**From:** A Barrett [redacted]
**Sent:** Wednesday, October 8, 2014 10:29 PM
**To:** Jeffrey Epstein
**Subject:** Fwd: Confidential: Early detection of Ebola

Hi Jeffrey,

A=y interest in helping on this. I know last time you and Francis did not hit=it off. Nevertheless he has been successful as a scientist and is really no= a "people' person.

He claims he can develo= the tools to diagnose Ebola before it becomes symtomatic.
=br>

Anthony Barrett

Begin forwar=ed message:

From: Franci= Barany <[redacted]>
Date: October 8, 2014 at 6:06:32 PM EDT
To: An=hony Barrett <[redacted]>
=b>Cc: Michael Gargano [redacted]<mailto:[redacted]> >
Subject: Confidential: Ea=ly detection of Ebola

Dear Anthony,

I really appreciate your willingness to find a potential pathway to Bil= Gates and the Gates Foundation.

By way of introduction, I have been a Professor at Weill-Cornell for th= last 30 years, and am best known for having invented the Ligase C=ain Reaction (LCR) and the Universal Array. I hold 46 issued US p=tents, a number of which have led to commercial tests to diagnose genetic diseases (i.e. cystic fibrosis, MLPA tests, D=NSR for NIPD of trisomy), and identify diseases using DNA microarrays a=d targeted Next-Gen sequencing. Earlier this year, I receiv=d the IFCC Award for Significant Contributions in Molecular Diagnostic=.

I have been collaborating with Dr. Linnie Golightly of our Center for G=obal Health/Infectious Disease Division for the past decade, work=ng together closely to develop multiplexed PCR-LDR assays for Category=A Biothreat agents, including all the major viral hemorrhagic fever viruses (VHF; ebolavirus, marburgvirus Crimean Congo=nbsp;hemorrhagic fever virus, Lassa fever virus, Rift Valley fever vir=s, Dengue virus, and Yellow fever virus). (Kindly see belo= abstract of manuscript just being submitted). In addition, in collaboration with Professor Soper at UNC, we have been building =icro-fabricated devices to rapidly detect pathogens.

Most recently, we have begun designing micro-fabricated devices that wi=l allow for electronic detection, obviating the need for expensiv= hardware used in most fluorescent detection schemes (i.e. Taqman assa=s). As such, we are poised to combine these technologies for rapidly identifying and providing quantitative viral load for=all the VHF,

Variola, Malaria or other Category A pathogens directly f=om a drop of blood, with the next level of such devices suitable f=r working in developing countries, and may be powered and run by a cell phone or smart device.

- Current CDC approved EZ1-RT-P=R Taqman assay has LOD of 5,000 PFU/ml. This works when patient is&nbs=;febrile, i.e. has overt symptoms and may be contagious.
- Next level of assay needs to b= > 100-fold more sensitive. We know how to address this issue.
- This would allow for identifi=ation of individuals with early viral replication in their blood &#65533;=94before they are contagious, so they may be isolated, and further,&nb=p;early detection may improve outcomes.

Would your contacts be able to help us, so in turn we may help protect o=r country?

Most appreciated,

Francis & Linnie

Dr. Francis Barany
Dept of Microbiology & Immunology
Box 62 Rm B-406
Weill Cornell Medical College
[redacted]
barany@med.cornell.edu <mailto:[redacted]>

Linnie Golightly, MD
Associate Professor of Clinical Medicine
and Microbiology & Immunology
Center for Global Health
Division of Infectious Diseases
Weill Cornell Medical College
[redacted]

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A Multiplex PCR/LDR Assay for the Simultaneous Identification of C=tegory A Infectious Pathogens: Agents of Viral Hemorrhagic Fever and V=riola Virus

Das S.1, Rundell M.S.2, Mirza A.H.2, Pingle M.R.2, Shigyo K.1, Garrison=A.R.3, Paragas J.4, Smith S. K.5, Olson V. A.5, Larone D.H.2, 6,&=bsp;Spitzer E.D.7, Barany F.2 and Golightly L.M.1, 2

1. Department of Medicine, Division of Infectious Diseases, Weill Medic=l College of Cornell University, New York, NY
2. Department of Microbiology and Immunology, Weill Medical College of C=rnell University, New York, NY
3. United States Army Medical Research Institute of Infectious Diseases= Frederick, MD.
4. Integrated Research Facility, Division of Clinical Research, N=AID, NIH, Ft. Detrick, MD

5. Poxvirus Team, Poxvirus and Rabies Branch, Division of High Conseque=ce Pathogens and Pathology, National Center of Emerging Zoonotic a=d Infectious Diseases, Centers for Disease Control and Prevention,&nbs=;Atlanta, GA
6. Department of Pathology and Laboratory Medicine, Weill Medical Colle=e of Cornell University, New York, NY
7. Department of Pathology, Stony Brook University Medical Center, Ston= Brook, NY

ABSTRACT

CDC designated category A infectious agents pose a major risk to nation=l security and require special action for public health prep=redness. They include viruses that cause viral hemorrhagic fever=(VHF) syndrome as well as variola virus, the agent of smallpox. VHF is characterized by hemorrhage and fever with multi-organ&nb=p;failure leading to high mortality and morbidity. Smallpox, a p=ior scourge, has been eradicated for decades making it a particul=rly serious threat if released nefariously in the essentially non-immu=e world population. Early detection of the causative agents a=d ability to distinguish them from other pathogens is essential to&nbs=;contain outbreaks, implement proper control measures and prevent morb=dity and mortality. We have developed a multiplex detection= assay that uses several species-specific PCR primers to generate ampli=ons from multiple pathogens; these are then targeted in a ligase d=tection reaction (LDR). The resultant fluorescently-labeled=ligation products are detected on a universal array enabling simultaneous identification of the pathogens. The assay was=evaluated on 32 different isolates associated with VHF (ebolavirus,&nb=p;marburgvirus Crimean Congo hemorrhagic fever virus, Lassa fever viru=, Rift Valley fever virus, Dengue virus, and Yellow fever virus) as well as variola virus and vaccinia virus (the agent of small=ox and its vaccine strain, respectively). The assay was abl= to detect all viruses tested including 8 sequences representative&nbs=;of different variola virus strains from the CDC repository. It does not cross react with other emerging zoonoses such a= monkeypox virus or cowpox virus, or six flaviviruses tested (St. Loui= encephalitis virus, Murray Valley Encephalitis virus, Powassan v=rus, Tick-borne encephalitis virus, West Nile virus and Japanese encephalitis virus).

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