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(71) **Applicant: NATIONAL UNIVERSITY OF SINGAPORE** [SG/SG]; 21 Lower Kent Ridge Road, Singapore 119077 (SG).

(72) **Inventors: DAO, Viet Linh;** c/o National University of Singapore, Faculty of Engineering / Department of Biomedical Engineering, 21 Lower Kent Ridge Road, Singapore 119077 (SG). **NGO, Jie Kai Russell;** c/o National University of Singapore, Faculty of Engineering / Department of Biomedical Engineering, 21 Lower Kent Ridge Road, Singapore 119077 (SG). **POH, Chueh Loo;** c/o National University of Singapore, Faculty of Engineering / Department

of Biomedical Engineering, 21 Lower Kent Ridge Road, Singapore 119077 (SG).

(74) **Agent: SPRUSON & FERGUSON (ASIA) PTE LTD;** P.O. Box 1531, Robinson Road Post Office, Singapore 903031 (SG).

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(54) **Title: A DNA ASSEMBLY MIX AND METHOD OF USES THEREOF**

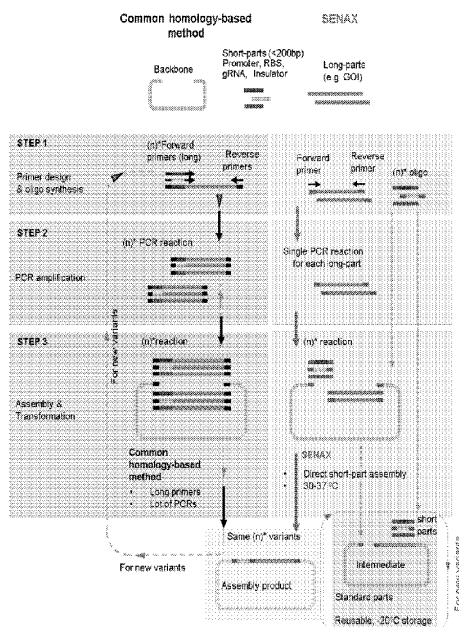


Fig. 5

(57) **Abstract:** Disclosed is a DNA assembly mix, comprising a 3'-5' exonuclease enzyme which is XthA; and a buffer. Also disclosed is a DNA assembly mix, comprising a polymerase and ligase free composition comprising a 3'-5' exonuclease enzyme; and a buffer. Also disclosed is a method of assembling a plurality of DNA fragments, comprising: (a) mixing the plurality of DNA fragments with the DNA assembly mix as disclosed herein; and (b) incubating the mixture from step (a) at a temperature for a period of time suitable for assembling the plurality of DNA fragments. Further disclosed is use of the DNA assembly mix as disclosed herein in high-throughput DNA assembly, wherein the DNA assembly mix is used in a microfluidic platform to assemble DNA.

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