

-continued

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65                70                75

<210> SEQ ID NO 25
<211> LENGTH: 73
<212> TYPE: PRT
<213> ORGANISM: Staphylococcus aureus

<400> SEQUENCE: 25

Val Leu Asp Asn Ser Leu Gly Ser Met Arg Ile Lys Asn Thr Asp Gly
1                5                10                15

Ser Ile Ser Leu Ile Ile Phe Pro Ser Pro Tyr Tyr Ser Pro Ala Phe
                20                25                30

Thr Lys Gly Glu Lys Val Asp Leu Asn Thr Lys Arg Thr Lys Lys Ser
                35                40                45

Gln His Thr Ser Glu Gly Thr Tyr Ile His Phe Gln Ile Ser Gly Val
                50                55                60

Thr Asn Thr Glu Lys Leu Pro Thr Pro
65                70

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What is claimed is:

1. An isolated and purified superantigen toxin DNA fragment encoding toxic shock syndrome toxin-1 (TSST-1) in which amino acid position 67 is aspartate, amino acid position 70 is arginine, and amino acid position 86 is isoleucine, wherein the amino acid position numbers are based on the numbering according to the toxic shock syndrome toxin-1 amino sequence in SEQ ID NO:12, which toxic shock syndrome toxin-1 has been altered such that binding of the encoded altered toxin to either the MHC class II or T cell antigen receptor is reduced, and the toxic shock syndrome toxin-1 is not toxic to mice at levels equivalent to 10 LD₅₀ of the native TSST-1.

2. An isolated and purified DNA fragment according to claim 1, wherein said superantigen toxin is toxic shock syndrome toxin-1 having the sequence of SEQ ID NO:11.

3. An isolated and purified DNA fragment according to claim 1, wherein said fragment encodes the amino acid sequence of SEQ ID NO:12.

4. A recombinant DNA construct comprising:

(i) a vector operably linked to

(ii) an isolated and purified altered superantigen toxin DNA fragment according to claim 1.

5. A recombinant DNA construct according to claim 4, wherein said DNA fragment has the sequence according to SEQ ID NO:11.

6. The recombinant DNA construct according to claim 4, wherein said DNA fragment encodes the amino acids sequence specified in SEQ ID NO:12.

7. A host cell transformed with a recombinant DNA construct according to claim 6.

8. A host cell according to claim 7, wherein said cell is prokaryotic.

9. A method for producing altered superantigen toxin comprising culturing the cells according to claim 7, under conditions such that said DNA fragment is expressed and said superantigen toxin is thereby produced, and isolating said superantigen toxin.

10. A recombinant DNA construct according to claim 4, wherein said vector is an expression vector.

11. A host cell transformed with a recombinant DNA construct according to claim 4.

12. A host cell according to claim 11, wherein said cell is prokaryotic.

13. A method for producing altered superantigen toxin comprising culturing the cells according to claim 11, under conditions such that said DNA fragment is expressed and said superantigen toxin is thereby produced, and isolating said superantigen toxin.

14. An isolated and purified superantigen toxin DNA fragment encoding toxic shock syndrome toxin-1 (TSST-1) in which amino acid position 67 is alanine, amino acid position 70 is arginine, and amino acid position 86 is alanine, wherein the amino acid position numbers are based on the numbering according to the toxic shock syndrome toxin-1 amino sequence in SEQ ID NO: 12, which toxic shock syndrome toxin-1 has been altered such that binding of the encoded altered toxin to either the MHC class II or T cell antigen receptor is reduced, and the toxic shock syndrome toxin-1 is not toxic to mice at levels equivalent to 10 LD₅₀ of the native TSST-1.

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