

# LOWER AIRWAY PROBIOTICS FOR PROTECTION AND TREATMENT OF RESPIRATORY DISEASE

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## PATENT STATUS

Country	Type	Number	Dated	Case
Patent Cooperation Treaty	Published Application	WO 2024/137229.	06/27/2024	2022-122

## BRIEF DESCRIPTION

This invention provides a pharmaceutical composition comprising a pharmaceutically acceptable carrier and a lower airway probiotic composition comprising a physiological solution and a single candidate probiotic (CP) population. In certain embodiments, the present invention provides a pharmaceutical composition comprising a pharmaceutically acceptable carrier and a lower airway probiotic composition, wherein the lower airway probiotic composition comprises at least two candidate probiotic (CP) populations.

## SUGGESTED USES

The upper airway microbiota is the primary contributor to the lower airway microbiota. The healthy lung is colonized only by a limited population of bacteria that are maintained by an equilibrium among immigration, elimination, and growth. Actinobacteria, Proteobacteria, Bacteroidetes, and Firmicutes ribosomal DNA has been shown to exist in healthy people's lungs. Some changes in the local environment during pathology can permit an increase in some bacterial population that could become pathological, especially in chronic conditions. Aspiration of oropharyngeal secretions, micro aspiration, or direct dispersal by contagious mucosa can create the microbiome environment in the lung.

The microbiota is directly connected to the immune system, and it undergoes metabolic and antigenic interactions. Dysbiosis in the gut microbiota is associated with lung disease because the microbiota participates in the development and maintenance of the immune system. Because dysbiosis can permit disease development, immunity can also influence the microbiota composition, which provides resistance to colonization by respiratory pathogens that have a reciprocal influence on maturation and health maintenance. The immune function derived by immune system homeostasis represents the mucosal barrier and its microbiome environment interactions in the intact barrier surface; when this unit is disrupted, immunity is compromised for a long time after an acute infection.

Accordingly, improved lower airway probiotics are presented in this invention.

## ADVANTAGES

## CONTACT

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## INVENTORS

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## OTHER INFORMATION

### CATEGORIZED AS

- » **Medical**
- » **Disease: Infectious Diseases**

### RELATED CASES

2022-122-0

This technology can be used to create novel probiotics and probiotic cocktails for prevention and treatment of infectious respiratory disease. In particular, the prediction pipeline is most useful in the development of therapies for bacterial infectious diseases.

## RELATED MATERIALS

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