Adapted Rhinovirus C for Maximum Virus Yield

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WARF: P160050US02

Inventors: James Gern, Yury Bochkov, Ann Palmenberg, Kelly Watters

The Wisconsin Alumni Research Foundation (WARF) is seeking commercial partners interested in developing a mutated rhinovirus C strain useful for large-scale production and ideal for screening potential antivirals.

Overview

Human rhinoviruses (species A, B and C) encompass more than 160 types that are responsible for the majority of upper respiratory tract infections (common colds) and many of the lower respiratory tract as well. Rhinovirus C species (RV-C) was discovered in 2006 and is of special interest because it can cause more severe illnesses in children and is closely associated with asthma exacerbations.

UW–Madison researchers on the forefront of rhinovirus discovery recently developed an enhanced cell line (HeLa-E8) for propagating the virus in culture (patent applied for; see WARF reference number P140382US02 for more details). To maximize the potential of this discovery, they have worked to identify RV-C mutations that increase replication and virus yields.

The Invention

Building on their work, the researchers have now developed a mutated RV-C strain that induces strong cytopathic effect and replicates vigorously in the HeLa-E8 cells, yielding more than a log higher level of infectious rhinovirus particles compared to the parental clinical isolate.

Applications

- Large-scale, cost-effective production of RV-C
- Testing antiviral compounds by infectivity assays (e.g., virus plaque assay) or utilizing reporter-expressing adapted RV-C

Key Benefits

- Achieves maximum replication, virus yields and cytopathic effect in HeLa-E8 cells

Stage of Development

The researchers have shown that when using the adapted RV-C, the cytopathic effect is strong enough to use the virus in a plaque assay to screen for antiviral compounds.

Additional Information

For More Information About the Inventors

- James Gern
- Ann Palmenberg

Related Technologies

- See WARF reference number P140382US02 for more information on the researcher's rhinovirus C propagation method.

Publications

- Bochkov Y. A., Watters K., Basnet S., Sijapati S., Hill M., Palmenberg A. C. and Gern J. E. 2016. Mutations in VP1 and 3A Proteins Improve Binding and Replication of Rhinovirus C15 in HeLa-E8 Cells. Virology. 499, 350-360.

Tech Fields

- Drug Discovery & Development : Disease models
- Research Tools : Cell lines

For current licensing status, please contact Jennifer Gottwald at jennifer@warf.org or 608-960-9854