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(71) Applicant: AGENCY FOR SCIENCE, TECHNOLOGY AND RESEARCH [SG/SG]; 1 Fusionopolis Way, #20-10, Connexis North, Singapore, Singapore 138632 (SG).

(72) Inventors: ANG, Ee Lui; c/o Singapore Institute of Food and Biotechnology Innovation (SIFBI), 31 Biopolis Way, #04-01, Nanos, Singapore 138669 (SG). WEI, Yifeng; c/o Singapore Institute of Food and Biotechnology Innovation (SIFBI), 31 Biopolis Way, #04-01, Nanos, Singapore 138669 (SG). LAW, Yee Song; c/o Singapore Institute of Food and Biotechnology Innovation (SIFBI), 31 Biopolis Way, Level 2, Nanos, Singapore 138669 (SG). MUTHALIFF, Nazreen Binti V M Abdul; c/o Singapore Institute of Food and Biotechnology Innovation (SIFBI), 31 Biopolis Way, #04-01, Nanos, Singapore 138669 (SG). ZHAO, Huimin; c/o Singapore Institute of Food and Biotechnology Innovation (SIFBI), 31 Biopolis Way, Level 2, Nanos, Singapore 138669 (SG).

(74) Agent: DAVIES COLLISON CAVE ASIA PTE. LTD.; 10 Collyer Quay, #07-01 Ocean Financial Centre, Singapore 049315 (SG).

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(54) Title: X FAMILY DNA POLYMERASES AND USES THEREOF

(57) Abstract: Disclosed herein is an engineered variant of a *Ramazzottius varieornatus* X family DNA polymerase (RvPolIX) with enhanced salt-tolerant template-independent DNA polymerase activity, comprising at least one amino acid substitution corresponding to positions 281, 513, and/or 522 as set forth in SEQ ID NO: 1. The amino acid substitution at the position corresponding to position 281 may be a substitution to A, F, I, L, V, or Y. The amino acid substitution at the position corresponding to position 513 may be a substitution to A or C. The amino acid substitution at the position corresponding to position 522 may be a substitution to I, M, or V. Also disclosed are methods of nucleic acid synthesis using said DNA polymerase.



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