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Protein Kinase-C as a Target for the Treatment of Respiratory Syncytial Virus

Researchers at the University of South Florida understand that RSV is an important respiratory pathogen that produces an annual epidemic of respiratory illness primarily in infants, but also in adults, worldwide. RSV commonly causes bronchiolitis and exacerbates asthma, but it may also lead to life-threatening respiratory conditions resulting in prolonged hospitalization and death in high-risk individuals.

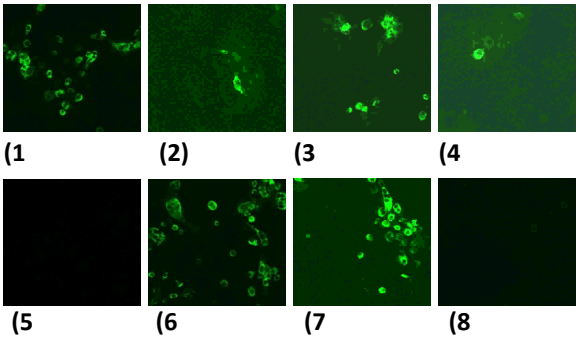
The present technology describes therapeutic methods for preventing or decreasing the severity of symptoms associated with an respiratory syncytial virus (RSV) infection by decreasing endogenous levels of protein kinase C (PKC) activity within the patient. Endogenous levels of PKC alpha activity are effectively decreased constituting an effective means for treating or preventing RSV within a human or non-human animal.

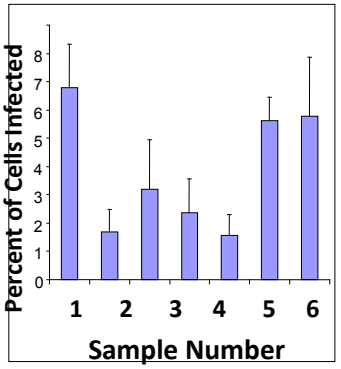
PKC is activated upon RSV contacting a human bronchial epithelial cell. PKC then plays a role in the viral fusion and internalization of the virus to the host cell, a process which is pivotal to successful RSV infection. As can be seen below, our research has further shown the inhibitors decreased the number of infected cells in a dosage dependant manner.

ADVANTAGES:

- **Can be used for prevention and for treatment of RSV**
- **Specified Targeting of only PKC**
- **Reduction of side-effects**

Treat and Prevent RSV with Fewer Side Effects





NHBE cells were treated with different PKC inhibitors then infected with RSV. The following are the identifications of the inhibitors used in the samples above: (1) No Inhibitor (Control) (2) Ag490 (50 mM) (3) PD9809(80mM) (4) Ag490 and PD9809 (5) RO318220 (3mM) (6) Wortmannin (7) DMSO (control) (8) No RSV introduced (control). The chart on the right indicates a 2 to 4 fold reduction in infected cells when PKC inhibitors are used.

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