Claims

1. Use of a defensin selected from the group consisting of hBD2, HD5, HD6, hBD1, hBD3, hBD4 and truncated hBD2 or variants thereof differing in less than 5 amino acids for the manufacture of a medicament for the treatment and/or prevention of a disease selected from asthma, bronchiectasis, chronic obstructive pulmonary disorder (COPD) or emphysema, wherein the use comprises oral or intrapulmonary administration of said defensin.

2. The use of claim 1, wherein the disease is asthma selected from the group consisting of mild intermittent asthma, mild persistent asthma, moderate persistent asthma, severe persistent asthma, eosinophilic asthma, neutrophilic asthma, steroid refractory asthma, status asthmaticus, and steroid refractory asthma.

3. The use of claim 1, wherein the administration is oral.

4. The use of claim 1, comprising reducing histological lung inflammation, inflammatory cell count in bronchoalveolar lavage fluid, rebalancing the immune system with normalization of inflammatory cytokine production in lung tissue homogenates and prevention/treatment of a cytokine storm.

5. The use of claim 1 comprising increasing pulmonary compliance, reducing airway hyper responsiveness, and/or increasing the peak expiratory flow in a subject in need thereof.

6. The use of claim 1, comprising increasing gene richness, the number of phylae, increasing butyrate production and/or tryptophan production, decreasing acetate production of and/or from lung microbiota.

7. The use of claim 1, comprising maintaining and/or stabilizing a normal microbiota in the lung.

8. The use of claim 1, comprising increasing forced expiratory volume at 1 second (FEV1) and/or peak expiratory flow rate PEFR, or reducing PEFR variability.

9. The use of claim 1, wherein said defensin is selected from a group consisting of hBD-1, hBD-2, truncated hBD2, hBD-3 and hBD-4.

10. The use of claim 1, wherein said defensin is selected from hBD-2 and truncated hBD-2.

11. The use of claim 1, wherein said polypeptide is comprised in a composition, wherein said composition comprises more than one defensin, such as two defensins, such as three defensins.

12. The use of claim 11, wherein said two defensins are hBD-2 and HD5.

13. The use of claim 1, wherein said defensin further comprises at least one additional moiety selected from a group consisting of a cell penetrating peptide (CPP), an Albumin Binding Moiety (ABM), a detectable moiety (Z), and a half-life extending peptide.

14. The use of claim 0, wherein the additional moiety is a half-life extending peptide.

15. The use of claim 14, wherein the half-life extending peptide is selected from a group consisting of a molecule capable of binding to a neonatal Fc receptor (FcRn), transferrin, albumin (HAS), XTEN® or PEG, a homo-amino acid polymer (HAP), a proline-alanine-serine polymer (PAS), or an elastin-like peptide (ELP), hyaluronic acid, a negatively charged highly sialylated peptide such as the carboxy-terminal peptide (CTP) of chorionic gonadotropin (CG) β-chain, human IgG, and CH3(CH2)nCO- wherein n is 8 to 22.

16. The use of claim 1, wherein the subject has
    a. asthmatic symptoms > 2 times per week, such as daily symptoms, such as continuous symptoms;
    b. asthmatic attacks of varying intensity, such as attacks affecting activity, such as attacks limiting physical activity;
    c. asthmatic symptoms at night > 2 times per month, such as > 2 times a week that may last for days, such as frequent night time symptoms;

d. a forced expiratory volume at 1 second (FEV1) < 80%, such as a FEV1 of 60 – 80%, such as a FEV1 < 60%; and/or
e. a peak expiratory flow rate PEFR with a variability of > 20 %, such as PEFR variability of 20-30%, such as a PEFR variability > 30%, such as a PEFR variability > 60%.

17. The use of claim 1, wherein the defensin is administered in combination with glucocorticoids, β-agonists, leukotriene receptor antagonists, theophylline, antibiotics, rifaximin, immunosuppressants, chemo- or immune therapy, prebiotics, probiotics, tryptophane, short chain fatty acids, HNP-1, HNP-2, HNP-3, HNP-4, cathelicidin, lactoferrin, lactoferricin, lysozyme, fecal transplants or any combination thereof.

18. The use of claim 1, wherein the daily dosage is between 0.1 and 10mg defensin/kg, such as between 0.5 and 5 mg defensin/kg, such as between 1 and 2 mg defensin/kg per day, such as 1.2 mg defensin/kg per day.

19. The use of claim 1, wherein said defensin is administered at least one time a day, such as at least twice a day, such as at least three times a day, such as at least four times a day, such as five times a day or continuously.

20. The use of claim 1, wherein said intrapulmonary administration is intratracheal, intrabroncial, or bronchio-alveolar, such as by an inhaler, nebulizer, or vaporizer.