Infectious Diseases Labs
A*STAR IDL

HEALTHCARE · THERAPEUTICS · INFECTIOUS DISEASES

Therapeutic defective interfering particles

Harnessing viral interference to power next-generation influenza antivirals.

// TECHNOLOGY OVERVIEW

Influenza A virus naturally produces deletion-containing viral genomes (DelVGs) that compete with wild-type virus during infection and can suppress viral replication.

We have identified nucleotide modifications that enhance the replication and antiviral interfering activity of an influenza DelVG, providing a potential strategy for engineering more potent therapeutic interfering particles.

This technology enables sequence-level optimisation of defective viral genomes (DVGs) to enhance their natural ability to interfere with influenza virus replication.

// OUR INNOVATION

- ✓ **Fine-tuning viral interference at the nucleotide level**

  Mutations in DI250 enhance the replication, competitive fitness and interfering activity of the DelVG against wild-type influenza virus.

- ✓ **Stronger inhibition**

  Minigenome assay shows significantly greater inhibition of viral polymerase activity with modified DI250 versus unmodified DI250. Virus competition assay shows a significant reduction in infectious viral output.

- ✓ **Faster, higher abundance**

  During serial passaging, modified DI250 increased earlier and reached higher relative abundance than unmodified DI250.

// OUR VALUE PROPOSITION

Distinct antiviral approach

harnesses the naturally occurring competition between DVG and wild-type virus as an alternative strategy to suppress viral replication.

POTENTIAL APPLICATIONS: NOVEL INFLUENZA ANTIVIRAL THERAPEUTICS

// TECHNOLOGY DEVELOPMENT STATUS

TRL 3 — Early-stage validation

BASIC RESEARCH — DEPLOYMENT

PATENT

US non-provisional application filed: US19/850,448

PUBLICATION

Alnaji, F.G. et al., *Nature Communications* (**2026**).

CATEGORIES

Healthcare · Therapeutics · Infectious diseases · Influenza

Interested in this technology?

Connect with the A*IDL Tech-Biz team to explore licensing, co-development and translational opportunities. Available for licensing, co-development & translational research, and preclinical & clinical development partnerships.

Contact Us

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