Construction of an Infectious DNA of Human Bocavirus and Production of Human Bocavirus

Summary:
This invention is useful to produce products for diagnosis, treatment and prevention of HBoV-caused ARTI.

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Benefits:
- Simplified HBoV production
- Proven infectious HBoV
- DNA HBoV genome modification possible
- Direct HBoV production for vaccines and anti-viral drugs

Applications:
- Pharmaceutical companies interested in HTS screening of anti-viral drugs
- Researchers interested in modifying HBoV
- Vaccine development and production companies
- Producers of antigens for clinical diagnosis of ARTI
- Development of viral vector to deliver gene into the airway tract of human lung

Overview:
Human bocavirus 1 (HBoV) was initially identified in 2005, in nasopharyngeal aspirates of patients with acute respiratory-tract infections (ARTI). HBoV was found to be associated with ARTI in children, at a detection rate of 2-19%. Additionally, HBoV is commonly detected in association with other respiratory viruses, and is the fourth most common respiratory virus (after respiratory syncytial virus, adenovirus and rhinovirus) in infants less than 2 years of age who are hospitalized for the treatment of acute wheezing. ARTI is one of the leading causes of hospitalization of young children in developed countries. Strong evidence suggests that HBoV1 is an etiological agent of ARTI.

How it works:
This invention describes the whole genome of the virus and solves the viral production problem currently preventing effective study of the virus. Because ARTI is a major cause of hospitalization of young children in developed countries, and HBoV is one of the respiratory viruses to cause ARTI, this invention is useful to produce products for diagnosis, treatment and prevention of HBoV-caused ARTI. This HBoV reverse genetics system can be used to produce HBoV for attenuated or inactivated vaccine production, in diagnosis of HBoV infection in respiratory tract infections, antigen production for clinical diagnosis and can be developed in an assay for high-throughput screening of anti-HBoV viral drugs, and viral vector to deliver gene of interest to the epithelial cells of the airway tract of human lung.

Patents:
Patent pending.

Additional Web Content:
Contact the inventor, Jianming Qiu, Xuefing Deng.