CLAIMS

1. A recombinant altered DNA polymerase comprising an amino acid sequence that is at least 80% identical to the 9°N DNA polymerase amino acid sequence comprising SEQ ID NO:1, wherein the DNA polymerase comprises at least one amino acid substitution mutation at a position functionally equivalent to Ala281, Phe283, Thr349, or Trp397 in the 9°N DNA polymerase amino acid sequence.

2. The polymerase of claim 1, wherein the substitution mutation at the position functionally equivalent to Ala281 comprises a mutation to a non-polar, hydrophobic, or uncharged amino acid.

3. The polymerase of claim 2, wherein the substitution mutation at the position functionally equivalent to Ala281 comprises a mutation to Gly or Phe.

4. The polymerase of claim 1, wherein the substitution mutation at the position functionally equivalent to Phe283 comprises a mutation to a polar or uncharged amino acid.

5. The polymerase of claim 4, wherein the substitution mutation at the position functionally equivalent to Phe283 comprises a mutation to Ser.

6. The polymerase of claim 1, wherein the substitution mutation at the position functionally equivalent to Thr349 comprises a mutation to a polar or uncharged amino acid.

7. The polymerase of claim 6, wherein the substitution mutation at the position functionally equivalent to Thr349 comprises a mutation to Ser or Asn.

8. The polymerase of claim 1, wherein the substitution mutation at the position functionally equivalent to Thr349 comprises a mutation to a charged amino acid.

9. The polymerase of claim 8, wherein the substitution mutation at the position functionally equivalent to Thr349 comprises a mutation to Lys.

10. The polymerase of claim 1, wherein the substitution mutation at the position functionally equivalent to Trp397 comprises a mutation to a polar or uncharged amino acid.

11. The polymerase of claim 10, wherein the substitution mutation at the position functionally equivalent to Trp397 comprises a mutation to Cys.

12. The polymerase of claim 1, wherein the substitution mutation at the position functionally equivalent to Trp397 comprises a mutation to a non-polar or hydrophobic amino acid.

13. The polymerase of claim 10, wherein the substitution mutation at the position functionally equivalent to Trp397 comprises a mutation to Phe.

14. The polymerase of claim 1, wherein the polymerase comprises at least two, at least three, or four amino acid substitution mutations at positions functionally equivalent to an amino acid selected from A281, F283, Thr349, or Trp397 in the 9°N DNA polymerase amino acid sequence.

15. The polymerase of claim 1, wherein the polymerase comprises the substitution mutation at the position functionally equivalent to Thr349, and further comprises amino acid substitution mutations at positions functionally equivalent to amino acids Met129, Asp141, Glu143, Cys223, Leu408, Tyr409, Pro410, Ala485, Tyr497, Arg247, Glu599, and His633 in the 9°N DNA polymerase amino acid sequence.

16. The polymerase of claim 15, wherein the substitution mutation at the position functionally equivalent to Thr349 comprises a mutation to a charged amino acid.

17. The polymerase of claim 16, wherein the substitution mutation at the position functionally equivalent to Thr349 comprises a mutation to Lys.

18. The polymerase of claim 15, wherein the substitution mutation at the position functionally equivalent to Met129 comprises a mutation to Ala.

19. The polymerase of claim 15, wherein the substitution mutation at the position functionally equivalent to Asp141 comprises a mutation to Ala.

20. The polymerase of claim 15, wherein the substitution mutation at the position functionally equivalent to Glu143 comprises a mutation to Ala.

21. The polymerase of claim 15, wherein the substitution mutation at the position functionally equivalent to Cys223 comprises a mutation to Ser.

22. The polymerase of claim 15, wherein the substitution mutation at the position functionally equivalent to Leu408 comprises a mutation to Ala.

23. The polymerase of claim 15, wherein the substitution mutation at the position functionally equivalent to Tyr409 comprises a mutation to Ala.

24. The polymerase of claim 15, wherein the substitution mutation at the position functionally equivalent to Pro410 comprises a mutation to Ile.

25. The polymerase of claim 15, wherein the substitution mutation at the position functionally equivalent to Ala485 comprises a mutation to Val.

26. The polymerase of claim 15, wherein the substitution mutation at the position functionally equivalent to Tyr497 comprises a mutation to Gly.

27. The polymerase of claim 15, wherein the substitution mutation at the position functionally equivalent to Arg247 comprises a mutation to Tyr.

28. The polymerase of claim 15, wherein the substitution mutation at the position functionally equivalent to Glu599 comprises a mutation to Asp.

29. The polymerase of claim 15, wherein the substitution mutation at the position functionally equivalent to His633 comprises a mutation to Gly.

30. A DNA polymerase comprising the amino acid sequence of any one of SEQ ID NOs:9-17.