Abstract:

Influenza infections and virus mutations represent a major global health threat that requires ongoing development of new and effective antiviral strategies. The only FDA approved antiviral medications for the treatment of influenza are neuraminidase (NA) inhibitors. NA cleaves glycosidic bonds from the surface of host cells, releasing new progeny virions from infected cells during the final stage of a viral infection. The most widely utilized method for testing NA inhibitors *in vitro* uses a fluorescence-based assay and the substrate 2'-(4-Methylumbelliferyl)-α-D-N-acetylneuraminic acid (MUNANA). Measuring the amount of fluorescent product, 4-methylumbelliferone (4-MU), produced can be used to determine the potency of an NA inhibitor. Much of the work in our research lab centers on the generation of weak NA inhibitors that can be used to screen the highly virulent H1N1 strain of influenza. As such, we are modifying published procedures to measure binding (IC50) in the micromolar range. Whole virus assays are common, however we are testing on purified NA enzyme that can produce equivalent and potential lead-generating results using a safer and cheaper alternative host.