ENANTA Pharmaceuticals

Respiratory Syncytial Virus (RSV)

About Respiratory Syncytial Virus

Respiratory syncytial virus (RSV) is a virus that infects the lungs and represents a serious medical need in infants and children.

RSV is the most common cause of bronchiolitis (inflammation of the small airways in the lung) and pneumonia in children under 1 year of age in the United States. Also, at increased risk of a severe RSV infection are children with compromised (weakened) immune systems due to a medical condition or medical treatment, adults with compromised immune systems and those age 65 and older. Recent estimates suggest that approximately 200,000 hospitalizations in the U.S. and EU occur each year in children under the age of two, and approximately 170,000 hospitalizations in these regions occur each year in adults age 65 and older. There is currently no safe and effective therapy for already established RSV infection.

Scientific Background

RSV is a single-stranded, negative-sense RNA virus. There are two major subgroups of RSV, designated RSV-A and RSV-B, each of which contains numerous genotypes and both of which may be capable of causing hospitalizations.

The F and G proteins are the predominant target proteins for attempts to develop RSV vaccines. Small-molecule therapeutic development efforts have focused primarily on the F (or fusion) protein, while some efforts have targeted the N and L proteins.

EDP-938 and Our Approach to the Treatment of RSV

Through Enanta's internal chemistry efforts, it identified its clinical candidate, EDP-938. While a number of companies are developing potential approaches geared towards the fusion protein, which is responsible for mediating viral entry of RSV into host cells, Enanta is focused on other mechanisms, such as the N-protein pathway, that target the replication process of RSV. It is possible that N-protein inhibitors may also be effective treatments at later stages of infection than fusion protein inhibitors. Enanta is currently the only company with an N inhibitor in clinical development.

During preclinical studies, EDP-938 demonstrated a greater than 4-log reduction in viral load in an animal model challenged with RSV. When tested in vitro, EDP-938 maintained antiviral potency across

all clinical isolates, as well as virus that was resistant to fusion inhibitors. The compound inhibited RSV at a post-entry replication step and maintained its activity in vitro when given 24 hours post infection. In addition, combination studies of EDP-938 with other types of RSV inhibitors, such as fusion inhibitors, showed synergistic antiviral effects.

Enanta recently completed a challenge study with EDP-938, which was conducted in the UK at a single site that specializes in RSV challenge studies. Topline clinical results from Enanta's challenge study can be found on our website by clicking here.

What is a Challenge Study?

A common approach for investigating a treatment for RSV, or other infections such as influenza, is to conduct a human challenge study. In a challenge study, a healthy adult is intentionally infected, i.e. challenged, with an infectious organism in order to understand disease progression.

A human challenge study is a standard and well accepted RSV clinical study design.