CLAIMS

1. Use of an anti-IL-4Rα antibody for the manufacture of a medicament for the treatment of a subject exhibiting at least one symptom of, or determined to be susceptible to, an anti-interleukin-4 receptor alpha (IL-4Rα)-related disorder, comprising the steps of:

(a) selecting a characteristic or a plurality of characteristics related to an IL-4/IL-13 pathway in a set of data representing medical records of a plurality of patients;

(b) clustering, by a computer system, in accordance with the characteristic or the plurality of characteristics related to the IL-4/IL-13 pathway, a subset of patients from the plurality of patients, wherein the subset comprises the characteristic or the plurality of characteristics;

(c) identifying in the subset clustered in step (b) the IL-4Rα-related disorder based on symptoms associated with the characteristic or the plurality of characteristics related to the IL-4/IL-13 pathway;

(d) selecting the subject exhibiting at least one symptom of, or determined to be susceptible to, the IL-4Rα-related disorder identified in step (c), with the proviso that the IL-4Rα-related disorder is not selected from the group consisting of atopic dermatitis, asthma, chronic rhinosinusitis with nasal polyposis, eosinophilic esophagitis, peanut allergy, grass allergy, chronic obstructive pulmonary disease (COPD), prurigo nodularis, bullous pemphigoid, chronic spontaneous urticaria (CSU) and allergic bronchopulmonary aspergillosis (ABPA); and

(e) administering a therapeutically effective amount of the anti-IL-4Rα antibody to the subject,

wherein the anti-IL-4Rα antibody comprises:

a variable heavy chain CDR1 of SEQ ID NO:1 (GFTFRDYA);

a variable heavy chain CDR2 of SEQ ID NO:2 (ISGSGGNT);

a variable heavy chain CDR3 of SEQ ID NO:3 (AKDRLSITIRPRYYGLDV);

a variable light chain CDR1 of SEQ ID NO:4 (QSLLYSIGYNY);

a variable light chain CDR2 of SEQ ID NO:5 (LGS); and

a variable light chain CDR3 of SEQ ID NO:6 (MQALQTPYT).

2. Use of an anti-IL-4Rα antibody for the manufacture of a medicament for the treatment of a subject exhibiting at least one symptom of, or determined to be susceptible to, an IL-4Rα-related disorder, comprising the steps of::

(a) selecting a characteristic or a plurality of characteristics in a set of patients;

(b) clustering, by a computer system, in accordance with the characteristic or the plurality of characteristics, a subset of patients having the characteristic or the plurality of characteristics, wherein the characteristic or the plurality of characteristics are associated with at least one symptom of, or determined to be susceptible to, the IL-4Rα-related disorder;

(c) identifying in the subset of patients clustered in step (b) the IL-4Rα-related disorder based on the symptoms associated with the characteristic or the plurality of characteristics related to the IL-4/IL-13 pathway;

(d) selecting the subject exhibiting at least one symptom of, or determined to be susceptible to, the IL-4Rα-related disorder identified in step (c); and

(e) administering a therapeutically effective amount of the anti-IL-4Rα antibody to the subject,

wherein the anti-IL-4Rα antibody comprises:

a variable heavy chain CDR1 of SEQ ID NO:1 (GFTFRDYA);

a variable heavy chain CDR2 of SEQ ID NO:2 (ISGSGGNT);

a variable heavy chain CDR3 of SEQ ID NO:3 (AKDRLSITIRPRYYGLDV);

a variable light chain CDR1 of SEQ ID NO:4 (QSLLYSIGYNY);

a variable light chain CDR2 of SEQ ID NO:5 (LGS); and

a variable light chain CDR3 of SEQ ID NO:6 (MQALQTPYT).

3. The use of claim 1 or 2, wherein the IL-4Rα-related disorder is a skin-related disorder, an allergic reaction, arthritis, a nasal-related disorder, a lung-related disorder, a blood-related disorder, an eye-related disorder, an esophageal-related disorder, a gastrointestinal-related disorder, a kidney-related disorder, a prostate-related disorder, Kawasaki’s disease, a thyroid-related disorder, a blood-vessel-related disorder, a pregnancy-related disorder, or a cancer.

4. Use of an anti-IL-4Rα antibody for the manufacture of a medicament for the treatment of a subject exhibiting at least one symptom of, or determined to be susceptible to, a disorder selected from the group consisting of a skin-related disorder, an allergic reaction, arthritis, a nasal-related disorder, a lung-related disorder, a blood-related disorder, an eye-related disorder, an esophageal-related disorder, a gastrointestinal-related disorder, a kidney-related disorder, a prostate-related disorder, Kawasaki’s disease, a thyroid-related disorder, a blood-vessel-related disorder, a pregnancy-related disorder, and a cancer,

wherein the anti-IL-4Rα antibody comprises:

a variable heavy chain CDR1 of SEQ ID NO:1 (GFTFRDYA);

a variable heavy chain CDR2 of SEQ ID NO:2 (ISGSGGNT);

a variable heavy chain CDR3 of SEQ ID NO:3 (AKDRLSITIRPRYYGLDV);

a variable light chain CDR1 of SEQ ID NO:4 (QSLLYSIGYNY);

a variable light chain CDR2 of SEQ ID NO:5 (LGS); and

a variable light chain CDR3 of SEQ ID NO:6 (MQALQTPYT).

5. The use of claim 3 or 4, wherein the skin-related disorder is selected from allergic contact dermatitis, dermatitis herpetiformis, dyshidrotic eczema, chronic hand eczema, nummular dermatitis, scleroderma, systemic scleroderma, hypertrophic scarring, urticaria, infections of the skin, alopecia areata, Netherton syndrome, or a combination thereof.

6. The use of claim 3 or 4, wherein the allergic reaction is a hypersensitivity to a food selected from a dairy product, egg, wheat, soy, corn, fish, shellfish, tree nut, beef, chicken, oat, barley, pork, green beans, apple, pineapple, or a combination thereof.

7. The use of claim 3 or 4, wherein the allergic reaction is a hypersensitivity to insect venom, plant-derived material, chemicals, medication, animal dander, or a combination thereof.

8. The use of claim 3 or 4, wherein the IL-4Rα-related disorder is arthritis.

9. The use of claim 3 or 4, wherein the nasal-related disorder is nasal polyposis, sinusitis, rhinitis, or a combination thereof.

10. The use of claim 3 or 4, wherein the lung-related disorder is lung fibrosis or lung cirrhosis.

11. The use of claim 3 or 4, wherein the lung-related disorder is chronic fibrotic lung disease, cystic fibrosis, allergic bronchopulmonary mycosis, bleomycin-induced pneumopathy and fibrosis, pulmonary alveolar proteinosis, adult respiratory distress syndrome, sarcoidosis, tuberculosis, aspirin-exacerbated respiratory disease, or a combination thereof.

12. The use of claim 3 or 4, wherein the blood-related disorder is sickle cell disease, Churg-Strauss syndrome, autoimmune lymphoproliferative syndrome, lupus (systemic lupus erythematosus), antiphospholipid antibody syndrome (APS), autoimmune hemolytic anemia, or a combination thereof.

13. The use of claim 3 or 4, wherein the eye-related disorder is Sjogren's syndrome, autoimmune uveitis, autoimmune lymphoproliferative syndrome, dry eye, blepharitis, blepharoconjunctivitis, cicatricial pemphigoid, Mooren’s corneal ulcer, Vogt-Koyanagi-Harada syndrome, sympathetic opthalmia, phacoanaphylaxis endophthalmitis, keratoconjunctivitis sicca (KCS), atopic keratoconjunctivitis (AKC), or a combination thereof.

14. The use of claim 3 or 4, wherein the esophageal-related indication is Barrett's esophagus, eosinophilic gastritis, achalasia, gastroesophageal reflux disease (GERD), or a combination thereof.

15. The use of claim 3 or 4, wherein the gastrointestinal-related disorder is ulcerative colitis, Whipple’s disease, Behçet’s disease, Wegener granulomatosis GERD, or a combination thereof.

16. The use of claim 3 or 4, wherein the kidney-related disorder is nephrosis, glomerulonephritis, Goodpasture syndrome, or a combination thereof.

17. The use of claim 3 or 4, wherein prostate-related disorder is benign prostrate hyperplasia, chronic prostatitis syndrome, or a combination thereof.

18. The use of claim 3 or 4, wherein the IL-4Rα-related disorder is Kawasaki’s disease.

19. The use of claim 3 or 4, wherein the pregnancy-related disorder is pre-eclampsia, antiphospholipid syndrome, immune thrombocytopenia, or a combination thereof.

20. The use of claim 3 or 4, wherein the cancer is cutaneous T-cell lymphomas.

21. The use of any one of the preceding claims, wherein the anti-IL-4Rα antibody comprises a heavy chain variable region (VH) comprising the amino acid sequence of SEQ ID NO:13 and a light chain variable region (VL) comprising the amino acid sequence of SEQ ID NO:14.

22. The use of any one of the preceding claims, wherein the IL-4Rα-related disorder is a condition listed in Table 9 or Table 10.

23. The use of any one of the preceding claims, wherein the subject is human.

24. The use of any one of the preceding claims, wherein the administering is intradermal, intramuscular, intraperitoneal, intravenous, subcutaneous, intranasal, or epidural administration.

25. The use of any one of the preceding claims, wherein the administering is via a pre-filled syringe, a pre-filled pen, or an autoinjector.

26. The use of any one of the preceding claims, wherein the anti-IL-4Rα antibody is administered over multiple doses.

27. The use of any one of the preceding claims, wherein the anti-IL-4Rα antibody is administered at a dose of about 0.0001 to about 10 mg/kg of patient body weight.

28. The use of any one of the preceding claims, further comprising administering a second therapeutic agent selected from a second antibody or antigen binding fragment thereof, a soluble cytokine receptor, an IgE antagonist, an anti-asthma medication, or a checkpoint inhibitor,

wherein the anti-asthma medication is corticosteroids, non-steroidal agents, beta agonists, leukotriene antagonists, xanthines, fluticasone, salmeterol, or albuterol, and/or wherein the checkpoint inhibitor is a PD-1 antagonist, a PD-L1 antagonist, or a CTLA-4 antagonist.