

CLAIMS

1. A composition comprising a mixture comprising, or alternatively, consisting of:

- at least one bacterial strain selected from the group comprising or, alternatively, consisting of
 - a bacterial strain identified as *Bifidobacterium bifidum* MIMBb23sg deposited at Deutsche Sammlung von Mikroorganismen und Zellkulturen GmbH (DSMZ) under deposit number DSM 32708,
 - a bacterial strain identified as *Lactobacillus paracasei* DG[®] deposited at the National Collection of Cultures of Microorganisms of the Pasteur Institute in Paris under access number CNCM I-1572 by SOFAR S.p.A.,
 - a bacterial strain identified as *Lactobacillus paracasei* LPC-S01[™] deposited at Deutsche Sammlung von Mikroorganismen und Zellkulturen GmbH (DSMZ) under access number DSM 26760,
 - a bacterial strain identified as *Lactobacillus paracasei* CF3 deposited at Deutsche Sammlung von Mikroorganismen und Zellkulturen GmbH (DSMZ) under access number DSM 32353,
 - a bacterial strain identified as *Lactobacillus rhamnosus* GG deposited at Deutsche Sammlung von Mikroorganismen und Zellkulturen GmbH (DSMZ) under access number DSM 53103,
 - a bacterial strain identified as *Bifidobacterium animalis subsp. lactis* Bb12 deposited at Deutsche Sammlung von Mikroorganismen und Zellkulturen GmbH (DSMZ) under deposit number DSM 15954, and mixtures thereof; and
 - at least one extract of at least one species of berries comprising or, alternatively, consisting of a polyphenol fraction of said berries;
- and wherein, optionally, said composition B comprises at least one food or pharmacological grade additive and/or excipient.

2. The composition according to claim 1, wherein said at least one bacterial strain comprises the bacterial strain *Bifidobacterium bifidum* MIMBb23sg DSM 32708 and furthermore at least one further bacterial strain selected from the group comprising or, alternatively, consisting of:

- *Lactobacillus paracasei* DG[®] deposited by SOFAR S.p.A. at the National Collection of Cultures of Microorganisms of the Pasteur Institute in Paris under access number CNCM I-1572,
- *Lactobacillus paracasei* LPC-S01[™] deposited at Deutsche Sammlung von Mikroorganismen und Zellkulturen GmbH (DSMZ) under access number DSM 26760,
- *Lactobacillus paracasei* CF3 deposited at Deutsche Sammlung von Mikroorganismen und Zellkulturen GmbH (DSMZ) under access number DSM 32353,
- *Lactobacillus rhamnosus* GG deposited at Deutsche Sammlung von Mikroorganismen und Zellkulturen GmbH (DSMZ) under access number DSM 53103,
- *Bifidobacterium animalis subsp. lactis* Bb12 deposited at Deutsche Sammlung von Mikroorganismen und

Zellkulturen GmbH (DSMZ) under deposit number DSM 15954, and mixtures thereof.

3. The composition according to claim 1 or 2, wherein said at least one bacterial strain comprises the bacterial strain *Bifidobacterium bifidum* MIMBb23sg DSM 32708 and furthermore at least one further bacterial strain selected from the group comprising or, alternatively, consisting of:

- *Lactobacillus paracasei* DG® deposited by SOFAR S.p.A. at the National Collection of Cultures of Microorganisms of the Pasteur Institute in Paris under access number CNCM I-1572,
- *Lactobacillus paracasei* LPC-S01™ deposited at Deutsche Sammlung von Mikroorganismen und Zellkulturen GmbH (DSMZ) under access number DSM 26760, and a mixture thereof.

4. The composition according to any one of the preceding claims, wherein said at least one species of berries is selected from the group comprising or, alternatively, consisting of: blueberry or European blueberry (*Vaccinium cyanococcus* or *Vaccinium myrtillus* or *Vaccinium angustifolium*), oxycoccus or cranberry (*Vaccinium oxycoccos* or *Vaccinium macrocarpon*), wild strawberry or strawberry (*Fragaria vesca* or *Fragaria* spp. or *Fragaria ananassa*), elderberry (*Sambucus nigra*), cowberry (*Vaccinium vitis-idaea*), blackberry (*Rubus ulmifolius*), red raspberry (*Rubus idaeus*), black raspberry (*Rubus leucodermis* or *Rubus occidentalis*), black currant (*Ribes nigrum*), red currant (*Ribes rubrum*), black mulberry (*Morus nigra*), red mulberry (*Morus rubra*), white mulberry (*Morus alba*), cornelian cherry (cornus mas), gooseberry (*Ribes uva-crispa*), barberry (*berberis vulgaris*), *Amelanchier ovalis*, *Amelanchier canadensis*, marasca cherry (*Prunus mahaleb*), sour cherries and black cherries (*Prunus cerasus*), strawberry tree (*Arbutus unedo*);

blueberry or European blueberry (*Vaccinium cyanococcus* or *Vaccinium myrtillus* or *Vaccinium angustifolium*), oxycoccus or cranberry (*Vaccinium oxycoccos* or *Vaccinium macrocarpon*), wild strawberry or strawberry (*Fragaria vesca* or *Fragaria* spp. or *Fragaria ananassa*), elderberry (*Sambucus nigra*), and mixtures thereof.

5. The composition according to any one of the preceding claims, wherein said at least one species of berries is selected from the group comprising or, alternatively, consisting of:

blueberry or European blueberry (*Vaccinium cyanococcus* or *Vaccinium myrtillus* or *Vaccinium angustifolium*), oxycoccus or cranberry (*Vaccinium oxycoccos* or *Vaccinium macrocarpon*), wild strawberry or strawberry (*Fragaria vesca* or *Fragaria* spp. or *Fragaria ananassa*), elderberry (*Sambucus nigra*), and mixtures thereof; preferably wherein said at least one species of berries is selected from the group comprising or, alternatively, consisting of blueberry, cranberry, and a mixture thereof.

6. The composition according to any one of the preceding claims, wherein said polyphenol fraction of said extract of at least one species of berries comprises proanthocyanidins and/or anthocyanins and/or anthocyanidins.
7. The composition according to any one of the preceding claims, wherein said at least one bacterial strain comprises or, alternatively, consists of *Bifidobacterium bifidum* MIMBb23sg DSM 32708 and *Lactobacillus paracasei* LPC-S01™ DSM 26760.
8. The composition according to any one of the preceding claims, wherein said at least one bacterial strain comprises or, alternatively, consists of *Bifidobacterium bifidum* MIMBb23sg DSM 32708 and *Lactobacillus paracasei* DG® CNCM I-1572.
9. The composition according to any one of the preceding claims, wherein said at least one bacterial strain comprises or, alternatively, consists of *Bifidobacterium bifidum* MIMBb23sg DSM 32708 and furthermore *Lactobacillus paracasei* LPC-S01™ DSM 26760 or *Lactobacillus paracasei* DG® CNCM I-1572, and wherein said at least one extract of at least one species of berries comprising or, alternatively, consisting of the polyphenol fraction of said berries is an extract of blueberry or European blueberry (*Vaccinium cyanococcus* or *Vaccinium myrtillus* or *Vaccinium angustifolium*) or, alternatively, of oxycoccus or cranberry (*Vaccinium oxycoccus* or *Vaccinium macrocarpon*) comprising or, alternatively, consisting of the polyphenol fraction of said berries.
10. The composition according to any one of claims 1 to 9 for use as a medicament.
11. The composition according to any one of claims 1 to 9 for use as an immunomodulatory and/or immunostimulatory agent capable of reducing the production of proinflammatory cytokines and/or increasing the production of anti-inflammatory cytokines; preferably, wherein said composition is for use as an immunomodulatory and/or immunostimulatory agent capable of reducing the production of IL12 and/or TNF- α cytokines and/or of increasing the production of IL10 cytokines.
12. The composition for use according to claim 10 or 11, wherein said composition is for use as an anti-inflammatory agent.
13. The composition for use according to claim 12, wherein said composition is for use in a method for the

preventive and/or curative treatment of inflammatory gastrointestinal diseases, disorders and/or symptoms selected from the group comprising or, alternatively, consisting of: *Helicobacter pylori*, peptic or gastric ulcer, duodenal ulcer, chronic inflammatory bowel diseases (IBD), Crohn's disease, ulcerative colitis, microscopic colitis, diverticular disease and diverticulitis.

14. The composition according to any one of claims 1 to 9 for use in a method for the preventive and/or curative treatment of musculoskeletal inflammatory diseases, rheumatological diseases, inflammatory articular and/or post-surgery inflammatory diseases.

15. The composition for use according to claim 14, wherein said composition is for use in a method for the preventive and/or curative treatment of osteoarthritis, rheumatoid arthritis and/or ankylosing spondylitis; preferably osteoarthritis of the joints and/or osteoarthritis of the knee.