

Study in calves offers hope for respiratory-disease treatment

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Studies with calves are helping advance the search for therapeutic drugs in children with RSV disease. Credit: Thinkstock/photo

As every parent knows, respiratory illnesses—complete with runny nose, sore throat and cough—are quite routine for young children and usually pass as quickly as they appear.

But one such illness, known as [respiratory syncytial virus](#) or RSV, poses a far more serious threat. Although most children will contract RSV at some point before the age of 2 and suffer no lasting effects, the disease often moves from the throat and nose into the lower respiratory tract and is the leading cause of pneumonia and bronchiolitis. In such cases, which often require hospitalization, RSV is particularly dangerous for premature infants as well as elderly individuals or adults with compromised immune systems.

While there are no preventive vaccines or therapeutic drugs for RSV on the market right now, a recently published study of calves with RSV, conducted by the School of Veterinary Medicine at the University of California, Davis, is providing valuable information needed to move a potential treatment into human clinical trials.

Results from the study, published in the August issue of the journal *Antimicrobial Agents and Chemotherapy*, showed that an experimental antiviral compound was effective in blocking the virus from binding with the animal's cell membranes, thus decreasing the level of infection in the treated calves. The air spaces in the lungs of those treated animals also were less likely to fill with inflammatory cells produced by the infection than were the lungs of untreated animals, the study found.

"This study demonstrated that since bovine RSV in calves is almost identical to the human form of the disease in terms of symptoms, lung pathology and progression of the disease, treatment with an effective antiviral drug can benefit both bovine and human patients," said Professor Laurel Gershwin, the study's lead author and a veterinary microbiologist, who has studied bovine RSV for many years.

"It confirms that the cow is a particularly useful research model for studying RSV and demonstrates the importance of approaching medicine with the 'one health' perspective, which spans human and veterinary medicine," she said.

More information: "Antiviral Efficacy of a Respiratory Syncytial Virus (RSV) Fusion Inhibitor in a Bovine Model of RSV Infection." *Antimicrob. Agents Chemother.* August 2015 59:8 4889-4900; Accepted manuscript posted online 8 June 2015, [DOI: 10.1128/AAC.00487-15](https://doi.org/10.1128/AAC.00487-15)

Provided by UC Davis

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