



Inspired Life Science Technology

Going Viral

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Seeking Your Feedback - A Survey from InDevR

In the previous issue of *Going Viral*, we introduced our second readership survey focused on the methods scientists use to inactivate virus particles. There is still time to submit a response to this survey!

[Click here](#) to provide us with feedback on your daily practice.

News in Life Science Technology

Ondek Plots Human Trials of Drinkable Flu Vaccine

Ondek, an Australian pharmaceutical company owned by Nobel Prize winner Barry Marshall, has announced plans to enroll patients in a clinical trial of a drinkable flu vaccine. This vaccine replaces genes from the stomach bacterium *Helicobacter pylori* with those of the flu and other viruses to elicit an immune response as the bacterium colonizes the gut. Advantages include the fact that the components of the drinkable vaccine can be freeze-dried, which simplifies storage and delivery as well as minimizes injection site reactions. Ondek plans to enroll 30 patients in a clinical trial of the drinkable flu vaccine later this year. Results are expected in 2013.

[Read more](#)

Study Supports Hepatitis B Vaccination for Women

It is estimated that 1.5 million US residents are living with a chronic hepatitis B infection. Because the disease is the underlying cause of more than 3,000 deaths each year, high-risk pregnant women have been encouraged to get a hepatitis B vaccine since 1993. A study recently completed by the University of Texas Southwestern Medical Center confirms that a new hepatitis B vaccination protocol for pregnant women is effective and well tolerated.

This new protocol consists of three vaccine shots given over the course of 12 weeks. Previous hepatitis B vaccination protocols for pregnant women recommended shot delivery over a period of six months. In the University of Texas Southwestern Medical Center study, 168 pregnant women received all three doses of the vaccine. No increases in preterm delivery rates, neonatal intensive care admissions or other adverse events were reported among the women participating in the study.

[Read more](#)

New Math in HIV Fight

Groundbreaking research taking place at the Ragan Institute, a partnership between Massachusetts General Hospital, the Massachusetts Institute of Technology and Harvard University, is exploring the hypothesis that an HIV vaccine should not broadly attack the virus and instead hone in on a few targets. The theory is based on a rare group of patients who are naturally able to control their HIV without medication.

According to Ragan Institute scientists, there are groups of amino acids within HIV that rarely make multiple mutations and the virus needs to keep those sectors in tact. Targeting those specific sectors could trap the virus. Ragan Institute scientists found the vulnerable sectors by using a statistical method - the random matrix theory - which has also been utilized as a stock market tool. By sifting through most of HIV's genetic code for correlated mutations, the scientists discovered a segment that tolerated the fewest multiple mutations. Part of this segment, dubbed sector 3, helps form the edges of the honeycomb structure that make up the virus' internal shell. If the HIV honeycomb suffers too many mutations, it doesn't interlock, which then causes the capsid to collapse.

The results of the random matrix theory analysis led the Ragan scientists to the targeted HIV vaccination approach, which will now be tested in monkeys. There are also plans to apply the theory to central problems in antibody-based vaccines.

[Read more](#)

Virus of the Month: Dengue

The Dengue virus, also referred to as Dengue fever, is transmitted through *Aedes aegypti* and *Aedes albopictus* mosquitoes. It is considered an emerging disease throughout many sub-tropic and tropic areas of the world. *Ades* mosquitoes are closely associated to humans as they prefer to rest indoors in dark, cool areas before biting. It is difficult to eliminate these types of mosquitoes because they are very adaptable to environmental changes. Natural phenomena or human interventions have been unable to control overall population growth of *Ades aegypti* and *albopictus*. Following significant rainfall or the accumulation of water in containers, the mosquito eggs are able to re-hatch quickly. The entire life cycle of an *Ades* mosquito is 8-10 days, depending on the level of feeding.

Dengue fever is caused by any of four closely related viruses - dengue 1 - 4. These viruses originated in monkeys before being transmitted among humans in Africa or Southeast Asia approximately 100 - 800 years ago. The transmission of the virus remained relatively dormant until World War II when *Ades aegypti* mosquitoes traveled the world via cargo. Dengue epidemics occurred in the Philippines and Thailand in the 1950s and large numbers of cases began occurring in the Caribbean and Latin America in 1981. Today, dengue is endemic in at least 100 countries worldwide. The majority of dengue cases in the US occur in Puerto Rico, the US Virgin Islands, Samoa and Guam.

Ades mosquitoes serve as vectors of the dengue virus. Dengue viral titer is typically highest in the blood approximately five days after the initial transmission by an infected mosquito. Another 8-12 days of incubation must then occur before the virus can be transmitted to another human. The mosquito then

remains infected with the virus for the rest of its life cycle.

Many humans infected with the dengue virus are asymptomatic. However, dengue may manifest through severe head and eye aches, joint pain, muscle and/or joint pain, rashes, mild bleeding or a low white blood cell count. Severe cases can result in dengue hemorrhagic fever (DHF). It is characterized by a fever that lasts for 2-7 days before declining. During the 24-48 hours following the initial decline, an infected human's capillaries become excessively permeable. This may result in a low platelet count, circulatory system failure and shock and, in some cases, even death. DHF cases should be taken very seriously.

There are no dengue vaccines or appropriate antiviral drugs currently available to prevent or treat a dengue infection. The best way to prevent the transmission of the virus is to reduce contact with mosquitoes.

The following online resource was utilized for content in this section of Going Viral:

- <http://www.cdc.gov/Dengue/epidemiology/index.html>

InDevR in Brief



InDevR Undergoes Renovation

InDevR is one of the fastest growing biotechnology companies in the West. In 2010, our company was selected as a Colorado Company to Watch by the Colorado Office of Economic Development and International Trade. We are proud to be an influential driver of bioscience in Boulder, Colorado.

In order to better serve our customers and develop needed technology for virus quantification and pathogen detection, we recently finished a major renovation of our office in Boulder. The office

expansion includes 1,200 additional square feet of office and meeting space.

Visit www.indevr.com to learn more about our company philosophy.

Green Ideas

With the increase in environmentally focused business practices over the past few years, governmental organizations and businesses have developed energy management software tools to help companies improve their energy efficiency. According to the Johnson Controls, Making Buildings Work campaign, the data gathered from this type of software may help:

- Identify and explain increases or decreases in energy use.
- Draw energy consumption trends on a weekly, seasonal or other basis.
- Determine future energy use when planning



- changes in the business.
- d. Diagnose specific areas of wasted energy.
 - e. Observe how the business reacted to changes in the past.
 - f. Develop performance targets for energy management programs.

More information on energy management software can be found on the [Energy STAR website](#).

InDevR would like to learn more about things you are doing to make your business and our planet a little "greener". Feel free to send any tips or solutions to info@indevr.com. They may be featured in an upcoming issue of *Going Viral!*

Upcoming Events

Interested in learning more about the virus quantification and pathogen detection technologies being developed at InDevR? Sign up for one of our Webinars or connect with an InDevR team member at an upcoming biotechnology conference.

FREE Webinar

New Baculovirus Quantification Method

Thursday, July 21, 2011 - 1:00 p.m. MST

[Click here](#) to register for this Webinar