



USING OXFORD NANOPORE MINION SEQUENCER FOR HEPATIT (B, C) VIRUSES SEQUENCING AND USE EPI2ME LABS FOR DATA ANALYSIS

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Introduction

Next-generation high-throughput DNA sequencing techniques are opening up exciting opportunities in the life sciences. New fields and applications in biology and medicine are becoming a reality beyond the original development goal and application of genomic sequencing [1]. Nanopore sequencing is the only sequencing technology that offers real-time analysis (for rapid insights), in fully scalable formats, can analyse native DNA or RNA, and sequence any length of fragment to achieve short to ultra-long read lengths [2]. Applications under EPI2ME allow users to perform a variety of analyses, including demultiplexing, adapter trimming, and alignment to reference genomes [2].

Goal and tasks

The development of next-generation sequencing (NGS), also referred to as "massive parallel sequencing," allows millions of different DNA sequences to be sequenced in a single run. Studying convenience aspects of oxford nanopore's MinION sequencer to make NGS more convenient and EPI2ME labs program of the company to analyze data.

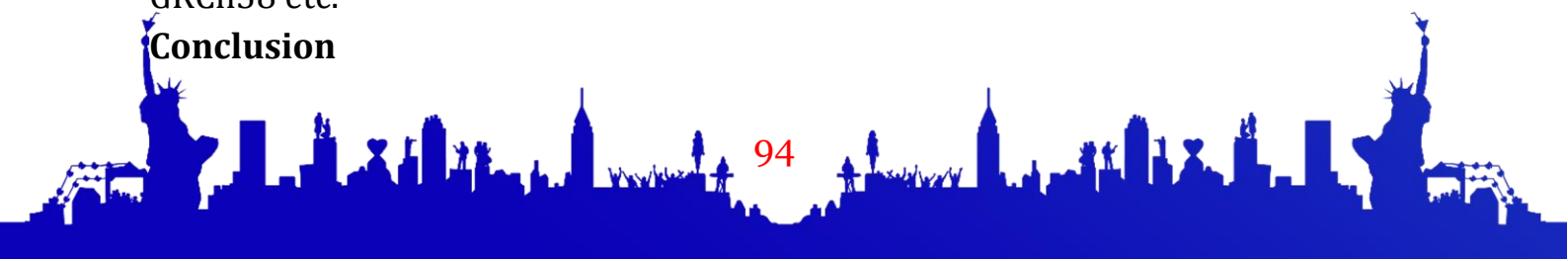
Material and methods

oxford nanopore MinION mk 1b sequencer, oxford nanopore EPI2ME labs program

Results

The MinION sequencer is much more convenient than other sequencer for DNA/RNA sequencing in terms of its real-time operation, lower cost, and shorter sequencing time. But there is a slight margin of error. But Oxford's EPI2ME program works well to overcome such errors. This program has a wide range of options for assessing sequence accuracy, Fastq 16S, Fastq WIMP (Human + Viral), Fastq Control Experiment, Fastq Custom Alignment, Fastq Human Alignment GRCh38 etc.

Conclusion





The development of hepatitis sequencing technology has provided access to basic molecular information and revealed genomic and transcriptomic signatures. The Nanopore MinION sequencer and EPI2Me labs software can take this evolution to the next level. The conducted research showed that the nanopore MinION sequencer is very convenient for hepatitis viruses sequencing due to its compact structure, less time required and more affordable. In addition, the EPI2ME program, developed by the company itself, is very convenient for working without including a series of data for data analysis.

References:

1. Next-generation DNA sequencing techniques
<https://www.sciencedirect.com/science/article/abs/pii/S1871678409000089#:~:text=Next%2Dgeneration%20high%2Dthroughput%20DNA,original%20development%20goal%20and%20application.>
2. <https://nanoporetech.com/platform/technology/advantages-of-nanopore-sequencing>

