WHAT IS CLAIMED IS:

1. A method of enhancing a subject's immune response to a vaccine or inducing an immune response in a non-responding subject, comprising administering to the subject concurrently or sequentially the vaccine and an adjuvant in immunoprotective amounts, wherein the adjuvant is a population of isolated allogeneic human mesenchymal stem cells.

2. The method of claim 1, wherein the subject is a human.

3. The method of claim 1, wherein the subject is a non-human animal.

4. The method of claim 3, wherein the non-human animal is a dog.

5. The method of claim 2, wherein the human subject exhibits symptoms of aging frailty.

6. The method of claim 2 or 5, wherein the human subject exhibits inflammaging.

7. The method of any one of claims 1-6, wherein the mesenchymal stem cells are bone marrow-derived mesenchymal stem cells.

8. The method of any one of claims 1-7, wherein the mesenchymal stem cells do not express STRO-1.

9. The method of any one of claims 1-8, wherein the mesenchymal stem cells do not express CD45.

10. The method of any one of claims 1-9, wherein the mesenchymal stem cells do not express fibroblast surface markers or have a fibroblast morphology.

11. The method of any one of claims 1-10, wherein the mesenchymal stem cells are not genetically manipulated.

12. The method of any one of claims 1-11, wherein the vaccine is monovalent.

13. The method of any one of claims 1-11, wherein the vaccine is multivalent.

14. The method of any one of claims 1-13, wherein the vaccine comprises one or more inactivated viruses.

15. The method of claim 14, wherein the one or more inactivated viruses are selected from the group consisting of adenoviruses, picornaviruses, papillomaviruses, polyomaviruses, hepadnaviruses, parvoviruses, pox viruses, Epstein-Barr virus, cytomegalovirus (CMV), herpes viruses, roseolovirus, varicella zoster virus, filoviruses, paramyxoviruses, orthomyxoviruses, rhabdoviruses, arenaviruses, coronaviruses, human enteroviruses, hepatitis A virus, human rhinoviruses, polio virus, retroviruses, rotaviruses, flaviviruses, hepaciviruses, togaviruses, and rubella virus.

16. The method of claim 14 or 15, wherein the vaccine comprises an inactivated orthomyxovirus.

17. The method of claim 16, wherein the vaccine comprises an inactivated influenza virus.

18. The method of any one of claims 1-13, wherein the vaccine comprises one or more live, attenuated viruses.

19. The method of claim 18, wherein the one or more attenuated viruses are selected from the group consisting of adenoviruses, picornaviruses, papillomaviruses, polyomaviruses, hepadnaviruses, parvoviruses, pox viruses, Epstein-Barr virus, cytomegalovirus (CMV), herpes viruses, roseolovirus, varicella zoster virus, filoviruses, paramyxoviruses, orthomyxoviruses, rhabdoviruses, arenaviruses, coronaviruses, human enteroviruses, hepatitis A virus, human rhinoviruses, polio virus, retroviruses, rotaviruses, flaviviruses, hepaciviruses, togaviruses, and rubella virus.

20. The method of any one of claims 1-131, wherein the vaccine comprises one or more antigenic polypeptides selected from the group consisting of influenza hemagglutinin 1 (HA1), hemagglutinin 2 (HA2), influenza neuraminidase (NA), Lassa virus (LASV) glycoprotein 1 (gp1), LASV glycoprotein 2 (gp2), LASV nucleocapsid-associated protein (NP), LASV L protein, LASV Z protein, SARS virus S protein, Ebola virus GP2, measles virus fusion 1 (F1) protein, HIV-1 transmembrane (TM) protein, HIV-1 glycoprotein 41 (gp41), HIV-1 glycoprotein 120 (gp120), hepatitis C virus (HCV) envelope glycoprotein 1 (E1), HCV envelope glycoprotein 2 (E2), HCV nucleocapsid protein (p22), West Nile virus (WNV) envelope glycoprotein (E), Japanese encephalitis virus (JEV) envelope glycoprotein (E), yellow fever virus (YFV) envelope glycoprotein (E), tick-borne encephalitis virus (TBEV) envelope glycoprotein (E), hepatitis G virus (HGV) envelope glycoprotein 1 (E1), respiratory syncytial virus (RSV) fusion (F) protein, herpes simplex virus1 (HSV-1) gD protein, HSV-1 gG protein, HSV-2 gD protein, HSV-2 gG protein, hepatitis B virus (HBV) core protein, Epstein-Barr virus (EBV) glycoprotein 125 (gp125), bacterial outer membrane protein assembly factor BamA, bacterial translocation assembly module protein TamA, bacterial polypeptide-transport associated protein domain protein, bacterial surface antigen D15, anthrax protective protein, anthrax lethal factor, anthrax edema factor, *Salmonella typhii* S1Da, *Salmonella typhii* S1Db, cholera toxin, cholera heat shock protein, *Clostridium botulinum* antigen *S, botulinum* toxin, *Yersinia pestis* F1, *Yersinia pestis* V antigen, *Yersinia pestis* YopH, *Yersinia pestis* YopM, *Yersinia pestis* YopD, *Yersinia pestis* plasminogen

activation factor (Pla), *Plasmodium* circumsporozoite protein (CSP), *Plasmodium* sporozoite surface protein (SSP2/TRAP), *Plasmodium* liver stage antigen 1 (LSAT), *Plasmodium* exported protein 1 (EXP 1), *Plasmodium* erythrocyte binding antigen 175 (EBA-175), *Plasmodium* cysteine-rich protective antigen (cyRPA), *Plasmodium* heat shock protein 70 (hsp70), *Schistosoma* Sm29, and *Schistosoma* signal transduction protein 14-3-3.

21. The method of any one of claims 1-20, wherein the adjuvant is administered before the vaccine.

22. The method of claim 21, wherein the adjuvant is administered at least 1 week before the vaccine is administered.

23. The method of claim 21, wherein the adjuvant is administered at least 2 weeks before the vaccine is administered.

24. The method of claim 21, wherein the adjuvant is administered at least 3 weeks before the vaccine is administered.

25. The method of claim 21, wherein the adjuvant is administered at least 4 weeks before the vaccine is administered.

26. The method of any one of claims 1-25, wherein the adjuvant is administered at least yearly for long-term enhancement of vaccine response.

27. The method of any one of claims 1-26, wherein the adjuvant is administered systemically.

28. The method of any one of claims 1-27, wherein the adjuvant is administered by infusion or direct injection.

29. The method of any one of claims 1-28, wherein the adjuvant is administered intravenously, intraarterially, or intraperitoneally.

30. The method of claim 29, wherein the adjuvant is administered intravenously.

31. The method of any one of claims 1-30, wherein the vaccine is administered intramuscularly, intravenously, intraarterially, intraperitoneally, subcutaneously, intradermally, orally, or intranasally.

32. The method of claim 31, wherein the vaccine is administered intramuscularly.

33. The method of any one of claims 1-32, wherein the adjuvant is administered at a dose of about $20x10^6$ mesenchymal stem cells.

34. The method of any one of claims 1-32, wherein the adjuvant is administered at a dose of about $100x10^6$ mesenchymal stem cells.

35. The method of any one of claims 1-32, wherein the adjuvant is administered at a dose of about $200x10^6$ mesenchymal stem cells.

36. The method of any one of claims 1-35, wherein the mesenchymal stem cells are obtained from a human donor and wherein a step of MHC matching of the human donor to the subject is not employed prior to the administration of the vaccine and adjuvant to the subject.

37. A kit having at least two containers, comprising a vaccine in a first container and an adjuvant in a second container, wherein the adjuvant is a population of isolated allogeneic human mesenchymal stem cells.

38. The kit of claim 37, wherein the mesenchymal stem cells are cryopreserved.

39. The kit of claim 37 or 38, further comprising dilution buffer in a third container.

40. The kit of any one of claims 37-39, wherein the mesenchymal stem cells are bone marrow-derived mesenchymal stem cells.

41. The kit of any one of claims 37-40, wherein the mesenchymal stem cells do not express STRO-1.

42. The kit of any one of claims 37-41, wherein the mesenchymal stem cells do not express CD45.

43. The kit of any one of claims 37-42, wherein the mesenchymal stem cells do not express fibroblast surface markers or have a fibroblast morphology.

44. The kit of any one of claims 37-43, wherein the mesenchymal stem cells are not genetically manipulated.

45. The kit of any one of claims 37-44, wherein the vaccine is monovalent.

46. The kit of any one of claims 37-44, wherein the vaccine is multivalent.

47. The kit of any one of claims 37-46, wherein the vaccine comprises one or more inactivated viruses.

48. The kit of claim 47, wherein the one or more inactivated viruses are selected from the group consisting of adenoviruses, picornaviruses, papillomaviruses, polyomaviruses, hepadnaviruses, parvoviruses, pox viruses, Epstein-Barr virus, cytomegalovirus (CMV), herpes viruses, roseolovirus, varicella zoster virus, filoviruses, paramyxoviruses, orthomyxoviruses, rhabdoviruses, arenaviruses, coronaviruses, human enteroviruses, hepatitis A virus, human rhinoviruses, polio virus, retroviruses, rotaviruses, flaviviruses, hepaciviruses, togaviruses, and rubella virus.

49. The kit of claim 47 or 48, wherein the vaccine comprises an inactivated orthomyxovirus.

50. The kit of claim 49, wherein the vaccine comprises an inactivated influenza virus.

51. The kit of any one of claims 37-46, wherein the vaccine comprises one or more live, attenuated viruses.

52. The kit of claim 51, wherein the one or more attenuated viruses are selected from the group consisting of adenoviruses, picornaviruses, papillomaviruses, polyomaviruses, hepadnaviruses, parvoviruses, pox viruses, Epstein-Barr virus, cytomegalovirus (CMV), herpes viruses, roseolovirus, varicella zoster virus, filoviruses, paramyxoviruses, orthomyxoviruses, rhabdoviruses, arenaviruses, coronaviruses, human enteroviruses, hepatitis A virus, human rhinoviruses, polio virus, retroviruses, rotaviruses, flaviviruses, hepaciviruses, togaviruses, and rubella virus.

53. The kit of any one of claims 37-46, wherein the vaccine comprises one or more antigenic polypeptides selected from the group consisting of influenza hemagglutinin 1 (HA1), hemagglutinin 2 (HA2), influenza neuraminidase (NA), Lassa virus (LASV) glycoprotein 1 (gp1), LASV glycoprotein 2 (gp2), LASV nucleocapsid-associated protein (NP), LASV L protein, LASV Z protein, SARS virus S protein, Ebola virus GP2, measles virus fusion 1 (F1) protein, HIV-1 transmembrane (TM) protein, HIV-1 glycoprotein 41 (gp41), HIV-1 glycoprotein 120 (gp120), hepatitis C virus (HCV) envelope glycoprotein 1 (E1), HCV envelope glycoprotein 2 (E2), HCV nucleocapsid protein (p22), West Nile virus (WNV) envelope glycoprotein (E), Japanese encephalitis virus (JEV) envelope glycoprotein (E), yellow fever virus (YFV) envelope glycoprotein (E), tick-borne encephalitis virus (TBEV) envelope glycoprotein (E), hepatitis G virus (HGV) envelope glycoprotein 1 (E1), respiratory syncytial virus (RSV) fusion (F) protein, herpes simplex virus1 (HSV-1) gD protein, HSV-1 gG protein, HSV-2 gD protein, HSV-2 gG protein, hepatitis B virus (HBV) core protein, Epstein-Barr virus (EBV) glycoprotein 125 (gp125), bacterial outer membrane protein assembly factor BamA, bacterial translocation assembly module protein TamA, bacterial polypeptide-transport associated protein domain protein, bacterial surface antigen D15, anthrax protective protein, anthrax lethal factor, anthrax edema factor, *Salmonella typhii* S1Da, *Salmonella typhii* S1Db, cholera toxin, cholera heat shock protein, *Clostridium botulinum* antigen *S, botulinum* toxin, *Yersinia pestis* F1, *Yersinia pestis* V antigen, *Yersinia pestis* YopH, *Yersinia pestis* YopM, *Yersinia pestis* YopD, *Yersinia pestis* plasminogen activation factor (Pla), *Plasmodium* circumsporozoite protein (CSP), *Plasmodium* sporozoite

surface protein (SSP2/TRAP), *Plasmodium* liver stage antigen 1 (LSAT), *Plasmodium* exported protein 1 (EXP 1), *Plasmodium* erythrocyte binding antigen 175 (EBA-175), *Plasmodium* cysteine-rich protective antigen (cyRPA), *Plasmodium* heat shock protein 70 (hsp70), *Schistosoma* Sm29, and *Schistosoma* signal transduction protein 14-3-3.

54. The method of any one of claims 1-36, further comprising repeating administration of the vaccine and the adjuvant at least six months after the first administration of the vaccine.

55. A method of inducing an immune response in a subject comprising administering to the subject concurrently or sequentially a vaccine and an adjuvant in immunoprotective amounts, wherein the adjuvant is a population of isolated allogeneic human mesenchymal stem cells, and further wherein the intracellular TNF-α expression in B cells of the subject decreases by at least two-fold as compared to the TNF-α expression levels in B cells of the subject prior to administration of the adjuvant.

56. A method of inducing an immune response in a subject comprising administering to the subject concurrently or sequentially a vaccine and an adjuvant in immunoprotective amounts, wherein the adjuvant is a population of isolated allogeneic human mesenchymal stem cells, and further wherein the $CD4^+$:$CD8^+$ T cell ratio in the subject increases by at least two-fold as compared to the $CD4^+$:$CD8^+$ T cell ratio in the subject prior to administration of the adjuvant.

57. A method of inducing an immune response in a subject comprising administering to the subject concurrently or sequentially a vaccine and an adjuvant in immuoprotective amounts, wherein the adjuvant is a population of isolated allogeneic human mesenchymal stem cells, and further, wherein the number of switched memory B cells in the subject increases by at least two-fold as compared to the number of switched memory B cells in the subject prior to administration of the adjuvant.

58. A method of inducing an immune response in a subject comprising administering to the subject concurrently or sequentially a vaccine and an adjuvant in immuoprotective amounts, wherein the adjuvant is a population of isolated allogeneic human mesenchymal stem cells, and further wherein the number of exhausted B cells in the subject decreases by at least two-fold as compared to the number of exhausted B cells in the subject prior to administration of the adjuvant.