

1 **Using oral or intranasal administration to study of the protective effects**
2 **and mechanism of probiotics against influenza A virus infection**

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5 **Outline**

- 6 1. Introduction
- 7 2. Effects of *Lactobacillus plantarum* on cell survival and cytopathic effect inhibition
8 assay of MDCK cells.
- 9 3. Intranasal administration or oral administration of *Lactobacillus plantarum* protects
10 mice from H1N1 influenza virus infection by regulating immune responses.
- 11 4. Conclusion
- 12

13 **Abstract**

14 Influenza virus (IFV) is responsible of a highly contagious disease that has a substantial impact
15 on global health. This virus is a major respiratory pathogen that causes a high degree of
16 morbidity and mortality, especially in immunocompromised hosts. Natural components like
17 probiotics have been severally studied and have been proved to be a safe alternative
18 prophylactic. Probiotics may mediate their antiviral effects against respiratory viruses possibly
19 by eliciting systemic immune responses via gut or enhancing cellular immunity with increased
20 activity of natural killer cells and macrophages; On the other hand, the intranasal administration
21 of *Lactobacillus* had a protective effect on viral respiratory tract infections and enhancing the
22 innate immune response in the respiratory mucosa. Therefore, the purpose of this study was
23 that using oral or intranasal administration to study of the protective effects and mechanism of
24 probiotics against influenza A virus infection. In vivo study, it was found that oral and Intranasal
25 administration of *Lactobacillus* treatment stimulated adaptive immunities and induced Th1
26 cytokine production as well as diminishing the pro-inflammatory cytokines in the lung tissue
27 to enhancing the mice survival rate. Combining the above results, these responses stimulated
28 the pathways of adaptive immunities through increased the type1 helper T cell in mice and
29 exhibit both protective and prophylactic effects against inflienza A virus infection.

1 ➤ **References**

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