NGS methods

Long Reads

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IRD

Oxford Nanopore

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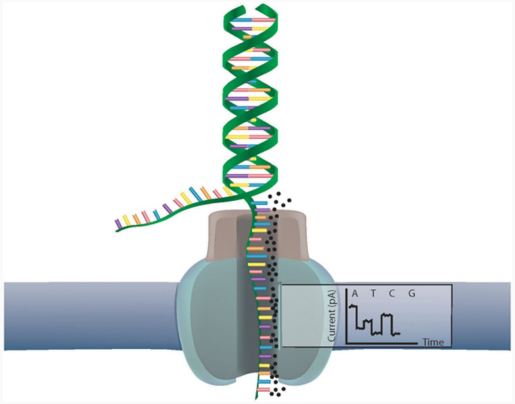

From Circulation Research

- No Amplification
- NO SYNTHESIS
- Very Long Length

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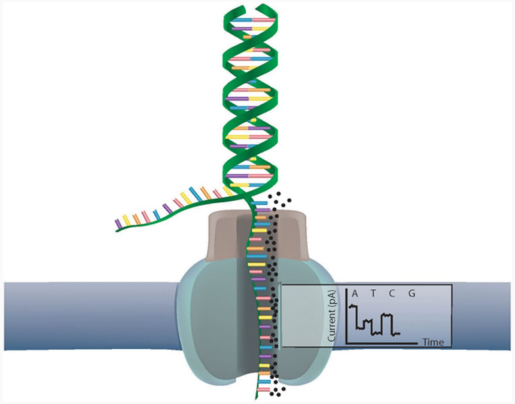

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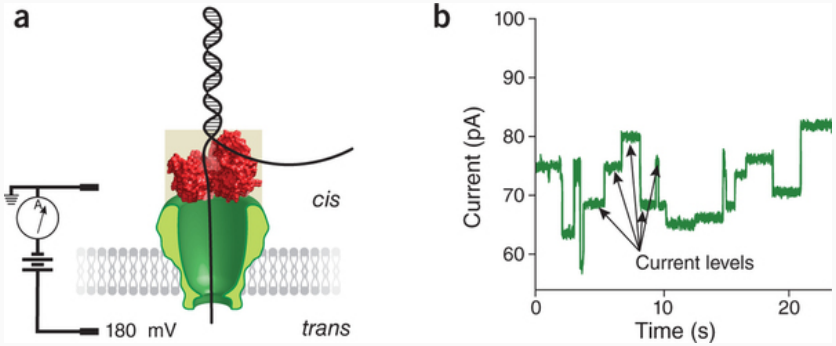
- Magnetic fields variation measure
- *Minion*: USB key - sized
- Raw signal in Fast5, basecalled in Fastq



From Nature Biotechnology

ONT - Advantages and Limits

Advantages :

- Length (mean 10-50kb, more than 2Mb reported)
- Bases Modification detection in real-time
- Native RNA!
- Single strand direct sequencing
- Machine cheap (1,000 USD for Minion)
- Run cheap (1,000 USD for 30Gb by now minimum)
- Fast: 15mn library, 48-72h run

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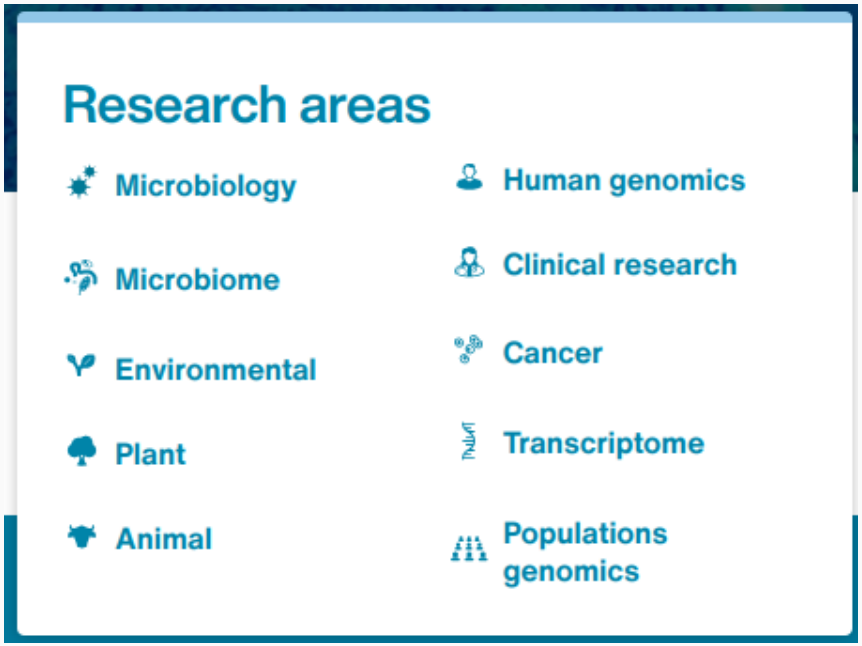
Limits :

- Error Rate (3-8%, can be corrected, 1-2% in tests)
- Quality of DNA/RNA limits the sequencing
- Heu...

What you can do with it ?



From Nanopore website

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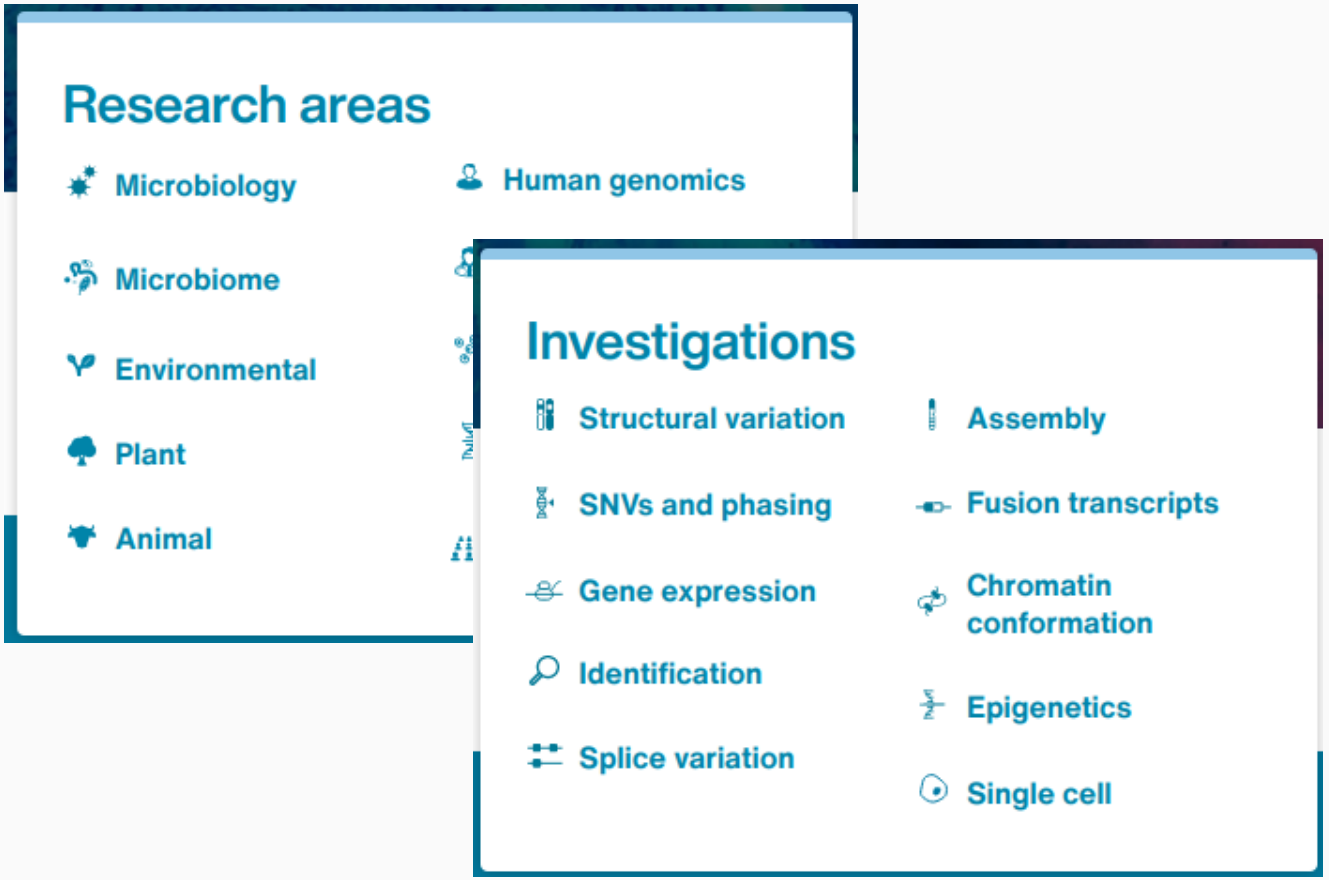

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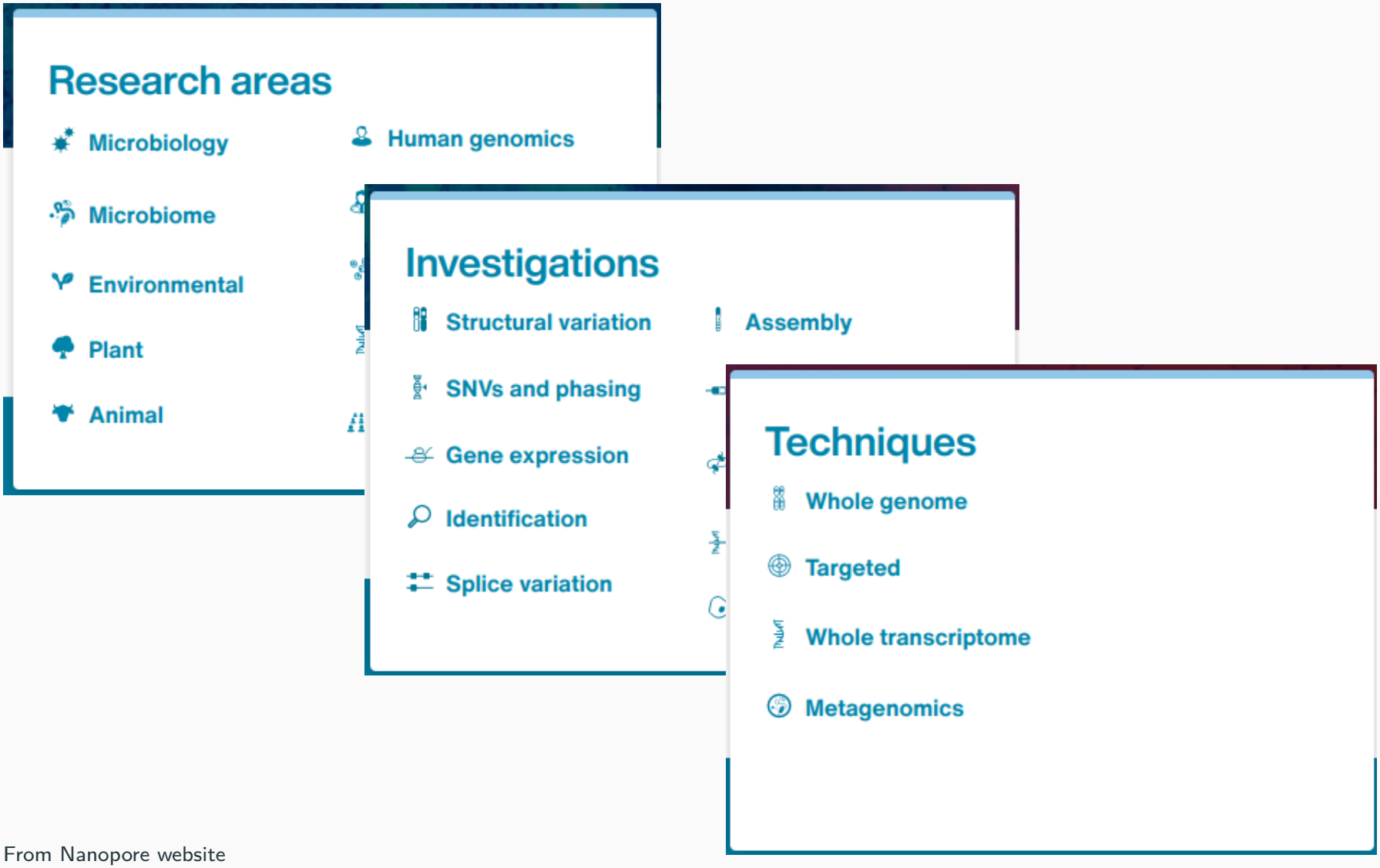

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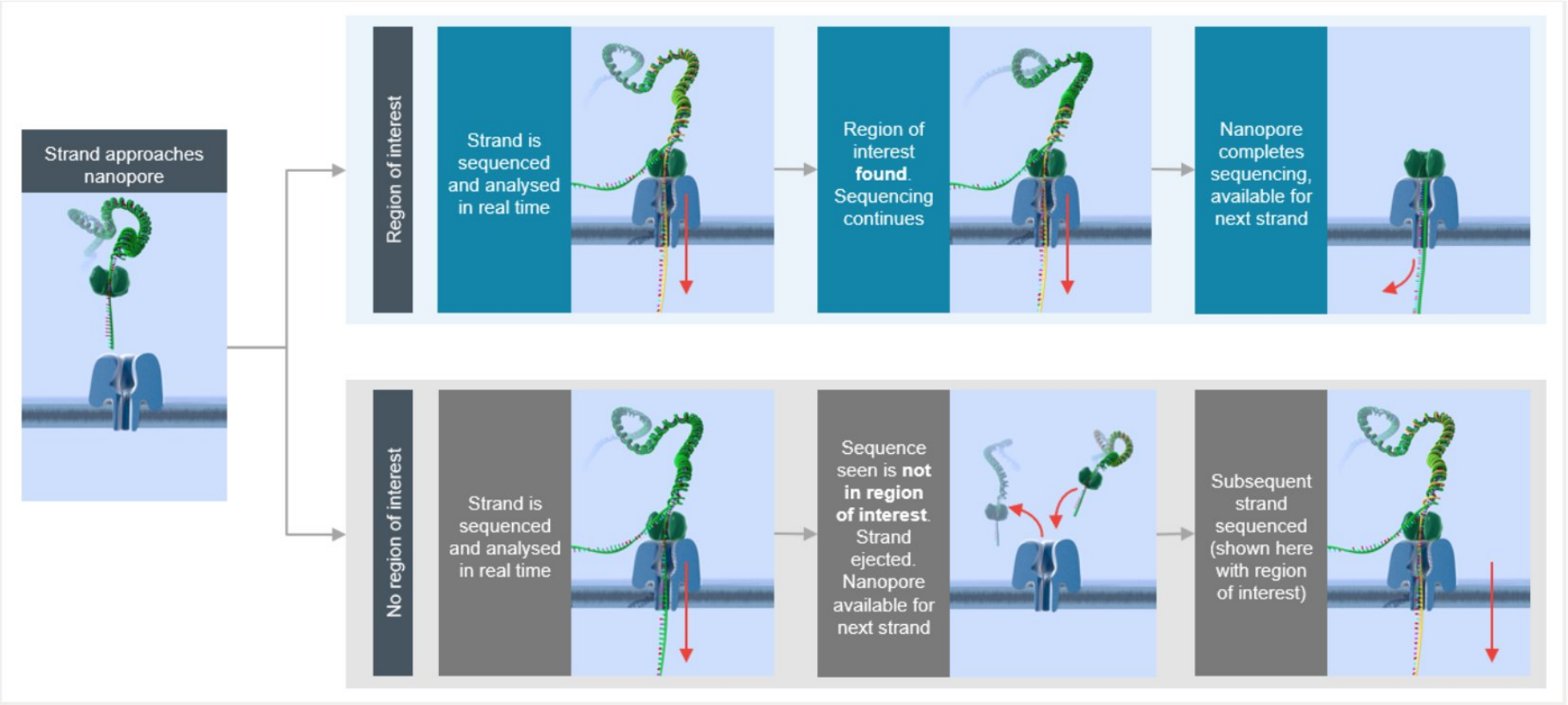
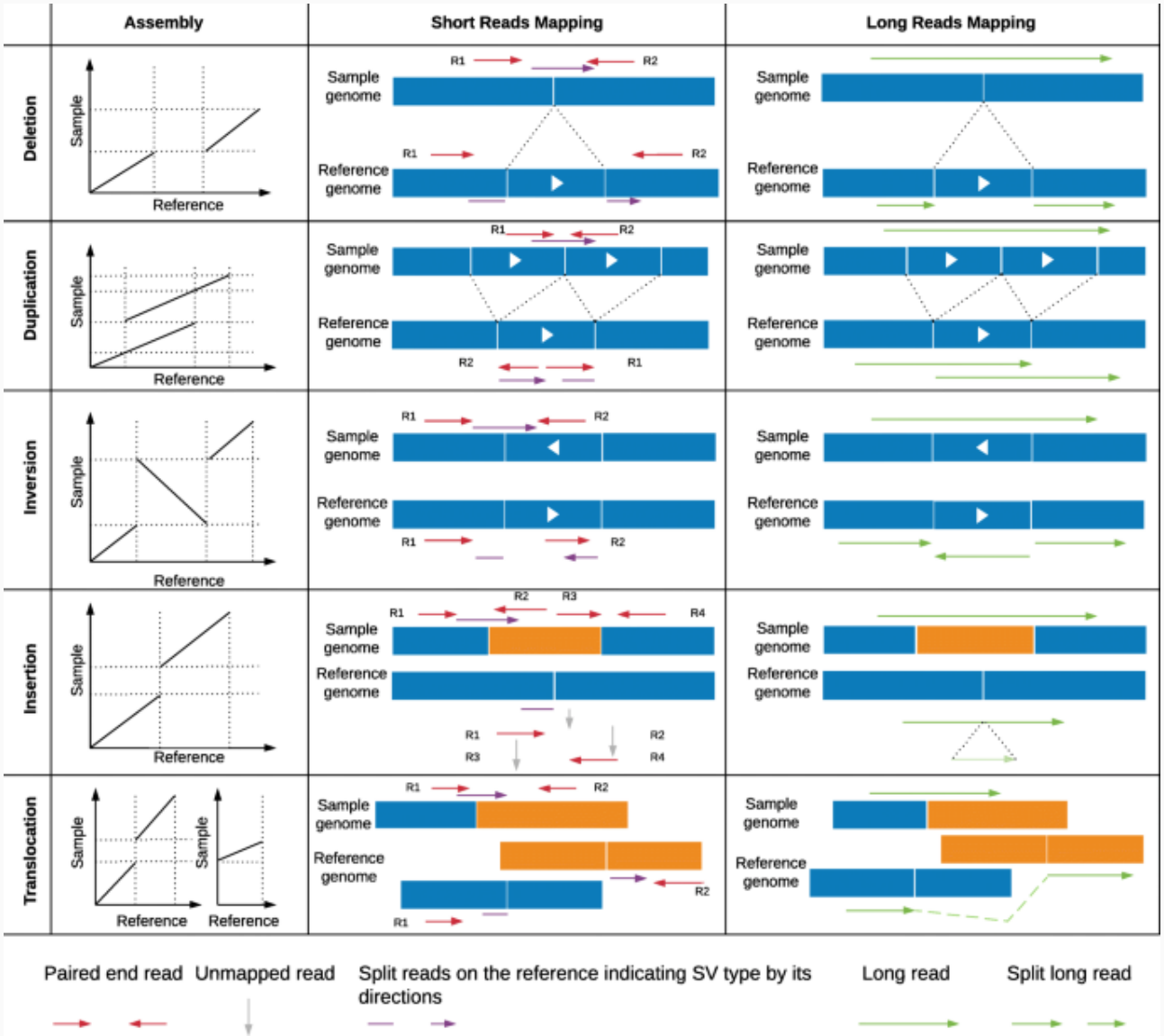
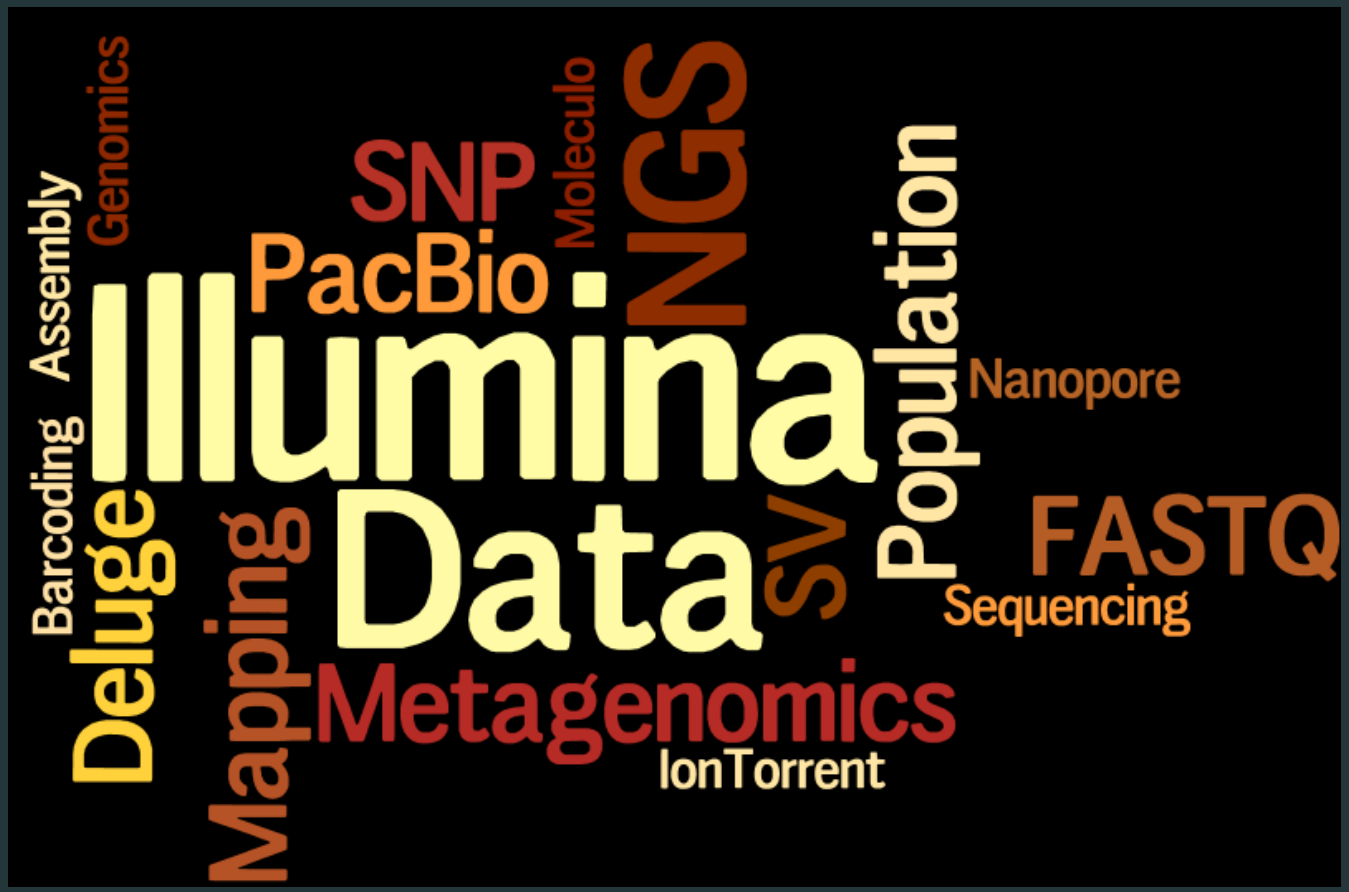


From Nanopore website

Structural Variant Detection



From Mahmoud et al, 2019

Thanks for your attention