

CLAIMS

What is claimed is:

1. Use of an antibody or a specific binding fragment thereof that specifically binds to citrullinated epitope QKCitAA, QRCitAA, or RRCitAA in the manufacture of a medicament for the treatment of an autoimmune disease in a human subject mediated by the presence of a HLA-DR4 citrullinated shared epitope comprising an amino acid sequence: QKCitAA, QRCitAA, or RRCitAA.
2. The use according to claim 1, wherein the autoimmune disease is inflammatory arthritis, multiple sclerosis, type 1 diabetes, lyme disease induced arthritis, rheumatoid arthritis, hydralazine-induced female systemic lupus erythematosus, pemphigoid gestationis, pemphigus foliaceus, obstructive hypertrophic cardiomyopathy, psoriatic arthritis, psoriasis, IgA nephropathy, 'shared syndrome'-systemic sclerosis/rheumatoid arthritis and polymyalgia rheumatic.
3. The use according to claim 2, wherein the autoimmune disease is multiple sclerosis, rheumatoid arthritis, type 1 diabetes, and Lyme disease induced arthritis.
4. The use according to claim 3, wherein the autoimmune disease is rheumatoid arthritis.
5. The use according to claim 1, wherein the subject is initially screened for the presence of citrullinated epitope QKCitAA, QRCitAA, or RRCitAA present on the surface of the patient's white blood cells.
6. The use according to claim 5, wherein the presence of citrullinated epitope QKCitAA, QRCitAA, or RRCitAA is determined using the patient's B cells.
7. The use according to claim 6, wherein the presence of citrullinated epitope QKCitAA on the patient's B cells is determined by admixing the patient's B cells with the monoclonal antibody IF9, and measuring the specific binding between monoclonal antibody IF9 and the citrullinated epitope QKCitAA.

8. The use according to claim 7, wherein the presence of citrullinated epitope QKCitAA on the patient's B cells is determined using flow cytometry.
9. The use according to claim 1, wherein the antibody or a specific binding fragment thereof that specifically binds to citrullinated epitope QKCitAA, QRCitAA, or RRCitAA is to be administered intravenously, subcutaneously or intraperitoneally.
10. The use according to claim 1, wherein the patient is to be also administered an anti-inflammatory agent, a chemotherapeutic agent, a cytotoxic agent, a cytokine, a growth inhibitory agent, a small molecule enzyme inhibitor or receptor modulator or a combination thereof.
11. An antibody or a specific binding fragment thereof, that specifically binds to a human citrullinated epitope QKCitAA, QRCitAA, or RRCitAA present on a HLA-DR4 .
12. The antibody or a specific binding fragment thereof according to claim 11, that specifically binds to a human citrullinated epitope QKCitAA.
13. The antibody or a specific binding fragment thereof according to claim 11, selected from the group consisting of a monoclonal antibody, a polyclonal antibody, a chimeric antibody, a humanized antibody, and a wholly human antibody.
14. The antibody or a specific binding fragment thereof according to claim 13, wherein the antibody or a specific binding fragment thereof which specifically binds to a human citrullinated epitope QKCitAA designated as monoclonal antibody IF9, or an antigen binding fragment thereof.