

## PRESS RELEASE

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### **NUS Medicine researchers identify promising broad-spectrum antiviral candidate against enteroviruses**

*Singapore, 10 September 2026* – Researchers from the Yong Loo Lin School of Medicine, National University of Singapore (NUS Medicine), have identified a promising antiviral compound that can inhibit a range of enteroviruses, including Enterovirus D68 (EV-D68), an emerging respiratory virus linked to severe respiratory illness and acute flaccid myelitis, a condition that can cause paralysis.

Known as GW406108X, the compound works by stopping viruses from exploiting a natural process within human cells that helps them multiply. The findings, published in [\*Acta Pharmaceutica Sinica B\*](#), could support the development of broad-spectrum treatments against enteroviruses, for which effective antiviral options remain limited. The study was led by Associate Professor Justin Chu, Department of Microbiology and Immunology, and Infectious Diseases Translational Research Programme (TRP) at NUS Medicine.

Assoc Prof Chu said, “Enteroviruses can cause illnesses ranging from respiratory infections and hand, foot, and mouth disease to serious neurological complications. While most infections are mild, severe cases can occur, particularly in young children. Unlike many antivirals that attack the virus directly, the compound appears to work by targeting a process in the infected cell. Rather than targeting the virus itself, we asked whether we could stop the virus by preventing it from exploiting the host cell’s own machinery.”

There are currently no approved antivirals specifically for EV-D68. To identify potential treatments, the team screened 7,986 compounds from nine drug libraries. GW406108X emerged as a promising candidate, reducing EV-D68 levels by approximately 1,000-fold at the concentrations tested in laboratory experiments. It was also effective against another EV-D68 strain and Rhinovirus A16, and showed activity against dengue virus serotype 2.

Cells normally use a process known as autophagy to recycle damaged proteins and other cellular components. However, enteroviruses can hijack this process to create an environment that helps them reproduce and spread. The researchers found that GW406108X blocks two proteins, ULK1 and ULK2, which help start the autophagy process. By doing so, the compound reduced the formation of structures that the virus uses to copy its genetic material and release newly formed virus particles. EV-D68 remained sensitive to GW406108X after 18 successive rounds of laboratory testing, although further studies are needed to fully assess its resistance potential.

Dr Thinesshwary Yogarajah, Department of Microbiology and Immunology, and Infectious Diseases TRP at NUS Medicine, said, “A therapy that targets a pathway shared by multiple viruses could offer a more resilient strategy for responding to future outbreaks. Because the compound targets a process in the host cell instead of the virus itself, this approach could also make it harder for viruses to develop resistance.”

The researchers also tested GW406108X against EV-D68 infection in preclinical studies. No observable toxic effects were detected at the dose tested. In the efficacy study, the untreated infected control group had an 83.3 per cent mortality rate, while groups receiving GW406108X recorded 100 per cent survival during the study period. The treated groups also showed milder signs of infection. At the higher dose tested, levels of the virus in the lungs were approximately 80 per cent lower than in the untreated control group.

The team stressed that the findings remain at an early, preclinical stage. Further studies are needed to optimise the compound and evaluate its safety, dosage and pharmacological properties before it can be considered for human clinical trials. They also plan to investigate whether targeting the same cellular pathway could work against other viruses that rely on autophagy. The findings provide a new approach to antiviral development where instead of targeting one virus at a time, therapies could potentially target cellular processes used by several viruses, opening the possibility of broader treatments for existing and emerging infectious diseases.

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Our multidisciplinary and real-world approach to education, research, and entrepreneurship enables us to work closely with industry, governments, and academia to address crucial and complex issues relevant to Asia and the world. Researchers in our faculties, 30 university-level research institutes, research centres of excellence and corporate labs focus on themes that include energy; environmental and urban sustainability; treatment and prevention of diseases; active ageing; advanced materials; risk management and resilience of financial systems; Asian studies; and Smart Nation capabilities such as artificial intelligence, data science, operations research, and cybersecurity.

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Through a dynamic and future-oriented five-year curriculum that is inter-disciplinary and inter-professional in nature, our students undergo a holistic learning experience that exposes them to multiple facets of healthcare and prepares them to become visionary leaders and compassionate doctors and nurses of tomorrow. Since the School's founding in 1905, more than 12,000 graduates have passed through our doors.

In our pursuit of health for all, our strategic research programmes focus in innovative, cutting-edge biomedical research with collaborators around the world to deliver high impact solutions to benefit human lives.

The School is the oldest institution of higher learning in the National University Health System. It is one of the leading medical schools in Asia and ranks among the best in the world (Times Higher Education World University Rankings 2026 by subject and the Quacquarelli Symonds (QS) World University Rankings by Subject 2026).

For more information about NUS Medicine, please visit <https://medicine.nus.edu.sg/>

**About the National Medical Research Council (NMRC)**

The NMRC was established in 1994 to oversee research funding from the Ministry of Health and support the development and advancement of biomedical research in Singapore, particularly in the public healthcare clusters and medical schools. NMRC engages in research strategy and planning, provides funding to support competitive research grants and core research enablers, and is responsible for the development of clinician scientists through awards and fellowships. The council's work is supported by the NMRC Office which is part of MOH Holdings Pte Ltd. Through its management of the various funding initiatives, NMRC promotes healthcare research in Singapore, for better health and economic outcomes.

**About the National Research Foundation (NRF)**

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