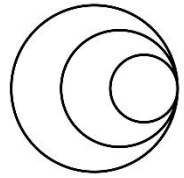


wellcome
connecting
science

An Introduction to Minion Sequencing

What the session will include:

What is a minION?

A live demonstration of a MinION Protocol

A chance to do some pipetting for the protocol

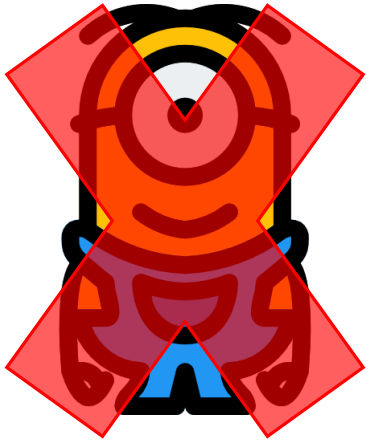
Transferrable skills in the laboratory

Hands on experience with MinION flowcells

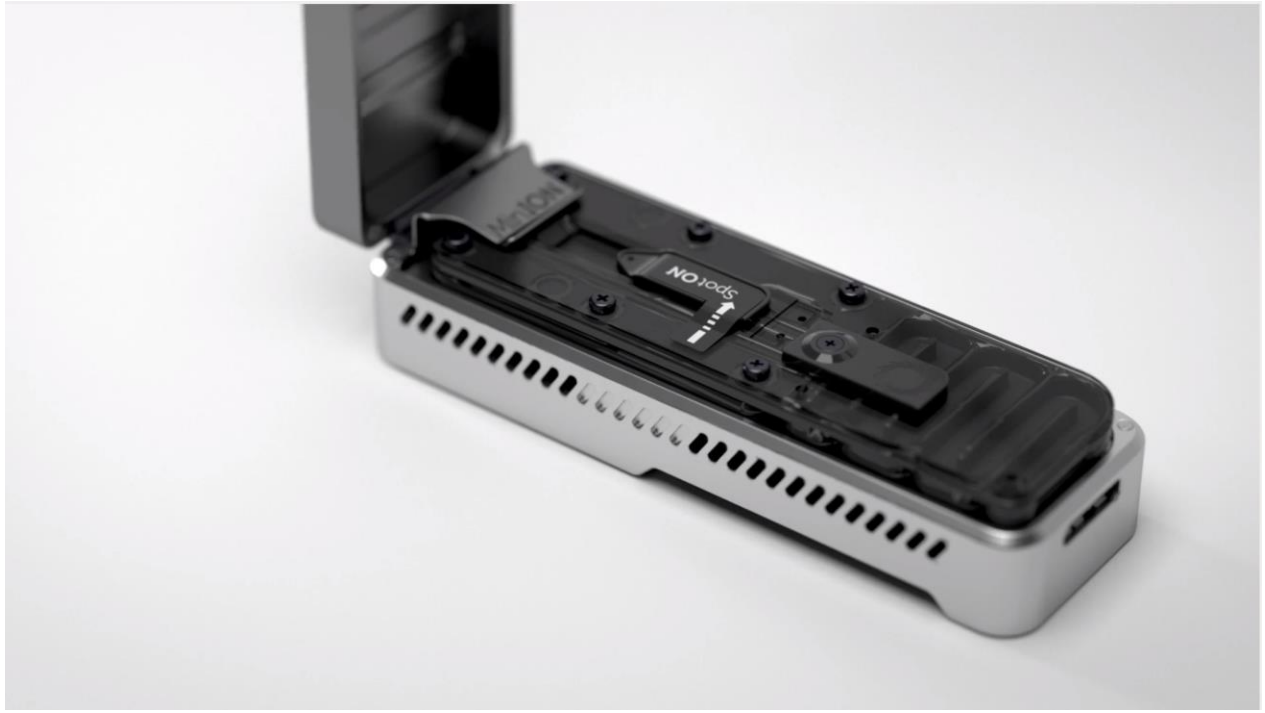
Loading practice of old flowcells using water

What is a MinION?

- A MinION is a powerful, portable sequencing device that delivers access to gigabases of long read data
- It works by monitoring changes to an electrical current as nucleic acids are passed through a protein nanopore. The resulting signal is decoded to provide the specific DNA or RNA sequence.
- Connects to laptop with a USB cable, uses a software called MinKNOW



Video



https://nanoporetech.com/applications/dna-nanopore-sequencing#:~:text=Nanopore%20sequencing%20is%20a%20unique,specific%20DNA%20or%20RNA%20sequence.

Quiz Question – Where hasn't a Minion been used to sequence DNA?

- A Laboratory
- The Emirates Stadium
- Rural Thailand
- Space
- The Antarctic

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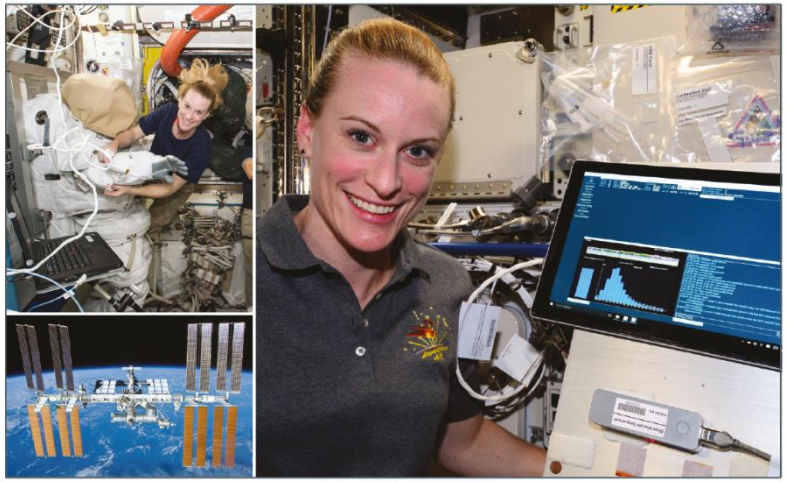


Fig. 1 Astronaut Kate Rubins on the ISS

Answer: Trick question – They've been used at all of them!

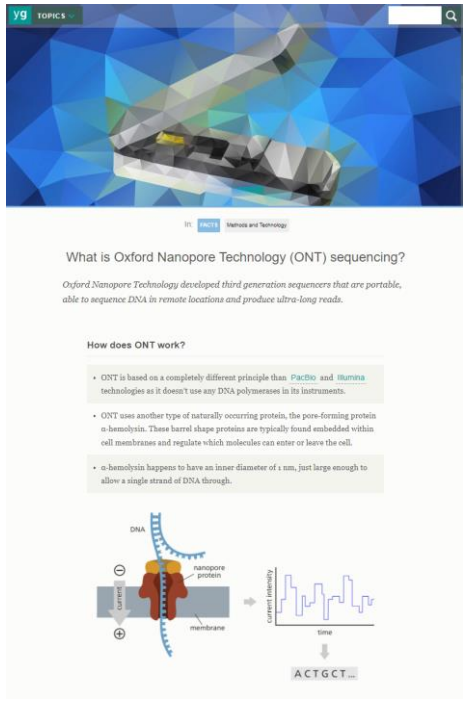
Advantages of Nanopore Sequencing

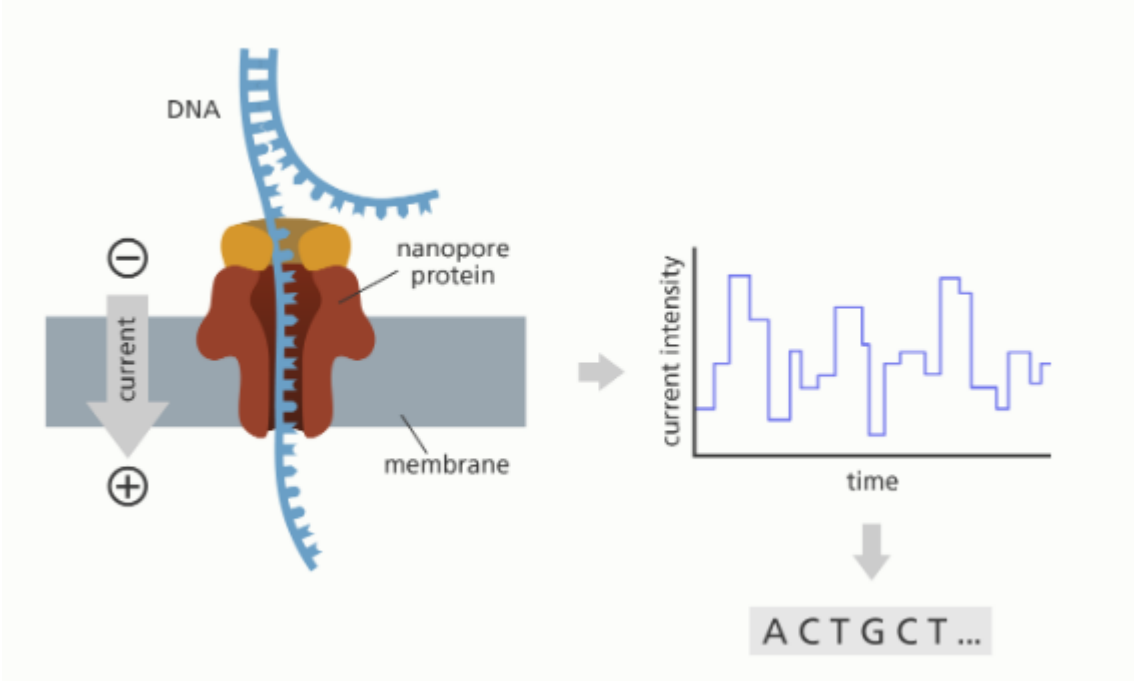
- Portability
- Fast library preparation
- Scalability eg. GridION & PromethION
- Ultra – Long read lengths
- Direct molecular analysis

Disadvantages of Nanopore Sequencing

- Expensive
- Can only use ONT sequencers and kits
- Accuracy of ~90%, compared to ~99% of the illumine short read sequences

Further reading





https://www.yourgenome.org/facts/what-is-oxford-nanopore-technology-ont-sequencing/