Setting sights on universal protection for flu

May 31 2024

Credit: Pixabay/CC0 Public Domain

Immunology and Infectious Disease Researcher and Senior Lecturer Dr. Hillary Vanderven is working against the clock with World Health Organization (WHO) experts reporting the next flu pandemic is a matter of when, not if.

Working in JCU's containment labs at the Australian Institute of Tropical Health and Medicine experimenting with flu antibodies, Dr. Vanderven is determined to find a way to reduce the number of people becoming severely unwell and dying from the flu.

"My research has a two-fold focus, with the first on preventing people from getting unwell with the flu and the second on reducing the number of people dying through new treatments," Dr. Vanderven said.

According to the WHO, the seasonal flu currently infects one billion people every year, including 3-5 million severe cases, and causes 290,000 to 650,000 respiratory deaths.

When Dr. Vanderven is not teaching future Biomedical Sciences and Molecular Biology experts, supervising her Ph.D. students or writing grant proposals, she's focused on her work in the lab.

Dr. Vanderven said working with novel antibody-based therapies was about looking closely at people's different responses and asking why some people die from the flu, why some don't, and what we can learn from understanding what separates the two groups.

"There are specific antibodies that prevent people dying because they do things like help you clear the virus-infected cells and other good things for you that are often ignored."

Dr. Vanderven said she was in search of antibody commonality across all influenza A virus strains which included seasonal, avian and swine variations.

"All flu viruses have a spike protein called hemagglutinin but there are other proteins inside of the virus which create a different type of immune response, and this is something I think has potential to work

with our existing vaccines and treatments to make them universally protective rather than strain specific," Dr. Vanderven said.

"For example, in America there is an outbreak of H5N1 Avian Influenza in cattle, so should this mutate and transmit from human to human. Our current seasonal vaccine won't cover this highly pathogenic (contagious) virus very well, so I would like to fix this and develop a universal vaccine that could protect against those viruses and allow for a swift response to any emerging pandemic threats."

Dr. Vanderven said don't panic about H5N1 becoming a pandemic, but watch this space.

"There is a global lens on the occurrence of H5N1 cases in both animals and people, including right here in Australia. People can be reassured experts are constantly checking on the genome of the virus to see what mutations are happening, and unlike COVID, if it does become a thing, we'll have some warning," Dr. Vanderven said.

"We know now what to do and we have more time to control a pandemic, if and when one occurs. Importantly, if a new flu vaccine is rolled out to protect us more broadly from the flu or from a specific virus such as H5N1, then get it."

Provided by James Cook University

Citation: Setting sights on universal protection for flu (2024, May 31) retrieved 23 June 2024 from https://medicalxpress.com/news/2024-05-sights-universal-flu.html

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.