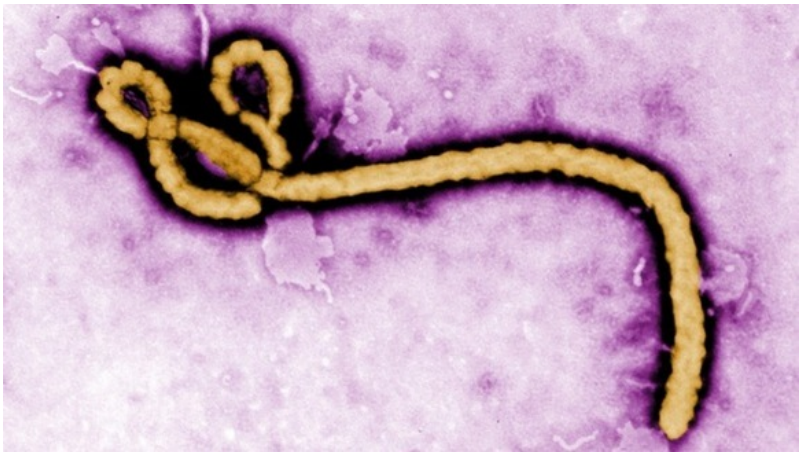


Dr Bill Deagle MD
AAEM ACAM A4M
Ebola Threat & Solutions
October 5, 2014

Ebola Threat & Solutions ...

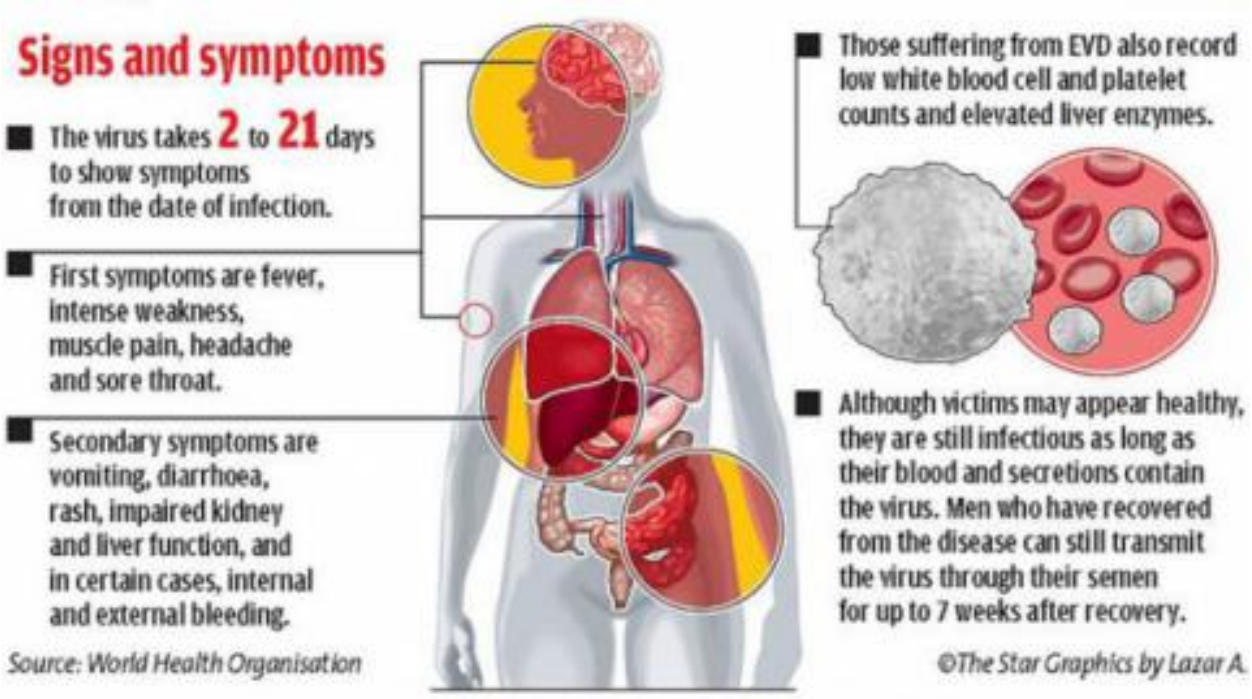


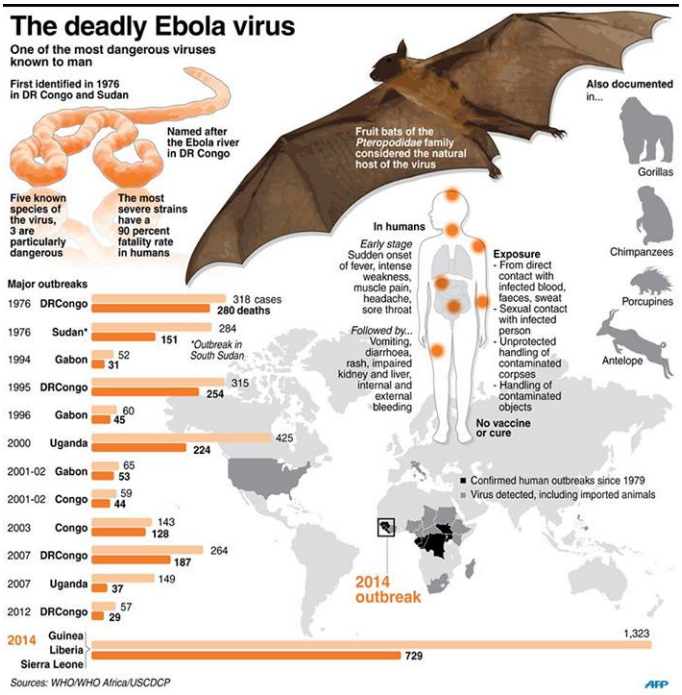
Photo: The Star/ANN

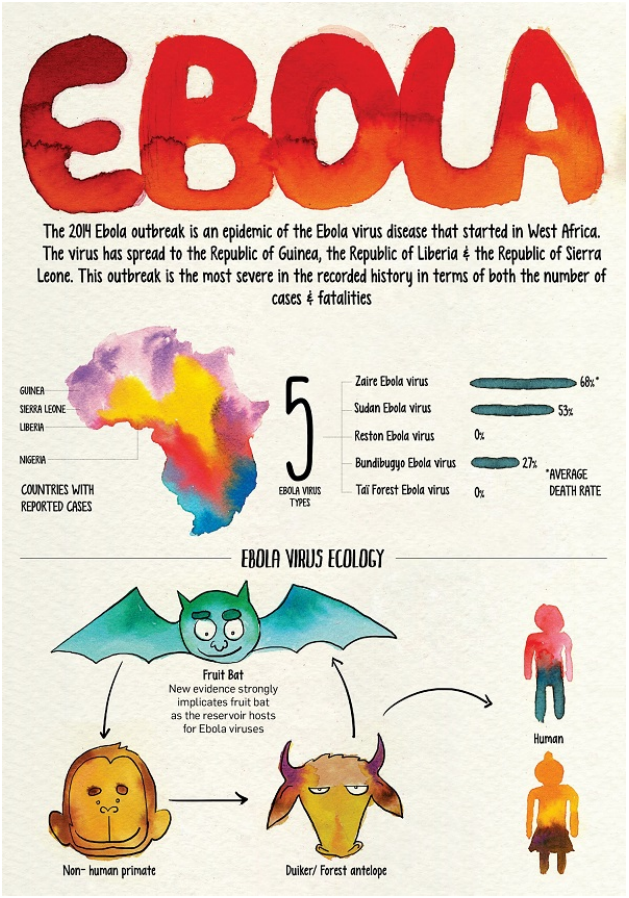
Ebola has appeared in three African nations in 2014 with exponential growth, 71% case fatality, and grossly incompetent response on a local and international level. The resent sending of 160,000 hazmat separate air biohazard suits via the US State Dept to Africa confirms 2012 Canadian research, that Ebola is airborne. Since 1976, Ebola was of short incubation period approximately 4 to 7 days, before rapid onset of terminal DIC disseminated intravascular coagulopathy. The lab where Ebola research in Sierra Leone has been funded by Bill and Melinda Gates and George Soros, under the direction of the CDC of the USA and UN / WHO. The 2010 USA patent by the CDC on Ebola indicates they had interest in genetic and

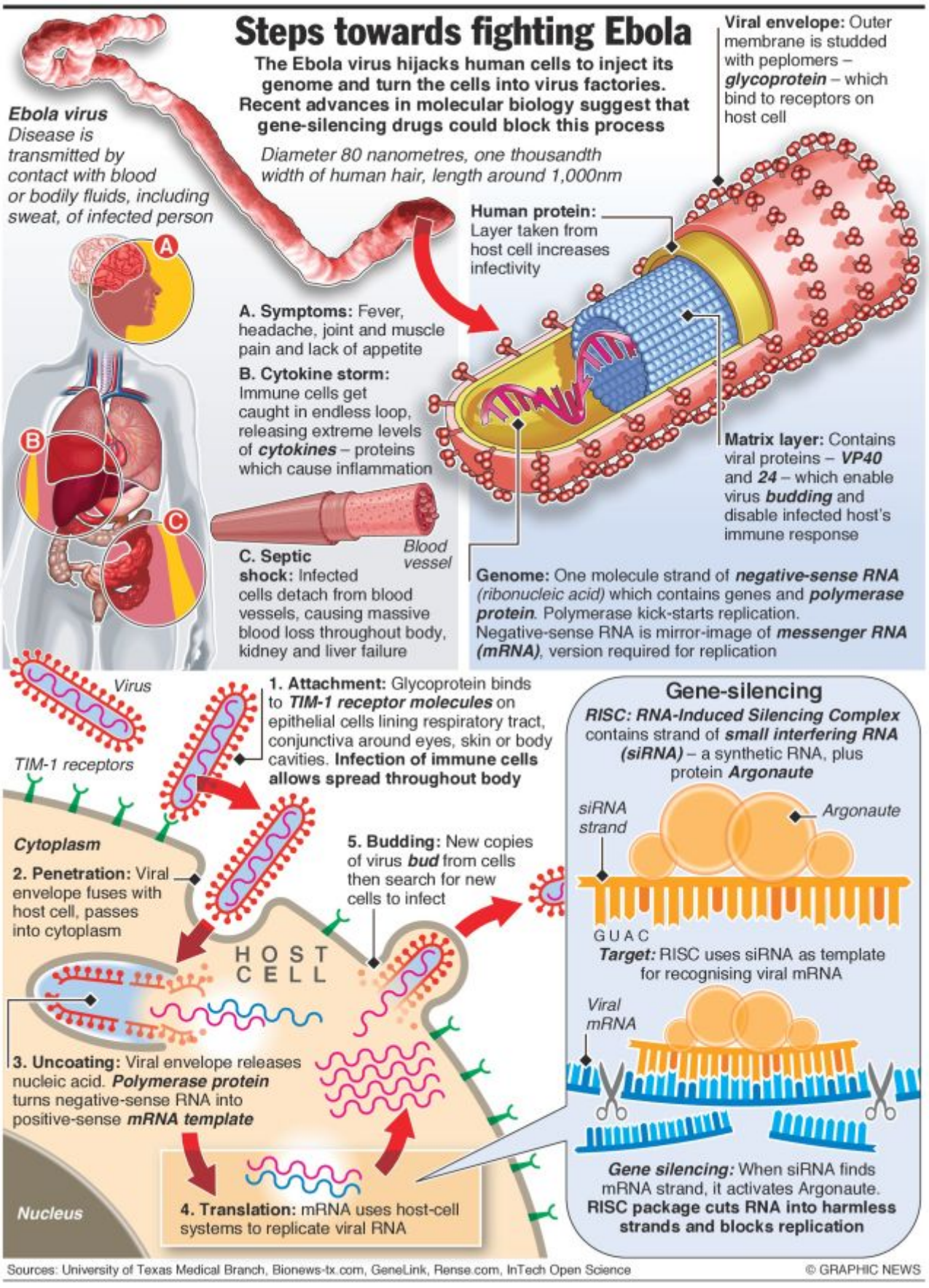
pathogenic modification of the virus. Its recent rise and spread lend support to the thesis that it is a bioweapon designed to firstly depopulate Africa, and secondly to force travel controls, medical martial law and by 2006 international treaties that pass all military under the UN and all health controls under the WHO.

Ebola mimics early malarial symptoms in Africa, where citizens are prone to go to the local pharmacy or natural doctors for malarial treatment. The population is very suspicious of outside health providers and tend to run from any suggestion of Ebola as a possible diagnosis. Normal self-quantine is totally useless in Africa, and 21, 30 day time for quarantine is inadequate. It should be sixty days minimum, with monitoring of each person in a separate biohazard room, with no day privileges to leave the facility. Anyone under surveillance must have daily medical checks, viral swabs, blood titers and testing to indicate viral load, and any indication of progression to overt disease which may follow false negative testing results.

Ebola has a reservoir in fruit bats, monkeys and cattle in Africa. It can also infect domestic animals cats, and dogs, as well as carrion birds such as crows, seagulls and eagles.






Steps towards fighting Ebola
The Ebola virus hijacks human cells to inject its genome and turn the cells into virus factories. Recent advances in molecular biology suggest that gene-silencing drugs could block this process
Ebola virus
Disease is transmitted by contact with blood or bodily fluids, including sweat, of infected person
Diameter 80 nanometres, one thousandth width of human hair, length around 1,000nm
Viral envelope: Outer membrane is studded with peplomers – glycoprotein – which bind to receptors on host cell
Human protein: Layer taken from host cell increases infectivity
A. Symptoms: Fever, headache, joint and muscle pain and lack of appetite
B. Cytokine storm: Immune cells get caught in endless loop, releasing extreme levels of cytokines – proteins which cause inflammation
C. Septic shock: Infected cells detach from blood vessels, causing massive blood loss throughout body, kidney and liver failure
Blood vessel
Matrix layer: Contains viral proteins – VP40 and 24 – which enable virus budding and disable infected host's immune response
Genome: One molecule strand of negative-sense RNA (ribonucleic acid) which contains genes and polymerase protein. Polymerase kick-starts replication. Negative-sense RNA is mirror-image of messenger RNA (mRNA), version required for replication
Virus
TIM-1 receptors
1. Attachment: Glycoprotein binds to TIM-1 receptor molecules on epithelial cells lining respiratory tract, conjunctiva around eyes, skin or body cavities. Infection of immune cells allows spread throughout body
Cytoplasm
2. Penetration: Viral envelope fuses with host cell, passes into cytoplasm
HOST CELL
3. Uncoating: Viral envelope releases nucleic acid. Polymerase protein turns negative-sense RNA into positive-sense mRNA template
4. Translation: mRNA uses host-cell systems to replicate viral RNA
5. Budding: New copies of virus bud from cells then search for new cells to infect
Nucleus
Gene-silencing
RISC: RNA-Induced Silencing Complex contains strand of small interfering RNA (siRNA) – a synthetic RNA, plus protein Argonaute
siRNA strand
Argonaute
GUAC
Target: RISC uses siRNA as template for recognising viral mRNA
Viral mRNA
Gene silencing: When siRNA finds mRNA strand, it activates Argonaute. RISC package cuts RNA into harmless strands and blocks replication
Sources: University of Texas Medical Branch, Bionews-tx.com, GeneLink, Rense.com, InTech Open Science
© GRAPHIC NEWS

RECOMMENDATIONS:

1} Cancel all travel Visas to the USA and Western nations from these target countries and any new countries identified to have Ebola outbreaks.

2} FAA to place a Hazmat team on all aircraft to isolate anyone with symptoms presumptive of Ebola with a hazmat tent and isolation of one restroom, at the back of the aircraft. NIOSH N95 masks and biohazard TyVek Suits for suspected tracellers and hazmat team with separate air systems with filters.

3} HEPA filters with chain of custody to CDC Certified viral and pathogen labs for every international flight, with contract call list of travellers and followup for minimum three weeks from suspected contact on an identified flight of concern.

4} Hazmat teams and ground transfer vehicles to quarantine facilities at every USA or Western international airport.

PPE Level 3 and 4 Equipment with separate air systems and degowning airlock 1.3 Atmospheres Ozonate Ionic Silver Citrate aeosol environment for viral suppression wtih degowning techs in airlock to accomplish task without contamination of health professionals.

5} Ozone and Ionic Silver clearance of all aircraft and all luggage with UV curtains and Wood's light 'grime light' clearance of seats, lavatories, and all passenger contact points.

6} Development of rapid DNA amplification technologies for rapid identification of Ebola or any other suspect pathogen, for airline, hospital, EMT AND Hazmat staff. see BioFire and BioPhoton device articles at end of report, now available for Ebola and other Pandemic Viral Dectection in 1 hour.

7] Personal immune Hygiene - Send to involved population, EMT / Emergency, BSL2 to 4 Hospital Personell, High Risk Individuals and Public if pandemic status is breached by criteria of international spread and ratio of infectivity.

ICU therapy started early with viral detection, including electrolyte, cytokine suppression with oral / feeding tube Power C PLUS, I.V. Vitamin C and enzymatic AllerGone / AllerBlock, NutriTRALA, Cell Detox Glutatthione, ReGenerex and receptor binding domain Vitamin D3 and D2, with constant moniitoring breath and urine markers of free radicals and blood electrolytes with mobile fingerprick monitors and rapid lab testing devices.

Antipathogenics, Immune Boosters, Viral Defense / Flu Defense Kits - Nutriodine, AllicinMED, Silver 100, ImmunoMAX / Nutrimmune. NutriDefense, Power C PLUS / Full Vitamin K2, MyCell D3, MyCO D2 Oncomycin available at www.NutriMedical.com

8} Avoid contact with body fluids, stool, vomitus, coughing in vicinity, sweat and clothing or personal furniture e.g. bedding, chairs, coaches, and footwear.

9} Self quarantine at home for the duration of an outbreak plus eight weeks in your rea of the county, e.g. prepper needs water, food, personal protection.

10} Refuse all vaccines, drugs, and government detention camps

11} Under development -

ZMapp tobacco genetically modified sera tags pathogenic Ebola virus, and production should be dramatically increased. Similar H1N1, H5N1, H57N9, SARS Beta 2 Corona Virus should be explored.

Also other monoclonal antibodies may be helpful but limited supply and viral genetic evolution and drift could make less useful

Avoid Vaccine with Adenovirus and two genes to make your cells produce Ebola antigenic immune stimulus

12} Plan with Hamm Radio, Local Sherrif's offices, civilian defense teams to control movement of public, gas, food, services, mail etc. to prevent further spread of the pathogen.

13] Quarantine only if positive BioFire or BioPhoton Tests / PCR with or without symtoms - Personal and Military Quanantine to reduce contact from possible infective cases and people shedding virus before symptomatic.

From Ebola countries and if pandemic status is reached all international flights should be cleared before flights, boats, or immigrationis permitted, which should only take one hour.

14] To prevent endemic viral breakouts in bushmeat animals e.g. monkeys and fruit bats and agricultural animals and pets a national endemic team project to identify and elminate repositories with antipathogenics, scalar antiviral technologies and individual and herd culling. E.G. Liberian, Sierra Leone, Guinea international veterinarian teams - multiyear project.

PROTOTYPE USES LED LIGHTS TO DETECT EBOLA

Digital Sensing and Sizing of Vesicular Stomatitis Virus Pseudotypes in Complex Media: A Model for Ebola and Marburg Detection

http://pubs.acs.org/doi/abs/10.1021/nn501312q

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CASSection:Biochemical Methods

Abstract

Abstract Image

Rapid, sensitive, and direct label-free capture and characterization of nanoparticles from complex media such as blood or serum will broadly impact medicine and the life sciences. We demonstrate identification of virus particles in complex samples for replication-competent wild-type vesicular stomatitis virus (VSV), defective VSV, and Ebola- and Marburg-pseudotyped VSV with high sensitivity and specificity. Size discrimination of the imaged nanoparticles (virions) allows differentiation between modified viruses having different genome lengths and facilitates a reduction in the counting of nonspecifically bound particles to achieve a limit-of-detection (LOD) of 5 × 103 pfu/mL for the Ebola and Marburg VSV pseudotypes. We demonstrate the simultaneous detection of multiple viruses in a single sample (composed of serum or whole blood) for screening applications and uncompromised detection capabilities in samples contaminated with high levels of bacteria. By employing affinity-based capture, size discrimination, and a “digital” detection scheme to count single virus particles, we show that a robust and sensitive virus/nanoparticle sensing assay can be established for targets in complex samples. The nanoparticle microscopy system is termed the Single Particle Interferometric Reflectance Imaging Sensor (SP-IRIS) and is capable of high-throughput and rapid sizing of large numbers of biological nanoparticles on an antibody microarray for research and diagnostic applications.

Keywords: single virus; viral hemorrhagic fevers; label free; biosensor

BOSTON UNIVERSITY - EBOLA BIOPHOTON DETECTION KIT IN AN HOUR

http://www.futurity.org/ebola-sensor-viruses-791432/

Original Study

Posted by Mark Dwortzan-Boston U on October 27, 2014

In a worst-case scenario, 1.4 million people in Liberia and Sierra Leona could be infected with Ebola by late January, according to the US Centers for Disease Control and Prevention.

The CDC warns that those countries could now have 21,000 cases of the virus, which kills 70 percent of people infected.

One of the big problems hindering the containment of Ebola is the cost and difficulty of diagnosing the disease when a patient is first seen. Conventional fluorescent label-based virus detection methods require expensive lab equipment, significant sample preparation, transport and processing times, and extensive training to use.

A rapid, label-free photonic device that can provide affordable, simple, and accurate on-site detection could be a potential solution. The device could be used to diagnose Ebola and other hemorrhagic fever diseases in resource-limited countries.

DIAGNOSIS IN AN HOUR

A team, led by Selim Ünlü, a professor of biomedical engineering, electrical and computer engineering, and materials science and engineering at Boston University, in collaboration with physics professor Bennett Goldberg, showed the ability to pinpoint and size single H1N1 virus particles.

Researchers reported the first demonstrated of the concept in Nano Letters in 2010.

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California Institute of Technology

'Spider' molecules behave like nanorobots

Now, after four years of refining the instrumentation with collaborators including John Connor, a School of Medicine associate professor of microbiology, the team has demonstrated the simultaneous detection of multiple viruses in blood serum samples—including viruses genetically modified to mimic the behavior of Ebola and the Marburg virus.

The device identifies individual viruses based on size variations resulting from distinct genome lengths and other factors. Funded by the National Institutes of Health, the research appears in the May 2014 ACS Nano.

“Others have developed different label-free systems, but none have been nearly as successful in detecting nanoscale viral particles in complex media,” says Ünlü, referring to typical biological samples that may have a mix of viruses, bacteria, and proteins.

“Leveraging expertise in optical biosensors and hemorrhagic fever diseases, our collaborative research effort has produced a highly sensitive device with the potential to perform rapid diagnostics in clinical settings.”

Whereas conventional methods can require up to an hour for sample preparation and two hours or more for processing, the current prototype requires little to no sample preparation time and delivers answers in about an hour.

“By minimizing sample preparation and handling, our system can reduce potential exposure to health care workers,” says Connor, a researcher at Boston University’s National Emerging Infectious Diseases Laboratories (NEIDL).

“And by looking for multiple viruses at the same time, patients can be diagnosed much more effectively.”

HOW IT WORKS

The shoebox-sized prototype diagnostic device, known as the single particle interferometric reflectance imaging sensor (SP-IRIS), detects pathogens by shining light from multicolor LED sources on viral nanoparticles bound to the sensor surface by a coating of virus-specific antibodies.

Interference of light reflected from the surface is modified by the presence of the particles, producing a distinct signal that reveals the size and shape of each particle. The sensor surface is very large and can capture the telltale responses of up to a million nanoparticles.

In collaboration with BD Technologies and NexGen Arrays, a start-up based at the Photonics Center and run by longtime SP-IRIS developers David Freedman and postdoctoral fellow George Daaboul, the research team is now working on making SP-IRIS more robust, field-ready, and fast—ideally delivering answers within 30 minutes—through further technology development and preclinical trials.

SP-IRIS devices are now being tested in several labs, including a Biosafety Level-4 (BSL-4) lab at the University of Texas Medical Branch, which is equipped to work with hemorrhagic viruses.

Other tests will be conducted at the university's NEIDL once the facility is approved for BSL-4 research. Based on the team's current rate of progress, a field-ready instrument could be ready to enter the medical marketplace in five years.

http://www.biofiredefense.com/

Safeguarding Humanity

At BioFire Defense we deliver a fully integrated suite of biological agent identification products, including the FilmArray system, and life science systems to the biodefense and first responder community. Our products and services speed up medical results, help people stay healthy and make communities more secure. Simply put, we make the world a safer and healthier place.

Recent News:

BioFire Defense Receives EUA of FilmArray Ebola Test (10/25/2014)

BioFire Defense NGDS Contract Award (3/18/14)

BioFire Diagnostics Inc. announces intent to merge with bioMérieux (9/3/2013)

BioFire Initiates Clinical Study for the FilmArray® Gastrointestinal Panel (7/30/2013)

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BioThreatPanel-280-Featured

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