

-continued

<212> TYPE: PRT
 <213> ORGANISM: Artificial Sequence
 <220> FEATURE:
 <223> OTHER INFORMATION: Description of Artificial Sequence: Synthetic peptide

<400> SEQUENCE: 95

Gly Gly Gly Gly Ser
 1 5

What is claimed is:

1. A method for treating damage caused by stroke in a mammalian subject comprising: administering to the mammalian subject who has suffered a stroke an immunomodulatory effective amount of a composition comprising a purified MHC class II polypeptide composition and a second active agent, wherein the MHC class II polypeptide composition comprises covalently linked first and second domains, wherein the first domain is a mammalian MHC class II β 1 domain and the second domain is a mammalian MHC class II α 1 domain, wherein the amino terminus of the second domain is covalently linked to the carboxy terminus of the first domain, and wherein the MHC class II molecule does not include an α 2 or a β 2 domain; and an antigenic determinant, wherein the antigenic determinant is MOG 35-55.

2. The method of claim 1, wherein the MHC class II polypeptide comprises the α 1 and β 1 domains of an HLA-DR protein.

3. The method of claim 1, wherein one or more hydrophobic residues selected from residues V6, I8, A10, F12, and L14 of the α 1 domain are substituted with a polar or charged residue, wherein residue V6 corresponds to position 4 of SEQ ID NO:86, residue I8 corresponds to position 6 of SEQ ID NO: 86, residue A10 corresponds to position 8 of SEQ ID NO: 86, residue F12 corresponds to position 10 of SEQ ID NO: 86, and residue L14 corresponds to position 12 of SEQ ID NO: 86.

4. The method of claim 3, wherein the one or more hydrophobic residues selected from residues V6, I8, A10, F12, and L14 of the α 1 domain are substituted with a serine or aspartate residue, wherein residue V6 corresponds to position 4 of SEQ ID NO:86, residue I8 corresponds to position 6 of SEQ ID NO: 86, residue A10 corresponds to position 8 of SEQ ID NO: 86, residue F12 corresponds to position 10 of SEQ ID NO: 86, and residue L14 corresponds to position 12 of SEQ ID NO: 86.

5. The method of claim 3, wherein each of the residues V6, I8, A10, F12, and L14 of the α 1 domain are substituted with a serine or aspartate residue, wherein residue V6 corresponds to position 4 of SEQ ID NO:86, residue I8 corresponds to position 6 of SEQ ID NO: 86, residue A10 corresponds to position 8 of SEQ ID NO: 86, residue F12 corresponds to position 10 of SEQ ID NO: 86, and residue L14 corresponds to position 12 of SEQ ID NO: 86.

6. The method of claim 5, wherein each of the residues V6, I8, A10, F12, and L14 of the α 1 domain are substituted with an aspartate residue, wherein residue V6 corresponds to

position 4 of SEQ ID NO:86, residue I8 corresponds to position 6 of SEQ ID NO: 86, residue A10 corresponds to position 8 of SEQ ID NO: 86, residue F12 corresponds to position 10 of SEQ ID NO: 86, and residue L14 corresponds to position 12 of SEQ ID NO: 86.

7. The method of claim 1, wherein the covalent linkage between the β 1 and α 1 domains of the MHC class II polypeptide is provided by a peptide linker.

8. The method of claim 1, wherein the antigenic determinant is covalently linked to the amino terminus of the first domain of the MHC class II polypeptide.

9. The method of claim 1, wherein the second active agent is an immunoglobulin, copolymer 1, a copolymer 1-related peptide, a blocking monoclonal antibody, transforming growth factor- β , an anti-TNF α antibody, an anti-coagulant, an anti-platelet medication, an angiotensin-converting enzyme (ACE) inhibitor, an angiotensin II receptor blocker (ARB), a beta-blocker, a diuretic, a calcium channel blocker, a steroidal agent, an anti-inflammatory agent, an immunosuppressive agent, an alkylating agent, an anti-metabolite, an antibiotic, a corticosteroid, glatiramer acetate, a recombinant β -interferon, a proteasome inhibitor, a clot dissolving medication, aspirin, interferon beta-1 α , interferon beta-1 β , mitoxantrone, a tissue plasminogen activator anti-inflammatory agent, a muscle relaxant, an anticholinergic, a tricyclic antidepressant, an anticonvulsant, a central nervous system stimulant, a selective serotonin reuptake inhibitor (SSRI), a non-steroidal anti-inflammatory agent, a neuroprotectant, a statin, or a diketopiperazine.

10. The method of claim 9, wherein the second active agent is a clot dissolving medication.

11. The method of claim 1, wherein the second active agent is tissue plasminogen activator (tPA).

12. The method of claim 1, wherein the second active agent is administered to the subject in a combinatorial formulation with the MHC class II polypeptide composition.

13. The method of claim 12, wherein the combinatorial formulation comprises a lower dose of the MHC class II polypeptide and/or of the second active agent to achieve a therapeutic response as compared to a formulation comprising either the MHC class II polypeptide or the second active agent alone.

14. The method of claim 1, wherein the second active agent is administered to the subject in a coordinate administration protocol, simultaneously with, prior to, or after administration of the MHC class II polypeptide composition.

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