CLAIMS

WHAT IS CLAIMED:

1. A CεmX-specific antibody capable of binding to membrane-bound IgE on human B lymphocytes and incapable of binding to RADWPGPP peptide.

2. An antibody of claim 1, wherein the antibody is a mouse monoclonal antibody.

3. An antibody of claim 1, wherein the antibody is a chimeric antibody comprising the variable regions of a mouse monoclonal antibody and constant regions of human antibodies.

4. An antibody of claim 1, wherein the antibody is a humanized monoclonal antibody comprising essentially the hypervariable regions of a mouse monoclonal antibody and the framework regions and constant regions of human antibodies.

5. An antibody of claim 1, wherein the antibody is a human antibody.

6. A fragment of a CεmX-specific antibody of claim 1, capable of binding to membrane-bound IgE on human B lymphocytes and incapable of binding to RADWPGPP peptide.

7. A fragment of an antibody of claim 6, wherein the fragment is Fab, $F(ab)'_2$, or single-chain Fv.

8. A therapeutic method of using an antibody of claim 1 to treat IgE-mediated diseases.

9. A therapeutic method of claim 8, wherein the IgE-mediated disease is allergic asthma, allergic rhinitis, or atopic dermatitis.

10. A therapeutic method of claim 8, wherein the IgE-mediated disease is cold-induced urticaria, chronic urticaria, cholinergic urticaria, chronic rhinosinusitis, systemic mastocytosis, cutaneous mastocytosis, allergic bronchopulmonary aspergillosis, recurrent idiopathic angioedema, and interstitial cystitis, or eosinophil-associated gastrointestinal disorders.

11. An antibody of claim 1, wherein the antibody binds to GLAGGSAQSQRAPDRVL or an analogue with similar antigenic property.

12. An antibody of claim 1, wherein the antibody binds to HSGQQQGLPRAAGGSVPHPR or an analogue with similar antigenic property.

13. A therapeutic method of inducing immune response in patients *in vivo* by employing an immunogen containing GLAGGSAQSQRAPDRVL or an analogue with similar antigenic property.

14. A therapeutic method of inducing immune response in patients *in vivo* by employing an immunogen containing HSGQQQGLPRAAGGSVPHPR or an analogue with similar antigenic property.

15. A therapeutic method of inducing immune response in patients *in vivo* by employing an immunogen containing GLAGGSAQSQRAPDRVL or an analogue with similar antigenic property and HSGQQQGLPRAAGGSVPHPR or an analogue with similar antigenic property.

WHAT IS CLAIMED:

1. An isolated CεmX-specific antibody or an antigen binding fragment thereof, wherein the antibody is capable of binding to GLAGGSAQSQRAPDRVL (SEQ ID NO:2).

2. The antibody or the antigen binding fragment of claim 1, wherein the antibody is a mouse monoclonal antibody.

3. The antibody or the antigen binding fragment of claim 1, wherein the antibody is a chimeric antibody comprising the variable regions of a mouse monoclonal antibody and constant regions of human antibodies.

4. The antibody or the antigen binding fragment of claim 1, wherein the antibody is a humanized monoclonal antibody comprising essentially the hypervariable regions of a mouse monoclonal antibody and the framework regions and constant regions of human antibodies.

5. The antibody or the antigen binding fragment of claim 1, wherein the antibody is a human antibody.

6. The antibody or antigen binding fragment of claim 1, wherein the antigen binding fragment is Fab, F(ab')2, or single-chain Fv.

7. The antibody or antigen binding fragment of claim 1, wherein the antibody binds to the same epitope as antibody 4B12.

8. The antibody or antigen binding fragment of claim 1, wherein the antibody binds to membrane-bound IgE on human B lymphocytes.

9. An isolated antibody or antigen binding fragment thereof, wherein the antibody comprises the same hypervariable regions as antibody 4B12, and wherein the hypervariable regions are set forth as 24-39 of SEQ ID NO:5, 55-61 of SEQ ID NO:5, 94-102 of SEQ ID NO:5, 26-36 of SEQ ID NO:8, 51-66 of SEQ ID NO:8, and 98-106 of SEQ ID NO:8.

10. The antibody or antigen binding fragment of claim 9, wherein the antibody comprises a heavy chain variable region that comprises the amino acid sequence of SEQ ID NO:8 and a light chain variable region that comprises the amino acid sequence of SEQ ID NO:5.

11. The antibody or antigen binding fragment of claim 9, wherein the antibody is a humanized antibody comprising a heavy chain variable region that comprises the amino acid sequence of SEQ ID NO:10 and a light chain variable region that comprises the amino acid sequence of SEQ ID NO:7.

12. Use of the antibody or antigen binding fragment of claim 1 in the manufacture of a medicament for treating an IgE-mediated disease.

13. The use of claim 12, wherein the IgE-mediated disease is allergic asthma, allergic rhinitis, or atopic dermatitis.

14. The use of claim 12, wherein the IgE-mediated disease is cold-induced urticaria, chronic urticaria, cholinergic urticaria, chronic rhinosinusitis, systemic mastocytosis, cutaneous mastocytosis, allergic bronchopulmonary aspergillosis, recurrent idiopathic angioedema, and interstitial cystitis, or eosinophil-associated gastrointestinal disorders.

15. The use of claim 12, wherein the medicament is to be administered to the subject in an amount effective in inducing antibody-dependent cellular cytotoxicity in IgE-expressing B cells.

16. The use of claim 12, wherein the medicament is to be administered to the subject in an amount effective in inducing apoptosis in IgE-expressing B cells.

17. The use of claim 12, wherein the medicament is to be administered to the subject in an amount effective in reducing IgE-expressing B cells.