

Rhinovirus Infections And Their Receptors In The Human Respiratory Tract

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“It’s just a cold!” is the most common comment when people look at the rhinovirus (RV) infection. However, RVs are the dominant infectious causes of hospitalization in the paediatric population. It is not only an acute respiratory infection causing virus, it also contributes to the exacerbations of underlying respiratory diseases, such as asthma and chronic obstructive pulmonary disease. In addition, it is also the most frequently detected pathogen for the community acquired pneumonia in the adult. With the tremendous number of RV infection, which is comparable to (or even exceeding) the number of influenza virus or the pneumococcal infections, there is yet an effective antiviral nor a vaccine against the human rhinovirus.

There are more than 100 serotypes of RV grouped into RV species A and B and vigorous research using standard cell line, primary human cells, animal models or even inoculation of human volunteers were performed. In contrast, due to the lack of susceptible cell lines in previous years, RV-C is understudied, though it is the species causing more viremia cases than the other two species while in epidemiology studies, RV-C has a similar prevalence to RV-A.

With the identification of cadherin-related family member 3 (CDHR3) as the cell-entry factor in 2015, on one hand, we got the tool to study RV-C and, on the other hand, we started to examine the distribution of this receptor, together with the two receptors ICAM-1 and LDLR utilized by the major and minor groups of the RV, respectively in human respiratory tract.

Our laboratory is currently working on the surveillance of human RVs of different genotypes and their functional grouping in association with clinical presentations.

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