Thus, the preventive and/or curative use of bacterial strains according to the present invention, preferably belonging to the species *Lactobacillus paracasei* (for example *Lactobacillus paracasei* DG® CNCM I-1572 or the combination of *Lactobacillus paracasei* DG® (CNCM I-1572) and *Lactobacillus paracasei* LPC-S01 (DSM 26760), contributes towards alleviating the excessive inflammatory response induced by SARS-CoV-2 infection.

The bacterial strains of the present invention and the compositions thereof have no relevant side effects and they can be administered to all categories of subjects in need, including the elderly, pregnant or breastfeeding women, paediatric subjects (0-12 years), subjects with cardiovascular complications, subjects with diabetes, immunocompromised subjects (due to congenital or acquired disease or under treated with immunosuppressants or subjects who have undergone transplant surgery) or subjects with other comorbidities.

Furthermore, the bacterial strains of the present invention and the compositions thereof are easy to prepare and cost-effective.

These and other objects, which will be clear from the detailed description that follows, are attained by the bacterial strains, by the compositions and by the mixtures of the present invention due to the technical characteristics reported in the description and claimed in the attached claims.

SUMMARY

In one aspect, provided herein is use of a composition in the manufacture of a medicament for treating a viral infection of the respiratory system caused by a virus belonging to the species severe acute respiratory syndrome coronavirus (SARS-CoV) in a subject in need, such as a severe acute respiratory syndrome coronavirus and of diseases or symptoms related thereto, wherein said composition comprises: (i) a mixture (M) comprising or, alternatively, consisting of at least one bacterial strain belonging to the species *Lactobacillus paracasei*; and, optionally, (ii) at least one acceptable pharmaceutical grade additive and/or excipient.

DESCRIPTION of the FIGURES

Figures 1°-C schematically represent the drawings of *in vitro* studies of evaluation of antiviral responses in Caco-2 intestinal epithelial cells following: (A) absence of treatment with a bacterial strain according to the present invention, (B) a pre-treatment with a bacterial strain according to the present invention, and (C) a co-treatment with a bacterial strain according to the present invention, each with respect to a treatment with SARS-CoV-2 virus.

Figures 2A-C represent the effect of a bacterial strain according to the present invention on a panel of cytokines/chemokines and molecules having antiviral action or involved in the antiviral responses produced by the Caco-2 intestinal epithelial cells, compared with the effect of the strain *L. rhamnosus* GG ATCC 53103.

Figures 3A-C represent the effect of a bacterial strain according to the present invention on a panel of cytokines/chemokines and molecules with antiviral action or involved in antiviral responses produced by Caco-2 intestinal epithelial cells following a pre-treatment with said composition with respect to a treatment with SARS-CoV-2 virus.