CLAIMS

1. An isolated DNA polymerase comprising the amino acid sequence of SEQ ID NO:1 or comprising an amino acid sequence which is at least 90% identical to SEQ ID NO:1, wherein said DNA polymerase exhibits at least 60% of its maximum polymerase activity across the temperature range from 20°C to 35°C.

2. The isolated DNA polymerase according to claim 1, wherein said DNA polymerase comprises an amino acid sequence that is at least 95% identical to SEQ ID NO:1.

3. The isolated DNA polymerase according to claim 1 or claim 2, wherein said DNA polymerase comprises the amino acid sequence of SEQ ID NO:1.

~~4. The isolated DNA polymerase according to any one of claims 1 to 3, wherein said DNA polymerase exhibits at least 30% of its maximum polymerase activity across the temperature range from 0°C to 35°C.~~

~~5~~4. The isolated DNA polymerase according to any one of claims 1 to ~~4~~3, wherein at a temperature that deviates by up to 10°C from the temperature at which said DNA polymerase exhibits maximum activity, said DNA polymerase exhibits at least 30% of its maximum polymerase activity.

~~6. The isolated DNA polymerase according to any one of claims 1 to 5, wherein said DNA polymerase exhibits at least 40% of its maximum activity after incubation for 15 minutes of said DNA polymerase at any temperature across the temperature range from 0°C to 40°C prior to assessing DNA polymerase activity.~~

~~7. The isolated DNA polymerase according to any one of claims 1 to 6, wherein said DNA polymerase exhibits at least 60% of its maximum activity after incubation for 15 minutes of said DNA polymerase at any temperature across the temperature range from 0°C to 37°C prior to assessing DNA polymerase activity.~~

~~8~~5. The isolated DNA polymerase according to any one of claims 1 to ~~7~~4, wherein said DNA polymerase has a melting temperature of 42ºC-45ºC in the pH range 6.0 to 8.5.

~~9~~6. The isolated DNA polymerase according to any one of claims 1 to ~~8~~5, wherein said DNA polymerase has a higher polymerase activity than the *E.coli* Klenow fragment DNA polymerase, the *Geobacillus stearothermophilus* DNA polymerase and/or DNA polymerase from *Aliivibrio Salmonicida*, wherein said DNA polymerase activity is as assessed at about 25ºC.

~~10~~7. The isolated DNA polymerase according to any one of claims 1 to ~~9~~6, wherein said DNA polymerase has at least 50% higher strand displacement activity than the *E.coli* Klenow fragment DNA polymerase, the *Geobacillus stearothermophilus* DNA polymerase and/or the DNA polymerase from *Aliivibrio Salmonicida*~~.~~, wherein said DNA polymerase activity is as assessed at about 25ºC.

~~11~~8. The isolated DNA polymerase according to any one of claims 1 to ~~10~~7, wherein said DNA polymerase has higher processivity than the *Bacillus subtilis* DNA polymerase~~.~~, wherein said DNA polymerase activity is as assessed at about 25ºC.

~~12~~9. The isolated DNA polymerase according to any one of claims 1 to ~~11~~8, wherein across a concentration range from 0mM to 210mM NaCl, said DNA polymerase exhibits at least 30% of its maximum polymerase activity.

~~13~~10. A composition comprising a DNA polymerase according to any one of claims 1 to ~~12~~9 and a buffer.

~~14~~11. A nucleic acid molecule comprising a nucleotide sequence that encodes a DNA polymerase according to any one of claims 1 to ~~12~~9.

~~15~~12. The nucleic acid molecule according to claim ~~14~~11, wherein said nucleic acid molecule comprises the nucleotide sequence as set forth in SEQ ID NO:2, or comprises a nucleotide sequence that has at least 70% sequence identity to SEQ ID NO:2.

~~16~~13. An expression vector containing a nucleic acid molecule according to claim 11~~14~~ or claim ~~15~~12 and the necessary regulatory sequences for the transcription and translation of the protein sequence encoded by said nucleic acid molecule.

~~17~~14. A host cell comprising one or more expression vectors according to claim ~~16~~13 or one or more nucleic acid molecules according to claim ~~14~~11 or claim ~~15~~12.

~~18~~15. A method of producing a DNA polymerase according to any one of claims 1 to ~~12~~9 comprising the steps of:

(i) culturing, in a growth medium, a host cell comprising one or more of the ~~recombinant~~ expression vectors according to claim ~~16~~13 or one or more of the nucleic acid molecules according to claim ~~14~~11 or claim ~~15~~12 under conditions suitable for the expression of the encoded DNA polymerase; and

(ii) isolating or obtaining the DNA polymerase from the host cell or from the growth medium or a supernatant obtained therefrom.

~~19~~16. Use of a DNA polymerase according to any one of claims 1 to ~~12~~9 for nucleotide polymerisation.

~~20~~17. Use of a DNA polymerase according to any one of claims 1 to ~~12~~9 in a nucleic acid amplification or sequencing reaction.

~~21~~18. The use of claim ~~19~~16 or claim ~~20~~17, wherein said DNA polymerase is used at a constant temperature.

~~22~~19. The use of claim ~~20~~17, wherein said reaction is an isothermal nucleic acid amplification reaction.

~~23~~20. A method of nucleotide polymerisation using a DNA polymerase thereof according to any one of claims 1 to ~~12~~9, said method comprising the steps of:

(i) providing a reaction mixture comprising a DNA polymerase according to any one of claims 1 to ~~12~~9, a template nucleic acid molecule, an oligonucleotide primer which is capable of annealing to a portion of the template nucleic acid molecule and one or more species of nucleotide; and

(ii) incubating said reaction mixture under conditions whereby the oligonucleotide primer anneals to the template nucleic acid molecule and said DNA polymerase extends said oligonucleotide primer by polymerising one or more nucleotides.

~~24~~21. A method of amplifying a nucleic acid using a DNA polymerase thereof according to any one of claims 1 to ~~12~~9, said method comprising the steps of:

(i) providing a reaction mixture comprising a DNA polymerase thereof according to any one of claims 1 to ~~12~~9, a template nucleic acid molecule, an oligonucleotide primer(s) which is capable of annealing to a portion of the template nucleic acid molecule ~~acid molecule,~~ and nucleotides;

(ii) incubating said reaction mixture under conditions whereby the oligonucleotide primer(s) anneals to the template nucleic acid molecule and said DNA polymerase extends said oligonucleotide primer(s) by polymerising one or more nucleotides to generate a polynucleotide.

~~25~~22. The method of claim ~~23~~20 or claim ~~24~~21, wherein said method is performed at a constant temperature.

~~26~~23. The use of claim ~~21~~18 or the method of claim ~~25~~22, wherein said constant temperature is 0ºC to 42ºC.

~~27~~24. The use of claim ~~26~~23 or the method of ~~26~~23, wherein said constant temperature is 10ºC to 25ºC.