Glen R Gallagher et al., J Antivir Antiretrovir 2015, 7:4
http://dx.doi.org/10.4172/1948-5964.C1.025

OMICS International
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5th World Congress on
Virology

December 07-09, 2015 Atlanta, USA

A focused si-RNA screen for cellular membrane-associated proteins involved in viral replication

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Viral replication is dependent on entry into host cells and is often mediated by membrane-associated proteins. These interactions can take place on the cell surface or in endosomes to mediate fusion. We sought to identify membrane-associated proteins that are potentially important for the replication of multiple viruses as these proteins could be targets for broad-spectrum viral replication suppression. Based on a previous genome wide si-RNA screen for proteins involved in influenza replication, we identified membrane-associated protein targets and performed a focused screen to identify proteins involved in replication of other viruses. The screen included 33 si-RNA targets, which were knocked down in A549 human lung adenocarcinoma cells and in U2OS human osteosarcoma cells. Following knockdown, cells were infected with various GFP expressing viruses including influenza and vesicular stomatitis virus. Genes identified in this screen that inhibit viral replication could potentially provide insights into mechanisms of attachment or entry utilized by multiple virus families.

Biography

Glen R Gallagher completed undergraduate degrees in Microbiology and Clinical Laboratory Science at The Ohio State University. After graduation, he extended his training into the Public Health sector as an Emerging Infectious Disease fellow through the Association of Public Health Laboratories at the Centers of Disease control Dengue branch lab in San Juan, Puerto Rico. Currently he is a graduate student at The University of Massachusetts Medical School under the guidance of Dr. Robert Finberg and Dr. Jennifer Wang. Broadly, he is interested in viral replication and viral pathogenesis with current projects on influenza replication and evolution as well as the contributions of coxsackievirus on the development of type 1 diabetes.

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