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**From:** Joichi Ito <[REDACTED]>  
**Sent:** Monday, January 13, 2014 1:30 AM  
**To:** Reid Hoffman; Epstein Jeffrey; Kevin Slavin  
**Subject:** Fwd: Deceptive viruses and collapse in biological and financial networks  
**Attachments:** barrangou-science-07.pdf; Untitled attachment 00004.htm; nature09659.pdf; Untitled attachment 00007.htm; signature.asc

Thanks for taking the time to speak with me yesterday; your thoughts on the importance of recognizing and modeling deception were interesting—and, as always, I enjoyed diving into the philosophical and systems-level implications of evolution.

Regarding deception, I've attached the seminal paper on the CRISPR/Cas system—in which viruses invade bacteria by masquerading as endogenous DNA, the bacteria then endeavor to identify and remember these viruses, and the viruses respond in turn by 'shuffling' their DNA to again deceive the cell.

Thanks again for your time--would love to continue these discussions sometime in the future.

James

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