Autophagy Modulation against Ebola

Published date: Feb. 15, 2018

Technology description

A proposed novel approach for treating the Ebola virus.
By modulating autophagy, this technology has the potential to treat or reduce the progression of pathological processes mediated by Ebola expression.

Background

The Ebola virus, also known as Ebola Hemorrhagic Fever, first emerged in West Africa, which then began spreading to other countries. Ebola is a rare but deadly disease. Nevertheless, Ebola is an emerging threat with few therapeutic options currently available for treatment.
The 2014 Ebola outbreak in West Africa is the largest in history. About 70% of the people infected by Ebola in this outbreak have died. This threatening outbreak has led to the initiation of a variety of clinical trials which seek to identify a safe and effective treatment of Ebola infection.
Ebola virus replicates in the cytoplasm with large oligomers of the membrane-associated matrix protein VP40, which are capable of binding cellular lipids at the inside of the plasma membrane. VP40 and other Ebola proteins may also interact throughout the cytoplasm. This results in the assembly and budding of virus particles, allowing the virus to infect more cells. In order to treat this virus, VP40 and other Ebola proteins and nucleic acids would need to be targeted to be cleared out of the cytoplasm. There is a present need to explore new therapies that may help to prevent or treat the Ebola virus.

Technology Description

A University of New Mexico researcher, in the Department of Molecular Genetics and Microbiology, has conceived a novel approach for treating the Ebola virus by modulating autophagy. The process involves diagnostic methods in which sample lipid stores and/or lipid droplets are obtained from a subject and assessed to determine if an Ebola infection exists. This technology has the potential to treat or reduce the progression of pathological processes mediated by Ebola expression. By destroying harmful Ebola proteins, the virus will no longer be present in the patient.

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Application area

Therapeutic treatment for Ebola
Ebola proteins are transported out of the cytoplasm before budding can occur
Treatment for Ebola infection or for someone at risk of being infected by the Ebola virus
Potential for future applications with a variety of compounds

Institution

The University of New Mexico

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