

THE RUSH TO PREVENT **A PANDEMIC**

FOCUS: *Developing a universal therapeutic that can prevent as well as treat all strains of influenza A.*

THE FLU RESULTS IN
31,400,000
OUTPATIENT VISITS
EACH YEAR IN THE U.S.

When the topic is potential worldwide viral epidemics, Dr. Glenn is in a position to see the big picture—due to what he sees at the molecular level. “Influenza A virus (IAV), to name just one, presents in a constantly changing and wide range of strains and subtypes that cause disease, ranging from seasonal flu to lethal pandemics capable of killing millions,” Dr. Glenn says.

Moreover, strains can quickly develop resistance to neuraminidase inhibitors (NAIs) such as Tamiflu. But there’s an even more alarming prospect to consider. “Strains can now be easily designed to cause disease—in fact, my graduate student could design an influenza virus that could kill 100,000,000 people, and vaccines offer no protection against such threats,” Dr. Glenn says.

To target viruses and prevent virus drug resistance, Dr. Glenn has focused on RNA secondary structures, which are formed when RNA genetic material folds on itself into specific shapes.

“Often in viruses, the secondary structures encode critical regulatory signals,” he says. “Secondary structures are often highly conserved; so I thought that if a drug could be designed to target an essential RNA secondary structure, the structure would have limited ability to mutate and escape from the drug. If so, this could translate to a high barrier to the development of resistance to the drug.”

Harrington Discovery Institute is helping Dr. Glenn pinpoint the optimal target, develop a potent, long-lasting compound, and help develop the compound into a new drug for the clinic.




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IMPACT WISH:

“To finally have a way of preventing and treating diseases that each year afflict large populations, young and old, as well as having an effective means of stopping the next pandemic in its tracks.”

Harrington Discovery Institute

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