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# Zanamivir

## A Viewpoint by Jennifer L. McKimm-Breschkin

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Influenza continues to be an important respiratory disease, with high rates of both morbidity and mortality. The predominant means of protection is administration of an inactivated multivalent vaccine, usually containing influenza A and influenza B virus subtypes. However, the virus surface proteins undergo continual change, which necessitates preparation and administration of new vaccines every year. Amantadine and rimantidine are also used prophylactically and as antiviral therapy. However, their usefulness is limited by their ineffectiveness against influenza B virus, adverse effects and the rapid emergence of resistant variants.

In contrast, zanamivir is a potent specific inhibitor of both influenza A and influenza B viruses, with no evidence of adverse effects. While resistance has been documented in laboratory systems, to date there has been no evidence of the emergence of resistant variants in the clinical situation. In a new approach to drug development, zanamivir was designed on the basis of knowledge of the 3-dimensional structure of the influenza virus neuraminidase and its interaction with the cell surface receptor.[1] The neuraminidase is responsible for the removal of sialic acids, which is thought to allow the release of newly formed virions from infected cells. Zanamivir acts by binding to the active site of the neuraminidase, which is conserved in all influenza A and B viral strains known to date, thus preventing release of virus.

Zanamivir is effective both prophylactically[2] and therapeutically.[3] Furthermore, placebo and zanamivir recipients demonstrate a similar level of seroconversion, providing ongoing protective immunity to the prevalent strain. Thus, when administered early, zanamivir should be a new safe and effective means of alleviating the severity of both influenza A and B virus infection.

## References

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