

## ***A Dramatic/ Molecular Interpretation of the Influenza Virus's Life Cycle***

### **Goal**

The purpose of this activity is for everyone to gain a basic knowledge of the influenza virus on a molecular level and to relate it to a most important global issue..... a possible flu pandemic. This activity will serve as a capstone for all of the concepts and principles of organic chemistry that were considered throughout the entire course of study.

### **Activity**

Your class will produce and perform a dramatic enactment (a play) depicting the life cycle of a flu virus. Each of six groups will take on one particular aspect of the life cycle. You and the other members of your assigned group will enact a particular part. It will be a very short play, since we do not need to understand all of the details involved in the viral replication process. You will need to interact within your own group to determine what stage actions the "influenza actors" need to perform and develop any speaking lines they may need to deliver. You may want to have a narrator, although it is not necessary. Your group will need to work with the other groups in the performance who precede you and who follow you. They will require information concerning the details of your scene. In fact, some of your lines/actions will need to be performed with the other groups, so careful coordination is a necessity.

Spend some time today organizing your scene, considering your actions and spoken lines, and coordinating with any groups preceding or following you.. The play will be presented in class on Thursday, May 14. Only those actors performing in the play will receive credit for the assignment. Remember that although the purpose of this activity is to learn and use chemistry in an important interdisciplinary context, having fun while doing it is highly recommended. Humor, melodrama and surprise are encouraged.

## **The Life cycle of the Flu Virus (A Play In Four Scenes With Two Possible Endings)**

### **The Actors**

- Group 1: The Parent Virus Group (Hemagglutinin Proteins)
- Group 2: The Cell Membrane Group
- Group 3: The Cell Cytoplasm Group
- Group 4: The Viral Progeny Group
- Group 5: The Neuraminidase Group (Sialidase Enzyme)
- Group 6: The Anti-influenza Group (Neuraminidase Inhibitors)

### **The Play**

- Scene 1: The Parent Virus recognizes The Cell Membrane and infects the cell
- Scene 2: Viral RNA is transported into the cell and cellular machinery in the Cell Cytoplasm builds new virions
- Scene 3: The Viral Progeny escape from the cell only to clump together
- Scene 4: Neuraminidase cleaves frees Viral Progeny from clumping

### ***Alternate Ending:***

- Scene 4: The Neuraminidase inhibitor keeps Neuraminidase from freeing Viral Progeny