2015 Science Writers Symposium

Lab Tour: Ebola Virus Vaccines and Diagnostics

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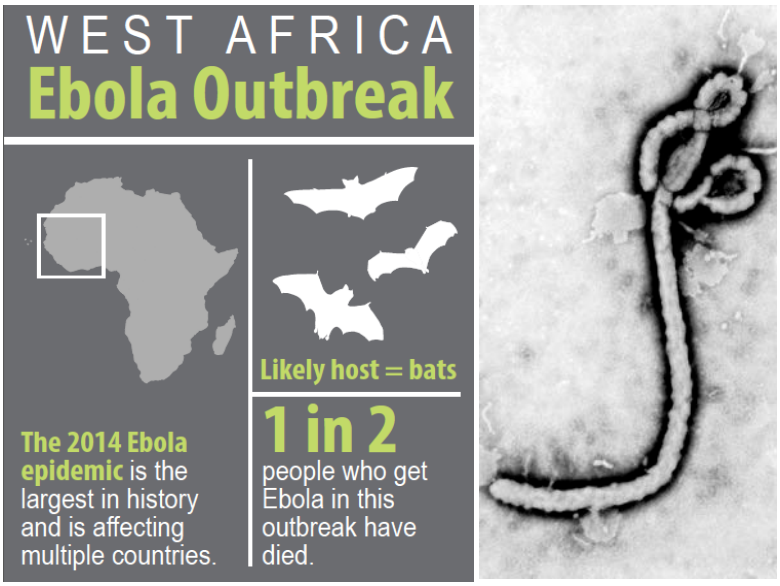

Ebola virus (scanning electron micrograph of virus particle, right image, from Murphy/CDC) caused a large 2013–2015 epidemic in West Africa (left panel, from http://www.cdc.gov/vhf/ebola/pdf/west-africa-outbreak-infographic.pdf), which lacked the necessary infrastructure and medical countermeasures to prevent the spread of the virus.

Our lab conducts research on Ebola virus (EBOV) vaccines and diagnostics. Because EBOV is a high containment pathogen that induces high mortality rates, we only work with fragments of the virus to determine whether they induce protective immunity and are relevant to diagnosis of infection. Candidate EBOV vaccines are under development, and the safety and efficacy of some of these vaccines are currently being tested in clinical trials. Simple antibody tests that can be performed under the limited capabilities found in Africa are needed to evaluate clinical trials for vaccine, serum therapies, and therapeutics and also to diagnose infections.

We work on:

1) Vaccine candidates based on purified EBOV glycoprotein likely to induce low adverse events.
2) Assays to detect total and neutralizing anti-EBOV antibodies that can be performed under low containment and require minimal infrastructure.

We have tested our vaccine candidate in animal lethal challenge models using live EBOV in collaboration with the U.S. Army Medical Research Institute of Infectious Diseases. Our candidate vaccine was highly protective in preventing EBOV disease and animal death.

Our anti-EBOV glycoprotein total and neutralizing antibody assays have been tested with serum samples from animal and human vaccine trials and shown to be robust and easy to perform. We are currently planning to test our assays in West Africa in collaboration with local laboratories.

Questions? Contact FDA's Office of Media Affairs at 301-796-4540 or fdaoma@fda.hhs.gov