

NO1-AI-15437, ANIMAL MODELS FOR ANTIVIRAL EVALUATION (Cotton Rat – Paramyxovirus Models)

Respiratory syncytial virus (RSV), parainfluenza virus type 3 (PIV3), measles virus (MV) and human metapneumovirus (hMPV) are important pathogens of humans that pose serious world-wide health threats. No vaccines are currently licensed for preventing illnesses caused by RSV, PIV3, or hMPV, and despite the availability of efficacious MV vaccines, millions of cases of measles still occur world-wide each year resulting in about 600,000 deaths annually. Ribavirin, immune serum globulins and the humanized monoclonal antibody have been approved for use against some of these paramyxoviruses. However, all of these agents have limitations, are expensive and are somewhat controversial. Because of the limited number of agents available to prevent or treat RSV, PIV3, MV and hMPV infections, and their drawbacks, the elucidation and development of new compounds, reagents or vaccines with activity against them are highly desirable. This need matches the primary goal of this contract: To evaluate potential antivirals and vaccines that may be effective against RSV, PIV3, MV or hMPV in cotton rats. The second major charge of this award is to perform studies to characterize, enhance or further develop the different paramyxovirus-cotton rat models. Evidence obtained in numerous studies support well the usefulness of the different paramyxovirus-cotton rat models for preclinical evaluation of potential paramyxovirus antivirals and vaccines.