

This supplement has been prepared to present scientific and technical news items that may be of more interest to technical personnel at RDT&E activities and the labs, or the medics rather than the broader readership of the basic CB Daily. Due to the nature of the material, the articles, if available online, are usually only available through subscription services thus making specific links generally unavailable. Thus, usually only the bibliographic citation is available for use by an activity's technical library.

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Chem-Bio News- Pandemic Influenza Edition #48

1. WHO PICKS NEW B STRAIN FOR 2009-10 FLU VACCINE: "Because of a suboptimal match between this year's flu vaccine and circulating influenza B viruses, the World Health Organization (WHO) has recommended changing one of the three strains used in flu vaccines for the Northern Hemisphere next fall and winter."

2. A TLR3 LIGAND THAT EXHIBITS POTENT INHIBITION OF INFLUENZA VIRUS REPLICATION AND HAS STRONG ADJUVANT ACTIVITY HAS THE POTENTIAL FOR DUAL APPLICATIONS IN AN INFLUENZA PANDEMIC: "In this study, PIKA (a stabilized dsRNA) provides broad-spectrum prophylaxis against a number of influenza A viruses."

3. UNION SPRINGS PHARMACEUTICALS INTRODUCES NEW, MORE EFFECTIVE RESPIRATOR: "Union Springs Pharmaceuticals, LLC, today announces the unveiling of their revolutionary ViralClyns(TM) P95 disposable respirator, a product that offers a virtually impenetrable barrier against airborne viruses and other opportunistic pathogens."

4. INDUCTION OF THE KYNURENINE PATHWAY BY NEUROTROPIC INFLUENZA A VIRUS INFECTION: "In light of its antagonistic actions on the NMDA receptor, kynurenic acid can potentially link infections with glutamatergic signaling in the developing brain."

CB Daily Report

Chem-Bio News

WHO PICKS NEW B STRAIN FOR 2009-10 FLU VACCINE

By Lisa Schnirring

CIDRAP News (Center for Infectious Disease Research & Policy – University of Minnesota)

February 13, 2009

"Because of a suboptimal match between this year's flu vaccine and circulating influenza B viruses, the World Health Organization (WHO) has recommended changing one of the three strains used in flu vaccines for the Northern Hemisphere next fall and winter.

The WHO's choices for the two influenza A strains remain the same as last year, according to new reports published on the WHO Web site this week. The agency recommended keeping the influenza A/H1N1 and A/H3N2 variants used in this year's vaccine, both of which are labeled Brisbane strains.

The influenza B component of this year's flu vaccine was from the Yamagata lineage, but the proportion of strains from the Victoria lineage continues to increase and has become predominant in many countries, the WHO said. The US Centers for Disease Control and Prevention's (CDC's) most recent flu surveillance report, for the week of Feb 1 through 7, said that of 78 influenza B viruses that were characterized, 55 belonged to the Victoria lineage."

The full article can be found at: <http://www.cidrap.umn.edu/cidrap/content/influenza/general/news/feb1309selection-br.html>

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A TLR3 LIGAND THAT EXHIBITS POTENT INHIBITION OF INFLUENZA VIRUS REPLICATION AND HAS STRONG ADJUVANT ACTIVITY HAS THE POTENTIAL FOR DUAL APPLICATIONS IN AN INFLUENZA PANDEMIC

By Yuk-Fai Lau, Lay-Hoon Tanga and Eng-Eong Ooi

Vaccine

January 15, 2009

"Drugs that target the innate immune system to achieve a 'heightened antiviral' state represent another class of antiviral agents that could contribute to the control and treatment of influenza infection. In this study, PIKA (a stabilized dsRNA) provides broad-spectrum prophylaxis against a number of influenza A viruses. In addition, when PIKA was admixed with influenza vaccine preparations, including a formalin-inactivated whole-virion H5 vaccine, significant adjuvanting effect leading to accelerated viral clearance was observed in a murine model. These biological effects appear to be mediated by the ability of PIKA to promote the maturation of dendritic cells, including up-regulation of co-stimulatory

molecules, such as CD80 and CD86, and the induction of various cytokines and chemokines. Toll-like receptor 3 (TLR3) was shown to recognize PIKA in a concentration-dependent manner. The potency and versatility in its activities make PIKA an attractive candidate for use in an influenza pandemic."

The full article can be found at: http://www.sciencedirect.com/science?_ob=ArticleURL&_udi=B6TD4-4VCMXXB-2&_user=616288&_rdoc=1&_fmt=&_orig=search&_sort=d&view=c&_acct=C000032378&_version=1&_urlVersion=0&_userid=616288&md5=5b49dcb63372b458b76138ab135bac1f

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UNION SPRINGS PHARMACEUTICALS INTRODUCES NEW, MORE EFFECTIVE RESPIRATOR

Yahoo! Finance
February 12, 2009

"Union Springs Pharmaceuticals, LLC, today announces the unveiling of their revolutionary ViralClyns(TM) P95 disposable respirator, a product that offers a virtually impenetrable barrier against airborne viruses and other opportunistic pathogens.

After rigorous laboratory testing, The ViralClyns P95 respirator has shown to be 100 times more effective than other respirators in its class, stopping 99.99 percent of airborne and droplet viruses. Utilizing patented Triosyn® Antimicrobial Protection, the ViralClyns P95 filter is able to stop and inactivate viruses, bacteria, protozoa and fungi.

The respirator filters many potentially dangerous microbial threats including the Bird Flu and SARS, known for being composed of extremely small particles and for their pandemic risk."

The full article can be found at: <http://biz.yahoo.com/prnews/090212/clth073.html?.v=101>

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INDUCTION OF THE KYNURENINE PATHWAY BY NEUROTROPIC INFLUENZA A VIRUS INFECTION

Virus Weekly
February 17, 2009

"Glutamatergic NMDA (N-methyl D-aspartate) receptors play a critical role in brain development and neurotransmission. Kynurenic acid, an end product of tryptophan degradation along the kynurenine pathway, is an endogenous NMDA receptor antagonist."

"In the present study, the effects of neurotropic influenza A virus infection on the kynurenine pathway were investigated in mouse brain primary cell cultures and in mouse brain after infection on day 3 of postnatal life. Altered levels of transcripts encoding several key enzymes of the kynurenine pathway were observed in infected neuron and glial cell cultures. In vivo, changes in the levels of such transcripts in brain were observed on postnatal days 7 and 13 but not on day 24. On postnatal day 13, infiltrating T lymphocytes and increased levels of kynurenic acid were observed in the brains of the infected animals. Taken together, the present results indicate that central nervous system infections during early life can activate the entire kynurenine pathway. Such activation is likely to result in the generation of several bioactive metabolites, as supported by our finding of a transient increase of kynurenic acid."

"In light of its antagonistic actions on the NMDA receptor, kynurenic acid can potentially link infections with glutamatergic signaling in the developing brain."

The full article can be found at: (M. Holtze, et. al., "Induction of the Kynurenine Pathway by Neurotropic Influenza A Virus Infection". Journal of Neuroscience Research, 2008;86 (16):3674-3683). Link not available.

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