WHAT IS CLAIMED IS:

1. Use of a composition comprising a vaccine and an immunoprotective amount of a population of isolated allogeneic human mesenchymal stem cells in the manufacture of a medicament for enhancing a human subject's immune response to the vaccine or inducing an immune response in a non-responding human subject.

2. The use of claim 1, wherein the human subject exhibits symptoms of aging frailty.

3. The use of claim 1 or 2, wherein the human subject exhibits inflammaging.

4. The use of claim 1, wherein the mesenchymal stem cells do not express STRO-1.

5. The use of claim 1, wherein the mesenchymal stem cells do not express CD45.

6. The use of claim 1, wherein the mesenchymal stem cells do not express fibroblast surface markers or have a fibroblast morphology.

7. The use of claim 1, wherein the mesenchymal stem cells are not genetically manipulated.

8. The use of claim 1, wherein the vaccine is multivalent.

9. The use of claim 1, wherein the vaccine comprises one or more inactivated viruses.

10. The use of claim 9, 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.

11. The use of claim 9, wherein the vaccine comprises an inactivated orthomyxovirus.

12. The use of claim 11, wherein the vaccine comprises an inactivated influenza virus.

13. The use of claim 1, wherein the vaccine comprises one or more live, attenuated viruses.

14. The use of claim 13, 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.

15. The use of claim 1, wherein the adjuvant is to be administered before the vaccine.

16. The use of claim 15, wherein the adjuvant is to be administered at least 1 week before the vaccine is administered.

17. The use of claim 15, wherein the adjuvant is to be administered at least 2 weeks before the vaccine is administered.

18. The use of claim 15, wherein the adjuvant is to be administered at least 3 weeks before the vaccine is administered.

19. The use of claim 15, wherein the adjuvant is to be administered at least 4 weeks before the vaccine is administered.

20. The use of claim 1, wherein the adjuvant is to be administered at least yearly for long-term enhancement of vaccine response.

21. The use of claim 1, wherein the adjuvant is to be administered at a dose of about $20x10^6$ mesenchymal stem cells.

22. The use of claim 1, wherein the adjuvant is to be administered at a dose of about $100x10^6$ mesenchymal stem cells.

23. The use of claim 1, wherein the adjuvant is to be administered at a dose of about $200x10^6$ mesenchymal stem cells.

24. The use of claim 1, 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.

25. The use of claim 1, further comprising repeating administration of the vaccine and the adjuvant at least six months after the first administration of the vaccine.

26. The use of claim 1, wherein the intracellular TNF-α expression in B cells of the human subject decreases by at least two-fold as compared to the TNF-α expression levels in B cells of the human subject prior to administration of the adjuvant.

27. The use of claim 1, wherein the $CD4^+$:$CD8^+$ T cell ratio in the human subject increases by at least two-fold as compared to the $CD4^+$:$CD8^+$ T cell ratio in the human subject prior to administration of the adjuvant.

28. The use of claim 1, wherein the number of switched memory B cells in the human subject increases by at least two-fold as compared to the number of switched memory B cells in the human subject prior to administration of the adjuvant.

29. The use of claim 1, wherein the number of exhausted B cells in the human subject decreases by at least two-fold as compared to the number of exhausted B cells in the human subject prior to administration of the adjuvant.

30. Use of a composition comprising a vaccine and an immunoprotective amount of a population of isolated allogeneic mesenchymal stem cells in the manufacture of a medicament for enhancing a dog's immune response to the vaccine or inducing an immune response in a non-responding dog.