DOSING FOR ANTI-TRYPTASE ANTIBODIES

SEQUENCE LISTING

The instant application contains a Sequence Listing which has been submitted electronically in ASCII format and is hereby incorporated by reference in its entirety. Said ASCII copy, created on August 14, 2020, is named 50474-204WO2_Sequence_Listing_08.14.20_ST25 and is 26,856 bytes in size.

FIELD OF THE INVENTION

The present disclosure relates to methods of treating asthma and related compositions and uses.

BACKGROUND

Asthma is a chronic inflammatory disease of the airways with an increasing worldwide incidence. Approximately 250,000 people die prematurely each year as a result of asthma. The pathophysiology of the disease is characterized by variable airflow obstruction, airway inflammation, mucus hypersecretion, and subepithelial fibrosis. Clinically, patients may present with cough, wheezing, and shortness of breath. Substantial evidence indicates that asthma is not a uniform condition, and there is considerable heterogeneity in clinical characteristics, severity of disease, and underlying biology. The best characterized subtypes consist of those patients in whom the disease is driven by IgE and cytokines expressed by Type 2 T-helper cells and Type 2 innate-lymphoid cells, namely interleukin (IL)-4, IL-5, and IL-13; allergic disease and peripheral eosinophilia are common features.

Despite the development of effective controller therapies for asthma, including inhaled corticosteroids, long-acting beta agonists, and other controller medications, a substantial proportion of patients continue to have uncontrolled symptoms, airflow obstruction, and exacerbations. Improved therapies for asthma are still being sought.

SUMMARY ~~OF THE INVENTION~~

The present ~~invention~~disclosure features, *inter alia*, methods of treating a patient having asthma (e.g., moderate asthma (e.g., moderate asthma that remains uncontrolled despite standard-of-care therapy), severe asthma (e.g., severe asthma that remains uncontrolled despite standard-of-care therapy), allergic asthma, or atopic asthma (e.g., mild atopic asthma)), anti-tryptase antibodies (e.g., anti-tryptase beta antibodies) for use in treating asthma, uses of anti-tryptase antibodies (e.g., anti-tryptase beta antibodies), e.g., in the manufacture of medicaments for treating asthma, as well as related kits and articles of manufacture.

In one ~~aspect~~example, the disclosure features an method of treating a patient having asthma, the method comprising administering to a patient having asthma an anti-tryptase beta antibody in a dosing regimen comprising a dosing cycle, wherein the dosing cycle comprises a first dose (C1D1) of the anti-tryptase beta antibody selected from 300 mg intravenously (IV), 450 mg IV, 750 mg SC, 900 mg IV, 1350 mg IV, 1800 mg IV, or 3600 mg IV, wherein the anti-tryptase beta antibody comprises the following six complementarity determining regions (CDRs): (a) an CDR-H1 comprising the amino acid sequence of DYGMV (SEQ ID NO: 1); (b) an CDR-H2 comprising the amino acid sequence of

FISSGSSTVYYADTMKG (SEQ ID NO: 2); (c) an CDR-H3 comprising the amino acid sequence of RNYDDWYFDV (SEQ ID NO: 3); (d) an CDR-L1 comprising the amino acid sequence of SASSSVTYMY (SEQ ID NO: 4); (e) an CDR-L2 comprising the amino acid sequence of RTSDLAS (SEQ ID NO: 5); and (f) an CDR-L3 comprising the amino acid sequence of QHYHSYPLT (SEQ ID NO: 6).

In one aspect, the disclosure features use of an anti-tryptase beta antibody in the manufacture of a medicament for treating a patient having asthma, wherein the medicament is for administration to the patient having asthma in a dosing regimen comprising a dosing cycle, wherein the dosing cycle comprises a first dose (C1D1) of the anti-tryptase beta antibody selected from 300 mg intravenously (IV), 450 mg IV, 750 mg SC, 900 mg IV, 1350 mg IV, 1800 mg IV, or 3600 mg IV, wherein the anti-tryptase beta antibody comprises the following six complementarity determining regions (CDRs): (a) an CDR-H1 comprising the amino acid sequence of DYGMV (SEQ ID NO: 1); (b) an CDR-H2 comprising the amino acid sequence of FISSGSSTVYYADTMKG (SEQ ID NO: 2); (c) an CDR-H3 comprising the amino acid sequence of RNYDDWYFDV (SEQ ID NO: 3); (d) an CDR-L1 comprising the amino acid sequence of SASSSVTYMY (SEQ ID NO: 4); (e) an CDR-L2 comprising the amino acid sequence of RTSDLAS (SEQ ID NO: 5); and (f) an CDR-L3 comprising the amino acid sequence of QHYHSYPLT (SEQ ID NO: 6).

In another ~~aspect~~example, the disclosure features an anti-tryptase beta antibody for use in treating a patient having asthma, wherein the anti-tryptase beta antibody is for administration to a patient having asthma in a dosing regimen comprising a dosing cycle, wherein the dosing cycle comprises a first dose (C1D1) of the anti-tryptase beta antibody selected from 300 mg IV, 450 mg IV, 750 mg SC, 900 mg IV, 1350 mg IV, 1800 mg IV, or 3600 mg IV, wherein the anti-tryptase beta antibody comprises the following six CDRs: (a) an CDR-H1 comprising the amino acid sequence of DYGMV (SEQ ID NO: 1); (b) an CDR-H2 comprising the amino acid sequence of FISSGSSTVYYADTMKG (SEQ ID NO: 2); (c) an CDR-H3 comprising the amino acid sequence of RNYDDWYFDV (SEQ ID NO: 3); (d) an CDR-L1 comprising the amino acid sequence of SASSSVTYMY (SEQ ID NO: 4); (e) an CDR-L2 comprising the amino acid sequence of RTSDLAS (SEQ ID NO: 5); and (f) an CDR-L3 comprising the amino acid sequence of QHYHSYPLT (SEQ ID NO: 6).

In another aspect, the disclosure features an anti-tryptase beta antibody for use in treating a patient having asthma, wherein the anti-tryptase beta antibody is for administration to the patient having asthma in a dosing regimen comprising a dosing cycle, wherein the dosing cycle comprises a first dose (C1D1) of the anti-tryptase beta antibody selected from 300 mg IV, 450 mg IV, 750 mg SC, 900 mg IV, 1350 mg IV, 1800 mg IV, or 3600 mg IV, wherein the anti-tryptase beta antibody comprises the following six CDRs: (a) an CDR-H1 comprising the amino acid sequence of DYGMV (SEQ ID NO: 1); (b) an CDR-H2 comprising the amino acid sequence of FISSGSSTVYYADTMKG (SEQ ID NO: 2); (c) an CDR-H3 comprising the amino acid sequence of RNYDDWYFDV (SEQ ID NO: 3); (d) an CDR-L1 comprising the amino acid sequence of SASSSVTYMY (SEQ ID NO: 4); (e) an CDR-L2 comprising the amino acid sequence of RTSDLAS (SEQ ID NO: 5); and (f) an CDR-L3 comprising the amino acid sequence of QHYHSYPLT (SEQ ID NO: 6).

In another ~~aspect~~example, the disclosure features the use of an anti-tryptase beta antibody in the manufacture of a medicament for treating a patient having asthma, wherein the medicament is for administration to a patient having asthma in a dosing regimen comprising a dosing cycle, wherein the dosing cycle comprises a first dose (C1D1) of the anti-tryptase beta antibody selected from 300 mg IV, 450 mg IV, 750 mg SC, 900 mg IV, 1350 mg IV, 1800 mg IV, or 3600 mg IV, wherein the anti-tryptase beta antibody comprises the following six CDRs: (a) an CDR-H1 comprising the amino acid sequence of DYGMV (SEQ ID NO: 1); (b) an CDR-H2 comprising the amino acid sequence of FISSGSSTVYYADTMKG (SEQ ID NO: 2); (c) an CDR-H3 comprising the amino acid sequence of RNYDDWYFDV (SEQ ID NO: 3); (d) an CDR-L1 comprising the amino acid sequence of SASSSVTYMY (SEQ ID NO: 4); (e) an CDR-L2 comprising the amino acid sequence of RTSDLAS (SEQ ID NO: 5); and (f) an CDR-L3 comprising the amino acid sequence of QHYHSYPLT (SEQ ID NO: 6).

In another ~~aspect~~example, the disclosure features a method of treating a patient having asthma, the method comprising administering to a patient having asthma an anti-tryptase beta antibody in a dosing regimen comprising a dosing cycle, wherein the dosing cycle comprises administering 1800 mg IV of the anti-tryptase beta antibody to the patient every four weeks (q4w), wherein the anti-tryptase beta antibody comprises the following six CDRs: (a) an CDR-H1 comprising the amino acid sequence of DYGMV (SEQ ID NO: 1); (b) an CDR-H2 comprising the amino acid sequence of FISSGSSTVYYADTMKG (SEQ ID NO: 2); (c) an CDR-H3 comprising the amino acid sequence of RNYDDWYFDV (SEQ ID NO: 3); (d) an CDR-L1 comprising the amino acid sequence of SASSSVTYMY (SEQ ID NO: 4); (e) an CDR-L2 comprising the amino acid sequence of RTSDLAS (SEQ ID NO: 5); and (f) an CDR-L3 comprising the amino acid sequence of QHYHSYPLT (SEQ ID NO: 6).

In one aspect, the disclosure features use of an anti-tryptase beta antibody in the manufacture of a medicament for treating a patient having asthma, wherein the medicament is for administration to the patient having asthma in a dosing regimen comprising a dosing cycle, wherein the dosing cycle comprises 1800 mg IV of the anti-tryptase beta antibody to be administered to the patient every four weeks (q4w), wherein the anti-tryptase beta antibody comprises the following six CDRs: (a) an CDR-H1 comprising the amino acid sequence of DYGMV (SEQ ID NO: 1); (b) an CDR-H2 comprising the amino acid sequence of FISSGSSTVYYADTMKG (SEQ ID NO: 2); (c) an CDR-H3 comprising the amino acid sequence of RNYDDWYFDV (SEQ ID NO: 3); (d) an CDR-L1 comprising the amino acid sequence of SASSSVTYMY (SEQ ID NO: 4); (e) an CDR-L2 comprising the amino acid sequence of RTSDLAS (SEQ ID NO: 5); and (f) an CDR-L3 comprising the amino acid sequence of QHYHSYPLT (SEQ ID NO: 6).

In another ~~aspect~~example, the disclosure features an anti-tryptase beta antibody for use in treating a patient having asthma, wherein the anti-tryptase beta antibody is for administration to a patient having asthma in a dosing regimen comprising a dosing cycle, wherein the dosing cycle comprises administering 1800 mg IV of the anti-tryptase beta antibody to the patient every four weeks (q4w), wherein the anti-

tryptase beta antibody comprises the following six CDRs: (a) an CDR-H1 comprising the amino acid sequence of DYGMV (SEQ ID NO: 1); (b) an CDR-H2 comprising the amino acid sequence of FISSGSSTVYYADTMKG (SEQ ID NO: 2); (c) an CDR-H3 comprising the amino acid sequence of RNYDDWYFDV (SEQ ID NO: 3); (d) an CDR-L1 comprising the amino acid sequence of SASSSVTYMY (SEQ ID NO: 4); (e) an CDR-L2 comprising the amino acid sequence of RTSDLAS (SEQ ID NO: 5); and (f) an CDR-L3 comprising the amino acid sequence of QHYHSYPLT (SEQ ID NO: 6).

In another aspect, the disclosure features an anti-tryptase beta antibody for use in treating a patient having asthma, wherein the anti-tryptase beta antibody is for administration to the patient having asthma in a dosing regimen comprising a dosing cycle, wherein the dosing cycle comprises 1800 mg IV of the anti-tryptase beta antibody to be administered to the patient every four weeks (q4w), wherein the anti-tryptase beta antibody comprises the following six CDRs:(a) an CDR-H1 comprising the amino acid sequence of DYGMV (SEQ ID NO: 1); (b) an CDR-H2 comprising the amino acid sequence of FISSGSSTVYYADTMKG (SEQ ID NO: 2); (c) an CDR-H3 comprising the amino acid sequence of RNYDDWYFDV (SEQ ID NO: 3); (d) an CDR-L1 comprising the amino acid sequence of SASSSVTYMY (SEQ ID NO: 4); (e) an CDR-L2 comprising the amino acid sequence of RTSDLAS (SEQ ID NO: 5); and (f) an CDR-L3 comprising the amino acid sequence of QHYHSYPLT (SEQ ID NO: 6).

In some ~~aspect~~examples, the antibody comprises (a) a heavy chain variable (VH) domain comprising an amino acid sequence having at least 90%, at least 95%, or at least 99% sequence identity to the amino acid sequence of SEQ ID NO: 7; (b) a light chain variable (VL) domain comprising an amino acid sequence having at least 90%, at least 95%, or at least 99% identity to the amino acid sequence of SEQ ID NO: 8; or (c) a VH domain as in (a) and a VL domain as in (b).

In some ~~aspect~~examples, the VH domain comprises the amino acid sequence of SEQ ID NO: 7.

In some ~~aspect~~examples, the VL domain comprises the amino acid sequence of SEQ ID NO: 8.

In some ~~aspect~~examples, the VH domain comprises the amino acid sequence of SEQ ID NO: 7 and the VL domain comprises the amino acid sequence of SEQ ID NO: 8.

In some ~~aspect~~examples, the antibody comprises (a) a heavy chain comprising the amino acid sequence of SEQ ID NO: 9 and (b) a light chain comprising the amino acid sequence of SEQ ID NO: 10.

In some ~~aspect~~examples, the antibody comprises (a) a heavy chain comprising the amino acid sequence of SEQ ID NO: 11 and (b) a light chain comprising the amino acid sequence of SEQ ID NO: 10.

In some ~~aspect~~examples, the anti-tryptase antibody is MTPS9579A.

In some ~~aspect~~examples, the C1D1 is 300 mg IV.

In some ~~aspect~~examples, the C1D1 is 450 mg IV.

In some ~~aspect~~examples, the C1D1 is 750 mg SC.

In some ~~aspect~~examples, SC administration is performed using a pump.

In some ~~aspect~~examples, the pump is a patch pump.

In some ~~aspect~~examples, the C1D1 is 900 mg IV.

In some ~~aspect~~examples, the C1D1 is 1350 mg IV.

In some ~~aspect~~examples, the C1D1 is 1800 mg IV.

In some ~~aspect~~examples, the C1D1 is 3600 mg IV.

In some ~~aspect~~examples, the dosing cycle further comprises a second dose (C1D2) and a third dose (C1D3) of the anti-tryptase beta antibody, wherein the C1D2 and the C1D3 are each equal to the C1D1.

In some ~~aspect~~examples, the doses of the dosing cycle are administered to the subject every four weeks (q4w).

In some ~~aspect~~examples, the dosing cycle has a length of about 57 days.

In some ~~aspect~~examples, the C1D1 is administered on Day 1 of the dosing cycle, the C1D2 is administered on Day 29 of the dosing cycle, and the C1D3 is administered on Day 57 of the dosing cycle.

In some ~~aspect~~examples, the dosing regimen consists of one dosing cycle.

In some ~~aspect~~examples, the asthma is severe asthma, allergic asthma, or atopic asthma.

In some ~~aspect~~examples, the severe asthma is uncontrolled despite standard-of-care therapy.

In some ~~aspect~~examples, the asthma is moderate to severe asthma.

In some ~~aspect~~examples, the patient is receiving daily inhaled corticosteroid therapy and at least one of the following controller medications: a long-acting β-agonist (LABA), a leukotriene modulator, a long-acting muscarinic antagonist (LAMA), or a long-acting theophylline preparation.

In some ~~aspect~~examples, the leukotriene modulator is a leukotriene modifier (LTM) or leukotriene receptor antagonist (LTRA).

In another ~~aspect~~example, the disclosure features a kit comprising an anti-tryptase beta antibody and instructions to administer the anti-tryptase beta antibody to a patient having asthma in accordance with any one of the methods described herein.

In one aspect, the disclosure features a kit comprising an anti-tryptase beta antibody and instructions to administer the anti-tryptase beta antibody to a patient having asthma in accordance with the use disclosed herein.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a schematic diagram of the study design of the GA40396 Phase I clinical study. [a]Sentinal dosing was used in all single ascending dose (SAD) cohorts. [b]See Example 1 for description of Optional SAD or multiple ascending dose (MAD) cohorts. PK, pharmacokinetic; PD, pharmacodynamic, ADA, anti-drug antibody.

FIG. 2 is a graph showing mean (± standard deviation (SD)) serum MTPS9579A concentration-time profiles in healthy subjects after subcutaneous (SC) administration of 30, 100, or 300 mg MTPS9579A, or intravenous (IV) administration of 300, 900, 1800, or 3600 mg MTPS9579A on Day 1 in the SAD portion of Study GA40396. LLOQ, lower limit of quantification.

FIG. 3 is a graph showing mean (±SD) serum MTPS9579A concentration-time profiles in healthy subjects after SC administration of 150, 300, or 750 mg MTPS9579A or IV administration of 1350 or 3600 mg MTPS9579A on Days 1, 29, and 57 in the MAD portion of Study GA40396 (N=8; all dose cohorts). Q4W, every 4 weeks.

FIG. 4 is a series of graphs showing the nasal active tryptase concentration-time profile in each healthy subject after SC administration of 30, 100, or 300 mg MTPS9579A, or IV administration of 300, 900, 1800, or 3600 mg MTPS9579A, or placebo on Day 1 in the SAD portion of Study GA40396.

FIG. 5 is a series of graphs showing the nasal active tryptase concentration-time profile in each healthy subject after SC administration of 150, 300, or 750 mg MTPS9579A, or IV administration of 1350, or 3600 mg MTPS9579A, or placebo Q4W in the MAD portion of Study GA40396.

FIG. 6 is a series of graphs showing the nasal total tryptase concentration-time profile in each healthy subject after SC administration of 30, 100, or 300 mg MTPS9579A, or IV administration of 300, 900, 1800, or 3600 mg MTPS9579A, or placebo on Day 1 in the SAD portion of Study GA40396.

FIG. 7 is a series of graphs showing the nasal total tryptase concentration-time profile in each healthy subject after SC administration of 150, 300, or 750 mg MTPS9579A, or IV administration of 1350, or 3600 mg MTPS9579A, or placebo Q4W in the MAD portion of Study GA40396.

FIG. 8 is a series of graphs showing the serum total tryptase concentration-time profile in each healthy subject after SC administration of 30, 100, or 300 mg MTPS9579A, or IV administration of 300, 900, 1800, or 3600 mg MTPS9579A, or placebo on Day 1 in the SAD portion of Study GA40396.

FIG. 9 is a series of graphs showing the serum total tryptase concentration-time profile in each healthy subject after SC administration of 150, 300, or 750 mg MTPS9579A, or IV administration of 1350, or 3600 mg MTPS9579A, or placebo Q4W in the MAD portion of Study GA40396.

CLAIMS

What is claimed is:

1. ~~A method of~~Use of an anti-tryptase beta antibody in the manufacture of a medicament for treating a patient having asthma, ~~the method comprising administering to a patient having asthma an anti-tryptase beta antibody~~wherein the medicament is for administration to the patient having asthma in a dosing regimen comprising a dosing cycle, wherein the dosing cycle comprises a first dose (C1D1) of the anti-tryptase beta antibody selected from 300 mg intravenously (IV), 450 mg IV, 750 mg SC, 900 mg IV, 1350 mg IV, 1800 mg IV, or 3600 mg IV, wherein the anti-tryptase beta antibody comprises the following six complementarity determining regions (CDRs):

(a) an CDR-H1 comprising the amino acid sequence of DYGMV (SEQ ID NO: 1);

(b) an CDR-H2 comprising the amino acid sequence of FISSGSSTVYYADTMKG (SEQ ID NO: 2);

(c) an CDR-H3 comprising the amino acid sequence of RNYDDWYFDV (SEQ ID NO: 3);

(d) an CDR-L1 comprising the amino acid sequence of SASSSVTYMY (SEQ ID NO: 4);

(e) an CDR-L2 comprising the amino acid sequence of RTSDLAS (SEQ ID NO: 5); and

(f) an CDR-L3 comprising the amino acid sequence of QHYHSYPLT (SEQ ID NO: 6).

2. The ~~method~~use of claim 1, wherein the antibody comprises (a) a heavy chain variable (VH) domain comprising an amino acid sequence having at least 90%, at least 95%, or at least 99% sequence identity to the amino acid sequence of SEQ ID NO: 7; (b) a light chain variable (VL) domain comprising an amino acid sequence having at least 90%, at least 95%, or at least 99% identity to the amino acid sequence of SEQ ID NO: 8; or (c) a VH domain as in (a) and a VL domain as in (b).

3. The ~~method~~use of claim 2, wherein the VH domain comprises the amino acid sequence of SEQ ID NO: 7.

4. The ~~method~~use of claim 2, wherein the VL domain comprises the amino acid sequence of SEQ ID NO: 8.

5. The ~~method~~use of claim 2, wherein the VH domain comprises the amino acid sequence of SEQ ID NO: 7 and the VL domain comprises the amino acid sequence of SEQ ID NO: 8.

6. The ~~method~~use of any one of claims 1-5, wherein the antibody comprises (a) a heavy chain comprising the amino acid sequence of SEQ ID NO: 9 and (b) a light chain comprising the amino acid sequence of SEQ ID NO: 10.

7. The ~~method~~use of any one of claims 1-5, wherein the antibody comprises (a) a heavy chain comprising the amino acid sequence of SEQ ID NO: 11 and (b) a light chain comprising the amino acid sequence of SEQ ID NO: 10.

8. The ~~method~~use of any one of claims 1-7, wherein the C1D1 is 300 mg IV.

9. The ~~method~~use of any one of claims 1-7, wherein the C1D1 is 450 mg IV.

10. The ~~method~~use of any one of claims 1-7, wherein the C1D1 is 750 mg SC.

11. The ~~method~~use of any one of claims 1-7, wherein the C1D1 is 900 mg IV.

12. The ~~method~~use of any one of claims 1-7, wherein the C1D1 is 1350 mg IV.

13. The ~~method~~use of any one of claims 1-7, wherein the C1D1 is 1800 mg IV.

14. The ~~method~~use of any one of claims 1-7, wherein the C1D1 is 3600 mg IV.

15. The ~~method~~use of any one of claims 1-14, wherein the dosing cycle further comprises a second dose (C1D2) and a third dose (C1D3) of the anti-tryptase beta antibody, wherein the C1D2 and the C1D3 are each equal to the C1D1.

16. The ~~method~~use of claim 15, wherein the doses of the dosing cycle are to be administered to the ~~subject~~ patient every four weeks (q4w).

17. The ~~method~~use of claim 15 or 16, wherein the dosing cycle has a length of about 57 days.

18. The ~~method~~use of claim 17, wherein the C1D1 is to be administered on Day 1 of the dosing cycle, the C1D2 is to be administered on Day 29 of the dosing cycle, and the C1D3 is to be administered on Day 57 of the dosing cycle.

19. The ~~method~~use of any one of claims 15-18, wherein the dosing regimen consists of one dosing cycle.

20. ~~A method of~~Use of an anti-tryptase beta antibody in the manufacture of a medicament for treating a patient having asthma, ~~the method comprising administering to a patient having asthma an anti-tryptase beta antibody~~ wherein the medicament is for administration to the patient having asthma in a dosing regimen comprising a dosing cycle, wherein the dosing cycle comprises ~~administering~~ 1800 mg IV of the anti-tryptase beta antibody to be administered to the patient every four weeks (q4w), wherein the anti-tryptase beta antibody comprises the following six CDRs:

(a) an CDR-H1 comprising the amino acid sequence of DYGMV (SEQ ID NO: 1);

(b) an CDR-H2 comprising the amino acid sequence of FISSGSSTVYYADTMKG (SEQ ID NO: 2);

(c) an CDR-H3 comprising the amino acid sequence of RNYDDWYFDV (SEQ ID NO: 3);

(d) an CDR-L1 comprising the amino acid sequence of SASSSVTYMY (SEQ ID NO: 4);

(e) an CDR-L2 comprising the amino acid sequence of RTSDLAS (SEQ ID NO: 5); and

(f) an CDR-L3 comprising the amino acid sequence of QHYHSYPLT (SEQ ID NO: 6).

21. The ~~method~~use of any one of claims 1-20, wherein the asthma is moderate asthma, severe asthma, allergic asthma, or atopic asthma.

22. The ~~method~~use of claim 21, wherein the severe asthma is uncontrolled despite standard-of-care therapy.

23. The ~~method~~use of any one of claims 1-20, wherein the asthma is moderate to severe asthma.

24. The ~~method~~use of any one of claims 1-23, wherein the patient is receiving daily inhaled corticosteroid therapy and at least one of the following controller medications: a long-acting β-agonist (LABA), a leukotriene modulator, a long-acting muscarinic antagonist (LAMA), or a long-acting theophylline preparation.

25. The ~~method~~use of claim 24, wherein the leukotriene modulator is a leukotriene modifier (LTM) or leukotriene receptor antagonist (LTRA).

26. A kit comprising an anti-tryptase beta antibody and instructions to administer the anti-tryptase beta antibody to a patient having asthma in accordance with the ~~method~~ use of any one of claims 1-25.

27. An anti-tryptase beta antibody for use in treating a patient having asthma, wherein the anti-tryptase beta antibody is for administration to ~~a~~ the patient having asthma in a dosing regimen comprising a dosing cycle, wherein the dosing cycle comprises a first dose (C1D1) of the anti-tryptase beta antibody selected from 300 mg IV, 450 mg IV, 750 mg SC, 900 mg IV, 1350 mg IV, 1800 mg IV, or 3600 mg IV, wherein the anti-tryptase beta antibody comprises the following six CDRs:

(a) an CDR-H1 comprising the amino acid sequence of DYGMV (SEQ ID NO: 1);
(b) an CDR-H2 comprising the amino acid sequence of FISSGSSTVYYADTMKG (SEQ ID NO: 2);
(c) an CDR-H3 comprising the amino acid sequence of RNYDDWYFDV (SEQ ID NO: 3);
(d) an CDR-L1 comprising the amino acid sequence of SASSSVTYMY (SEQ ID NO: 4);
(e) an CDR-L2 comprising the amino acid sequence of RTSDLAS (SEQ ID NO: 5); and
(f) an CDR-L3 comprising the amino acid sequence of QHYHSYPLT (SEQ ID NO: 6).

28. The anti-tryptase beta antibody for use of claim 27, wherein the antibody comprises (a) a heavy chain variable (VH) domain comprising an amino acid sequence having at least 90%, at least 95%, or at least 99% sequence identity to the amino acid sequence of SEQ ID NO: 7; (b) a light chain variable (VL) domain comprising an amino acid sequence having at least 90%, at least 95%, or at least 99% identity to the amino acid sequence of SEQ ID NO: 8; or (c) a VH domain as in (a) and a VL domain as in (b).

29. The anti-tryptase beta antibody for use of claim 28, wherein the VH domain comprises the amino acid sequence of SEQ ID NO: 7.

30. The anti-tryptase beta antibody for use of claim 28, wherein the VL domain comprises the amino acid sequence of SEQ ID NO: 8.

31. The anti-tryptase beta antibody for use of claim 28, wherein the VH domain comprises the amino acid sequence of SEQ ID NO: 7 and the VL domain comprises the amino acid sequence of SEQ ID NO: 8.

32. The anti-tryptase beta antibody for use of any one of claims 27-31, wherein the antibody comprises (a) a heavy chain comprising the amino acid sequence of SEQ ID NO: 9 and (b) a light chain comprising the amino acid sequence of SEQ ID NO: 10.

33. The anti-tryptase beta antibody for use of any one of claims 27-31, wherein the antibody comprises (a) a heavy chain comprising the amino acid sequence of SEQ ID NO: 11 and (b) a light chain comprising the amino acid sequence of SEQ ID NO: 10.

34. The anti-tryptase beta antibody for use of any one of claims 27-33, wherein the C1D1 is 300 mg IV.

35. The anti-tryptase beta antibody for use of any one of claims 27-33, wherein the C1D1 is 450 mg IV.

36. The anti-tryptase beta antibody for use of any one of claims 27-33, wherein the C1D1 is 750 mg SC.

37. The anti-tryptase beta antibody for use of any one of claims 27-33, wherein the C1D1 is 900 mg IV.

38. The anti-tryptase beta antibody for use of any one of claims 27-33, wherein the C1D1 is 1350 mg IV.

39. The anti-tryptase beta antibody for use of any one of claims 27-33, wherein the C1D1 is 1800 mg IV.

40. The anti-tryptase beta antibody for use of any one of claims 27-33, wherein the C1D1 is 3600 mg IV.

41. The anti-tryptase beta antibody for use of any one of claims 27-40, wherein the dosing cycle further comprises a second dose (C1D2) and a third dose (C1D3) of the anti-tryptase beta antibody, wherein the C1D2 and the C1D3 are each equal to the C1D1.

42. The anti-tryptase beta antibody for use of claim 41, wherein the doses of the dosing cycle are to be administered to the ~~subject~~ patient every four weeks (q4w).

43. The anti-tryptase beta antibody for use of claim 41 or 42, wherein the dosing cycle has a length of about 57 days.

44. The anti-tryptase beta antibody for use of claim 43, wherein the C1D1 is to be administered on Day 1 of the dosing cycle, the C1D2 is to be administered on Day 29 of the dosing cycle, and the C1D3 is to be administered on Day 57 of the dosing cycle.

45. The anti-tryptase beta antibody for use of any one of claims 41-44, wherein the dosing regimen consists of one dosing cycle.

46. An anti-tryptase beta antibody for use in treating a patient having asthma, wherein the anti-tryptase beta antibody is for administration to ~~a~~ the patient having asthma in a dosing regimen comprising a dosing cycle, wherein the dosing cycle comprises ~~administering~~ 1800 mg IV of the anti-tryptase beta antibody to be administered to the patient every four weeks (q4w), wherein the anti-tryptase beta antibody comprises the following six CDRs:

(a) an CDR-H1 comprising the amino acid sequence of DYGMV (SEQ ID NO: 1);

(b) an CDR-H2 comprising the amino acid sequence of FISSGSSTVYYADTMKG (SEQ ID NO: 2);

(c) an CDR-H3 comprising the amino acid sequence of RNYDDWYFDV (SEQ ID NO: 3);

(d) an CDR-L1 comprising the amino acid sequence of SASSSVTYMY (SEQ ID NO: 4);

(e) an CDR-L2 comprising the amino acid sequence of RTSDLAS (SEQ ID NO: 5); and

(f) an CDR-L3 comprising the amino acid sequence of QHYHSYPLT (SEQ ID NO: 6).

47. The anti-tryptase beta antibody for use of any one of claims 27-46, wherein the asthma is moderate asthma, severe asthma, allergic asthma, or atopic asthma.

48. The anti-tryptase beta antibody for use of claim 47, wherein the severe asthma is uncontrolled despite standard-of-care therapy.

49. The anti-tryptase beta antibody for use of any one of claims 27-48, wherein the asthma is moderate to severe asthma.

50. The anti-tryptase beta antibody for use of any one of one of claims 27-49, wherein the patient is receiving daily inhaled corticosteroid therapy and at least one of the following controller medications: an LABA, a leukotriene modulator, an LAMA, or a long-acting theophylline preparation.

51. The anti-tryptase beta antibody for use of claim 50, wherein the leukotriene modulator is an LTM or an LTRA.

52. Use of an anti-tryptase beta antibody in the manufacture of a medicament for treating a patient having asthma, wherein the medicament is for administration to a patient having asthma in a dosing regimen comprising a dosing cycle, wherein the dosing cycle comprises a first dose (C1D1) of the anti-tryptase beta antibody selected from 300 mg IV, 450 mg IV, 750 mg SC, 900 mg IV, 1350 mg IV, 1800 mg IV, or 3600 mg IV, wherein the anti-tryptase beta antibody comprises the following six CDRs:

(a) an CDR-H1 comprising the amino acid sequence of DYGMV (SEQ ID NO: 1);

(b) an CDR-H2 comprising the amino acid sequence of FISSGSSTVYYADTMKG (SEQ ID NO: 2);

(c) an CDR-H3 comprising the amino acid sequence of RNYDDWYFDV (SEQ ID NO: 3);

(d) an CDR-L1 comprising the amino acid sequence of SASSSVTYMY (SEQ ID NO: 4);

(e) an CDR-L2 comprising the amino acid sequence of RTSDLAS (SEQ ID NO: 5); and

(f) an CDR-L3 comprising the amino acid sequence of QHYHSYPLT (SEQ ID NO: 6).

53. Use of an anti-tryptase beta antibody in the manufacture of a medicament for treating a patient having asthma, wherein the medicament is for administration to a patient having asthma in a dosing regimen comprising a dosing cycle, wherein the dosing cycle comprises administering 1800 mg IV of the anti-tryptase beta antibody to the patient every four weeks (q4w), wherein the anti-tryptase beta antibody comprises the following six CDRs:

(a) an CDR-H1 comprising the amino acid sequence of DYGMV (SEQ ID NO: 1);

(b) an CDR-H2 comprising the amino acid sequence of FISSGSSTVYYADTMKG (SEQ ID NO: 2);

(c) an CDR-H3 comprising the amino acid sequence of RNYDDWYFDV (SEQ ID NO: 3);

(d) an CDR-L1 comprising the amino acid sequence of SASSSVTYMY (SEQ ID NO: 4);

(e) an CDR-L2 comprising the amino acid sequence of RTSDLAS (SEQ ID NO: 5); and

(f) an CDR-L3 comprising the amino acid sequence of QHYHSYPLT (SEQ ID NO: 6).