

Scientists race to test Ebola vaccines

The world's worst outbreak of the Ebola virus – which has killed more than 1,000 people in West Africa – is fuelling efforts to speed vaccine and drug development

EXPERIMENTAL EBOLA VACCINES

■ **VSV-EBOV:** Developed by Canada's **National Microbiology Laboratory**, and due for human testing by Iowa-based **NewLink Genetics**. Can be used soon after exposure to virus, similar to rabies shots. Up to 1,000 doses donated to WHO by Canadian government

■ **GlaxoSmithKline:** British company developing vaccine based on chimpanzee adenovirus – relative of cold viruses – with U.S. **National Institutes of Health (NIH)**. Human trials due to begin in September

■ **Crucell: Johnson & Johnson** subsidiary working on vaccine for Ebola and related Marburg virus. Human tests could begin late 2015

Vaccines work by delivering benign Ebola genes into body in order to stimulate immune response that will protect person from future infection

EXPERIMENTAL DRUGS

■ **ZMapp:** San Diego-based **Mapp Pharmaceuticals** has made drug available to three aid workers infected with Ebola – one has died but two others are said to be improving. Health experts unable to tell if their recovery is related to ZMapp

■ **BioCryst:** North Carolina-based drugmaker has received \$4 million from NIH to study antiviral treatment for Ebola. Company already working on drug, BCX4430, for Marburg virus

■ **TKM-Ebola:** Canada's **Tekmira Pharmaceuticals** has begun human testing of Ebola drug, which works by blocking three genes that help virus reproduce and spread. Safety issues with initial study have put treatment's future in question



ZMapp contains three antibodies to Ebola, produced using tobacco leaves

EBOLA CASES AND DEATHS

As of August 11	Cases	Deaths
Guinea	510	377
Liberia	670	355
Sierra Leone	783	334
Nigeria	12	3
Total	1,975	1,069