tanaka <[REDACTED]>, Eb Richardson <[REDACTED]>

Good morning. For a bit of structure to the conversations tomorrow or Friday, I've provided a draft agenda. Look forward to the discussions.

Jonathan

DARPA-BTO Polymaths  
Agenda: June 5 or 6, 2014

State of the project (5 minutes)

Topic 1 (15 minutes)

Biomimicry: What is possible by copying nature?

Systems in nature, including those we engineer, with which we interact and those observed, both at higher and lower scale, show self-similarity and exemplify relevance of biomimicry to system design and optimization.

As one example, could energy management on a cellular level serve as blueprint for our needs? While obesity is clearly a societal problem on grand scale, perhaps it also represents evidence of how efficiently cells and organisms can store energy. Cells capture every molecule of substrate, irrespective of whether more will be available later, and scale energy storage capacity. How can we accomplish the same, and how can that change the landscape of technology development and society's capabilities?

Topic 2 (15 minutes)

Mars: Could it be easier to start over than to reengineer the entrenched?

Consider the current knowledge base and issues surrounding nutrition, the immune system and musculoskeletal/cardiovascular performance. How would we start over on Mars?

Consider the risks of long term exposure to low gravity. Loss of bone mass is an observation that extends back to early Apollo program. Recent observations suggest possible changes in intracranial pressure due to changes in the flow of cerebrospinal fluid. If we shift from managing risks to seeking opportunities, how could Mars provide opportunities, and how could such constructs be applied on Earth?

Discussion (15 minutes)

Jonathan Sackner-Bernstein, M.D.  
Chairman/CEO, ExVivos, LLC  
Google voice [REDACTED]  
[REDACTED]

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