Influenza virus infection rise the temperature of cell

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The genome of Influenza virus is negative stranded RNA and about 14,000 nucleotides. The replication takes place in nucleus using its own RNA dependent RNA polymerase. We prepared a temperature sensor to examine the cell temperature. Using this temperature sensor, we measured the temperature of influenza virus infected and uninfected cells. The result showed that the temperature of influenza virus infected cells increased to about 5°C. To understand this phenomenon, we assayed the ATP level in the cell. The ATP content of the virus infected cells rose up to 2 hpi, and then decreased. RT-PCR for mRNA showed that the mRNA was increased 1000 fold up to 4hpi. We also assayed the viral protein content at each time after virus infection. At 6-8 hpi, most of the viral proteins were detected by LC/MS correlated to the result of RT-PCR. This result indicated that a large amount of ATP consumption caused the rise of temperature inner cell.

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