USU Uniformed Services University

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John W. Lowe Joint (USU & HJF) Office of Technology Transfer

Advancing Military Medical Research

Success Story

Synagis® and RespiGam®

Each year, Respiratory Syncytial Virus (RSV) causes epidemics of severe bronchiolitis and pneumonia in premature infants and fragile young children. Until 1995, medical providers knew of no way to prevent RSV. Then, a new preventive therapy was developed through a collaborative effort involving many researchers and facilitated by HJF.

In the 1970's, Colonel (Ret.) Gerald Fischer, M.D., (professor, USU Department of Pediatrics) began to analyze the potential for intravenous immunoglobulin therapy (IVIG) to prevent or treat life-threatening bacterial infections in infants. In independent studies, NIH researcher Gregory Prince, D.D.S., Ph.D., (adjunct professor, USU Department of Pediatrics) found that antibodies could prevent RSV infection.

During an initial clinical study, a baby with severe pneumonia made a remarkable recovery after receiving IVIG. Fischer and his University collaborator, Colonel (Ret.) Val Hemming (chair, USU Department of Pediatrics; later Dean, School of Medicine), began to speculate that the infused antibodies might have prompted a therapeutic response in the baby. Fischer, Hemming and Prince began a collaborative effort to determine if IVIG could prevent serious RSV infection. They found that immunoglobulin with high neutralizing activity for RSV could actually prevent or treat RSV pneumonia. They also found that not all IVIG preparations had high levels of neutralizing antibody, and began to search for a way to develop a specific IVIG to prevent or treat RSV infections. These efforts led to the creation of RespiGam®.

RespiGam® and Synagis® represent the culmination of more than 20 years of research that began at USU and a successful commercialization by Medimmune, Inc., a biotechnology company in Gaithersburg, Md. In 1995, the FDA approved the use of the new drug as the first available preventive measure against RSV. In 1998, the FDA approved a new monoclonal antibody product to prevent RSV called Synagis®, which is easier to manufacture and administer. Synagis® is also the first monoclonal antibody successfully developed to combat an infectious disease.

The public-private partnership that moved these therapies from concept to reality included contributions from NIH, NIAID, Virion Systems, Inc. and the precursor to MedImmune, as well as technology transfer professionals from USU, the Henry M. Jackson Foundation for the Advancement of Military Medicine, Inc. and the Army's Intellectual Property Office.

While these therapies continue to provide profits for many of the parties involved in their development, the real success lies with the hundreds of thousands of infants at high risk for RSV infections who are successfully treated each year. Studies continue to show that this treatment reduces the need for hospitalization, along with associated costs and risks, by reducing the possibility/severity of RSV infections.

If you have technology transfer, commercialization or intellectual property questions, please contact us.

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