GENOMICS, FUTURE OF MEDICINE AND NEW THERAPIES.

Influenza, people every year might consider getting or avoid having a flu shot. Some people avoid vaccines all together, such as the MMR vaccine over health scares. Every choice made can have some short term lived benefits but in return cause future health complications and could put everyone at risk. Groups of Oklahoma researchers directed by Dr. Lin Liu of Oklahoma State University are exploring ways to improve our understanding many common infectious diseases. Researchers part the Oklahoma Center for Respiratory and Infectious Diseases (OCIRD) and The Lundberg-Kienlen Lung Biology and Toxicology Laboratory published some exciting research regarding the Flu virus.

Viruses obligate intracellular parasites, meaning they must be able to enter a cell and take advantage of the cell’s machinery to reproduce. It wasn’t long ago that students were taught that DNA, the source of information in the cell, was mostly “junk” and the only important parts of DNA are sections that store information for proteins. The important parts are referred to as coding regions and “junk” are called non-coding regions. DNA has another form in cells that takes an active role in how they behave, and that form is called RNA. Viruses such as influenza can use RNA to change how infected cells behave. This research has found that large non-coding RNAs of the Flu stimulated parts of the cell related in our immune system. Using a molecular tool known as CRISPR, research was able to get this tool to interfere with some specific Flu RNAs. Once these RNAs were interfered with, they noticed the cells started to behave in a way closer to being normal. This was the principal finding of their publication “Long non-coding RNA PSMB8-AS1 regulates influenza virus replication” of January 2019.

On the market there are two major ways that a person might deal with the flu, vaccination and antiviral medication. Vaccination gives your body a less dangerous version of a Flu infection and relies on your body to make antibodies to target it. Once these antibodies are made, if you happen to run into the wild Flu virus your body will already have antibodies that get rid of it faster. This allows you to not feel as sick if you get infected. Sometimes the Flu vaccines are not as beneficial as we would hope. People can run into a Flu variant that are different from what the vaccine for the year prepares the body for. Prescription drugs known as antivirals that can be prescribe by doctors are able to help active infections. These antivirals typically target proteins on the virus that allows it to be neutralized by the body. Eventually research from labs such as the OCIRD directed by Dr. Liu can give a third target for a new type of therapy. One virus that is particularly difficult to make a vaccine for is HRSV, a leading cause of bronchiolitis. Dr. Liu hopes that his collaborative efforts and funding he helped secure, in the state of Oklahoma, will “nurture upcoming scientist developing futures in research.”

References

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