
INFLUENZA GROWTH VARIATIONS WITHIN MDCK CELLS

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Regardless of the preventative measures taken to keep the seasonal influenza virus under control, millions of people still get sick and tens of thousands die each year in the United States alone. This virus does not only affect the health of our nation but is also an economic burden. One study found that \$16.3 billion is the average lost earnings due to flu-related illness or death each year. The total economic losses of annual influenza amounted to \$87.1 billion in the US on average. This is merely the standard virus that comes around on a yearly basis causing the average “flu season.” During the 1918 Spanish influenza pandemic; this virus affected every age group in every region, it quickly spread worldwide. The purpose of this research study is to better understand influenza growth within a laboratory setting. This becomes important when growing high titer virus for use in challenge studies and other procedures, where the most effective dose of virus is needed to test the proposed vaccine. To be able to grow the virus, there need to be cells available for infection and propagation. For this purpose, the MDCK cell line was used. There are many conditions that can affect influenza growth in MDCK cells. The assay of virus concentration is also cumbersome and somewhat variable. We show here an analysis of some of the variables affecting growth and some comparison of alternate quantification methods. The preliminary data shown here include effects of cell confluence (“thickness”) upon initial infection; the amount of virus inoculum added for infection; when and how much TPCK – trypsin to be added to the media; when to harvest; and the growth medium type and volume. We are reporting the effect of these parameters on resulting virus titer.