CONTAINING SWINE FLU

HEALTH: FDA authorizes unapproved diagnostic test, new uses for drug

U.S. OFFICIALS are scrambling to deal with an outbreak of swine flu that is believed to have originated in Mexico and is rapidly spreading across the globe. Tests have confirmed that hundreds of people in at least 11 countries, including the U.S., have been infected with the newly discovered swine influenza A (H1N1) virus.

The Food & Drug Administration has responded to the threat by authorizing the emergency use of certain antiviral drugs to treat the virus and an unapproved laboratory test to help detect it.

FDA’s action allows physicians to give the oral drug Tamiflu to children less than a year old and authorizes the broader distribution of Tamiflu and the inhalant Relenza. News of FDA’s emergency authorizations led to a jump in the shares of Roche, Gilead Sciences, and GlaxoSmithKline, which make the approved antiviral drugs.

The action also authorized the Centers for Disease Control & Prevention (CDC) to distribute its real-time reverse transcriptase polymerase chain reaction Swine Flu Panel diagnostic test to qualified public health labs, even though the test has not been approved by FDA.

The diagnostic works by amplifying viral genetic material from a nasal swab. “A positive result indicates that the patient is presumptively infected with swine flu virus but not the stage of infection. However, a negative result does not, by itself, exclude the possibility of swine flu virus infection,” FDA noted in a statement.

CDC is monitoring the scope and severity of the outbreak, and it has released 25% of the antiviral drugs from its Strategic National Stockpile to all 50 states.

Drug companies say they are well equipped to deal with a surge in demand for their products. Amid fears of a global avian flu pandemic in 2006, Roche significantly expanded its list of partners that provide the key intermediates in oseltamivir, the active ingredient in Tamiflu. A more robust supply chain enabled Roche to increase its annual production of Tamiflu by more than 50%.

Emergency congressional hearings were held last week to discuss the outbreak and to ensure that federal health agencies are properly coordinating their efforts. And President Barack Obama asked Congress for $1.5 billion to deal with the outbreak.—BRITT ERICKSON AND LISA JARVIS

NEW ROUTE TO TREAT DEPRESSION

NEUROLOGY: Finding could help people failed by current antidepressants

A NEW TARGET for treating depression, discovered by researchers in Iowa, may offer an alternative to current antidepressants, which target other mechanisms to treat the condition.

“The mechanism issue is important because if a patient doesn’t respond to one drug, the chances of them responding to another drug that works through the same mechanism are low,” says John A. Wemmie, who led the research team. Wemmie is an associate professor of psychiatry and neurosurgery at the University of Iowa and a staff physician and researcher at the Iowa City Veterans Affairs Medical Center.

Wemmie’s team focused on a biochemical pathway involving acid-sensing ion channel (ASIC) proteins expressed by neurons. ASICs are activated by protons that are believed to act as neurotransmitters (C&EN, Jan. 14, 2009, page 10). Wemmie and his colleagues concentrated on the ASIC1a class of these ion channels, which are abundant in regions of the brain associated with mood.

The research group had previously shown in mice that ASIC1a activity is associated with anxiety, which often accompanies depression. In the new work, the researchers showed that mice lacking the gene for ASIC1a were less susceptible than normal mice to depression caused by stress. In a second experiment, the researchers treated normal mice with A-317567, an experimental ASIC inhibitor that Abbott Laboratories has been studying for pain treatment. Wemmie’s team reports that blocking ASIC1a in this way produced antidepressant effects in the animals (J. Neurosci. 2009, 29, 5381).

“If we find ways to block the channels or to manipulate pH in ways that will inhibit ASIC activation in people,” Wemmie says, “this may provide a novel opportunity to reduce depression in patients.”

“The development of antidepressants that act on other molecular targets in the brain would be a major breakthrough,” comments pharmacist John F. Cryan, who studies the treatment of depression at University College Cork, in Ireland, but is not affiliated with the Iowa work. A new treatment paradigm might help the more than one-third of patients for whom current antidepressants aren’t particularly effective, he adds.—SOPHIE ROVNER