

Small Molecule Targeting HSP70 for Antiviral Therapy

Tech ID: 25057 / UC Case 2015-043-2

INVENTION NOVELTY

Inhibitors of host Heat Shock Protein-70 (HSP70) as antiviral agents

VALUE PROPOSITION

Diseases caused by viral infections such as hepatitis and influenza, remain a major challenge for the healthcare system all over the world, partly due to lack of safe and effective antiviral medications. Anti-viral agents typically target virally encoded factors, resulting in rapid acquisition of treatment resistance. One promising way around this issue is to target host factors required for viral replication. HSP70 is essential for the replication of many viruses, but the challenge has been finding ways of safely and effectively inhibiting this protein. New HSP70 inhibitors that target an allosteric site on the protein have been developed and found to act as potent, relatively broad-spectrum anti-virals in models of influenza A/B, HCV and Dengue virus infection.

The current invention provides the following advantages:

- ▶ Broad spectrum inhibition of viral replication
- ▶ Reduced resistance by targeting a host factor
- ▶ Improved safety
- ▶ New mechanism-of-action

TECHNOLOGY DESCRIPTION

Scientists at the University of California San Francisco have completed a structure-based, hit-to-lead medicinal chemistry campaign involving ~150 analogs to increase the potency and safety of allosteric HSP70 inhibitors. Compounds from this series have anti-viral activity in multiple models, including Dengue, HCV and influenza, and reduced toxicity in primary human cells. The mechanism-of-action has been explored, revealing key viral proteins that require host HSP70.

APPLICATION

- ▶ Antiviral agent

LOOKING FOR PARTNERS

To develop and commercialize this technology for the treatment of viral infections

STAGE OF DEVELOPMENT

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OTHER INFORMATION

KEYWORDS

HSP70 inhibitors, Anti-virals,
HCV, Influenza

CATEGORIZED AS

- ▶ **Medical**
- ▶ **Disease: Infectious Diseases**

RELATED CASES

2015-043-2, 2015-043-1

Preclinical

RELATED MATERIALS

▶ Not available at this time

DATA AVAILABILITY

Under CDA/NDA

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	10,221,171	03/05/2019	2015-043

Additional Patent Pending

RELATED TECHNOLOGIES

▶ [Therapeutic Heat Shock Protein Inhibitors for Anticancer Therapy](#)

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