

CLAIMS

1. A Trypanosoma antigen, wherein the Trypanosoma antigen is SEQ ID NO: 6, SEQ ID NO: 9, SEQ ID NO: 5, SEQ ID NO: 7, SEQ ID NO: 8, SEQ ID NO: 11, SEQ ID NO: 1, SEQ ID NO: 2, SEQ ID NO: 3,
5 SEQ ID NO: 4, SEQ ID NO: 10 or SEQ ID NO: 12, or a peptide having 75% amino acid identity to SEQ ID NO: 6, SEQ ID NO: 9, SEQ ID NO: 5, SEQ ID NO: 7, SEQ ID NO: 8, SEQ ID NO: 11, SEQ ID NO: 1, SEQ ID NO: 2, SEQ ID NO: 3, SEQ ID NO: 4, SEQ ID NO: 10 or SEQ ID NO: 12, or a peptide having at least 7 contiguous amino acids from SEQ ID NO: 6, SEQ ID NO: 9, SEQ ID NO: 5, SEQ ID NO: 7, SEQ ID NO: 8, SEQ ID NO: 11, SEQ ID NO: 1, SEQ ID NO: 2, SEQ ID NO: 3, SEQ ID NO: 4, SEQ ID NO: 10 or SEQ ID NO: 12.
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2. The Trypanosoma antigen according to Claim 1, wherein the peptide has 75% amino acid identity SEQ ID NO: 6, SEQ ID NO: 9, SEQ ID NO: 5, SEQ ID NO: 7, SEQ ID NO: 8, SEQ ID NO: 11, SEQ ID NO: 1, SEQ ID NO: 2, SEQ ID NO: 3, SEQ ID NO: 4, SEQ ID NO: 10 or SEQ ID NO: 12 and
15 comprises at least 1 contiguous amino acid deletion, addition, and/or substitution relative to SEQ ID NO: 6, SEQ ID NO: 9, SEQ ID NO: 5, SEQ ID NO: 7, SEQ ID NO: 8, SEQ ID NO: 11, SEQ ID NO: 1, SEQ ID NO: 2, SEQ ID NO: 3, SEQ ID NO: 4, SEQ ID NO: 10 or SEQ ID NO: 12.
3. The Trypanosoma antigen according to Claim 1, wherein the peptide has 75% amino acid identity SEQ ID NO: 6, SEQ ID NO: 9, SEQ ID NO: 5, SEQ ID NO: 7, SEQ ID NO: 8, SEQ ID NO: 11, SEQ ID NO: 1, SEQ ID NO: 2, SEQ ID NO: 3, SEQ ID NO: 4, SEQ ID NO: 10 or SEQ ID NO: 12 and
20 comprises at least 1 non-contiguous amino acid deletion, addition, and/or substitution relative to SEQ ID NO: 6, SEQ ID NO: 9, SEQ ID NO: 5, SEQ ID NO: 7, SEQ ID NO: 8, SEQ ID NO: 11, SEQ ID NO: 1, SEQ ID NO: 2, SEQ ID NO: 3, SEQ ID NO: 4, SEQ ID NO: 10 or SEQ ID NO: 12.
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4. The Trypanosoma antigen according to Claim 1, wherein the peptide has 75% amino acid identity SEQ ID NO: 6, SEQ ID NO: 9, SEQ ID NO: 5, SEQ ID NO: 7, SEQ ID NO: 8, SEQ ID NO: 11, SEQ ID NO: 1, SEQ ID NO: 2, SEQ ID NO: 3, SEQ ID NO: 4, SEQ ID NO: 10 or SEQ ID NO: 12 and
30 comprises at most 11 contiguous amino acid deletion, addition, and/or substitution relative to SEQ ID NO: 6, SEQ ID NO: 9, SEQ ID NO: 5, SEQ ID NO: 7, SEQ ID NO: 8, SEQ ID NO: 11, SEQ ID NO: 1, SEQ ID NO: 2, SEQ ID NO: 3, SEQ ID NO: 4, SEQ ID NO: 10 or SEQ ID NO: 12.
5. The Trypanosoma antigen according to Claim 1, wherein the peptide has 75% amino acid identity SEQ ID NO: 6, SEQ ID NO: 9, SEQ ID NO: 5, SEQ ID NO: 7, SEQ ID NO: 8, SEQ ID NO: 11, SEQ ID NO: 1, SEQ ID NO: 2, SEQ ID NO: 3, SEQ ID NO: 4, SEQ ID NO: 10 or SEQ ID NO: 12 and
35 comprises at most 11 non-contiguous amino acid deletion, addition, and/or substitution relative to SEQ ID NO: 6, SEQ ID NO: 9, SEQ ID NO: 5, SEQ ID NO: 7, SEQ ID NO: 8, SEQ ID NO: 11, SEQ ID NO: 1, SEQ ID NO: 2, SEQ ID NO: 3, SEQ ID NO: 4, SEQ ID NO: 10 or SEQ ID NO: 12.
- 40 6. An immunogenic composition comprising one or more Trypanosoma antigens as defined in any one of Claims 1-5.

7. The immunogenic composition according to Claim 6, wherein the one or more Trypanosoma antigens comprise SEQ ID NO: 6.
- 5 8. The immunogenic composition according to Claim 6 or Claim 7, wherein the one or more Trypanosoma antigens comprise SEQ ID NO: 9.
9. The immunogenic composition according to any one of Claims 6-8, wherein the one or more Trypanosoma antigens comprises SEQ ID NO: 5.
- 10 10. The immunogenic composition according to Claim 6, wherein the one or more Trypanosoma antigens comprise SEQ ID NO: 5 and SEQ ID NO: 9.
11. The immunogenic composition according to Claim 6, wherein the one or more Trypanosoma antigens
15 comprise SEQ ID NO: 5, SEQ ID NO: 6 and SEQ ID NO: 9.
12. The immunogenic composition according to any one of Claims 6-11, wherein the one or more Trypanosoma antigens comprise SEQ ID NO: 7, SEQ ID NO: 8 and SEQ ID NO: 11.
- 20 13. The immunogenic composition according to Claim 6 or Claim 7, wherein the one or more Trypanosoma antigens comprise SEQ ID NO: 2, SEQ ID NO: 7, SEQ ID NO: 8, SEQ ID NO: 9 and SEQ ID NO: 11.
14. The immunogenic composition according to Claim 6 or Claim 7, wherein the one or more
25 Trypanosoma antigens comprise SEQ ID NO: 2, SEQ ID NO: 5, SEQ ID NO: 7, SEQ ID NO: 8, SEQ ID NO: 9 and SEQ ID NO: 11.
15. The immunogenic composition according to Claim 6, wherein the one or more Trypanosoma antigens comprise SEQ ID NO: 2, SEQ ID NO: 5, SEQ ID NO: 6, SEQ ID NO: 7, SEQ ID NO: 8, SEQ ID NO: 9
30 and SEQ ID NO: 11.
16. The immunogenic composition according to any one of Claims 6-15, wherein the one or more Trypanosoma antigens are each present in an amount of between about 1 mg to about 1,000 mg.
- 35 17. The immunogenic composition according to any one of Claims 6-16, wherein the immunogenic composition further comprises one or more adjuvants.
18. The immunogenic composition according to Claim 17, wherein the one or more adjuvants are each present in an amount of between about 100 µg/mL to about 1,500 µg/mL.

19. The immunogenic composition according to any one of Claims 6-18, further comprising one or more pharmaceutical acceptable carriers.
20. A method of treating a Trypanosoma-based disease, the method comprising the step of administering
5 to an individual in need thereof an immunogenic composition as defined in any one of Claims 6-18 in an amount sufficient to reduce one or more physiological conditions or symptom associated with a Trypanosoma infection or pathology, thereby treating the Trypanosoma-based disease.
21. The method according to Claim 20, wherein the administration of the immunogenic composition is in
10 an amount sufficient to increase, induce, enhance, augment, promote or stimulate Trypanosoma clearance or removal, or decrease, reduce, inhibit, suppress, prevent, control, or limit transmission of Trypanosoma to another individual.
22. The method according to Claim 20 or Claim 21, wherein the administration of the immunogenic
15 composition is in an amount sufficient to reduce, decrease, suppress, limit, control or inhibit Trypanosoma pathogen numbers or titer; reduce, decrease, suppress, limit, control or inhibit Trypanosoma pathogen proliferation or replication; reduce, decrease, suppress, limit, control or inhibit the amount of a Trypanosoma protein synthesized; or reduce, decrease, suppress, limit, control or inhibit the amount of a Trypanosoma pathogen nucleic acid replicated.
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23. The method according to any one of Claims 20-22, wherein the administration of the immunogenic composition reduces one or more physiological conditions or symptom associated with a Trypanosoma infection or pathology by at least 10%.
24. The method according to any one of Claims 20-23, wherein the administration of the immunogenic
25 composition reduces one or more physiological conditions or symptom associated with a Trypanosoma infection or pathology by at least one week.
25. The method according to any one of Claims 20-24, wherein the Trypanosoma-based disease is a
30 Chagas disease or an African sleeping sickness.
26. Use of an α -Trypanosoma antigen as defined in any one of Claims 1-5 or immunogenic composition as defined in any one of Claims 6-18 to treat a Trypanosoma-based disease.
27. A method of treating a Trypanosoma-based disease, the method comprising the step of administering
35 to an individual in need thereof a Trypanosoma antigen as defined in any one of Claims 1-5 or an immunogenic composition as defined in any one of Claims 6-19 in an amount sufficient to immunize or vaccinate the individual against the Trypanosoma infection or pathology, thereby treating the Trypanosoma-based disease.
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28. A method of treating a Trypanosoma-based disease comprises administering to an individual in need thereof a Trypanosoma antigen as defined in any one of Claims 1-5 or an immunogenic composition as defined in any one of Claims 6-19 in an amount sufficient to protect the individual against a Trypanosoma infection or pathology.
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29. The method according to Claim 27 or Claim 28, wherein the administration of the Trypanosoma antigen or the immunogenic composition is in an amount sufficient to increase, induce, enhance, augment, promote or stimulate an immune response against a Trypanosoma.
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30. The method according to any one of Claims 27-29, wherein the administration of the Trypanosoma antigen or the immunogenic composition is in an amount sufficient to immunize or vaccinate the individual against the Trypanosoma infection or pathology.
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31. The method according to any one of Claims 27-30, wherein the administration of the Trypanosoma antigen or the immunogenic composition is in an amount sufficient to reduce, decrease, limit, control or inhibit susceptibility to a Trypanosoma infection or pathology.
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32. The method according to any one of Claims 27-31, wherein the administration of the Trypanosoma antigen or the immunogenic composition is in an amount sufficient to increase, induce, enhance, augment, promote or stimulate Trypanosoma clearance or removal, or decrease, reduce, inhibit, suppress, prevent, control, or limit transmission of Trypanosoma to another individual.
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33. The method according to any one of Claims 27-32, wherein the Trypanosoma-based disease is a Chagas disease or an African sleeping sickness.
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34. Use of a Trypanosoma antigen as defined in any one of Claims 1-5 for the manufacture of a medicament.
35. Use of an immunogenic composition as defined in any one of Claims 6-18 for the manufacture of a medicament.
36. The use according to any one of Claims 34 or 35, wherein the Trypanosoma-based disease is a Chagas disease or an African sleeping sickness.