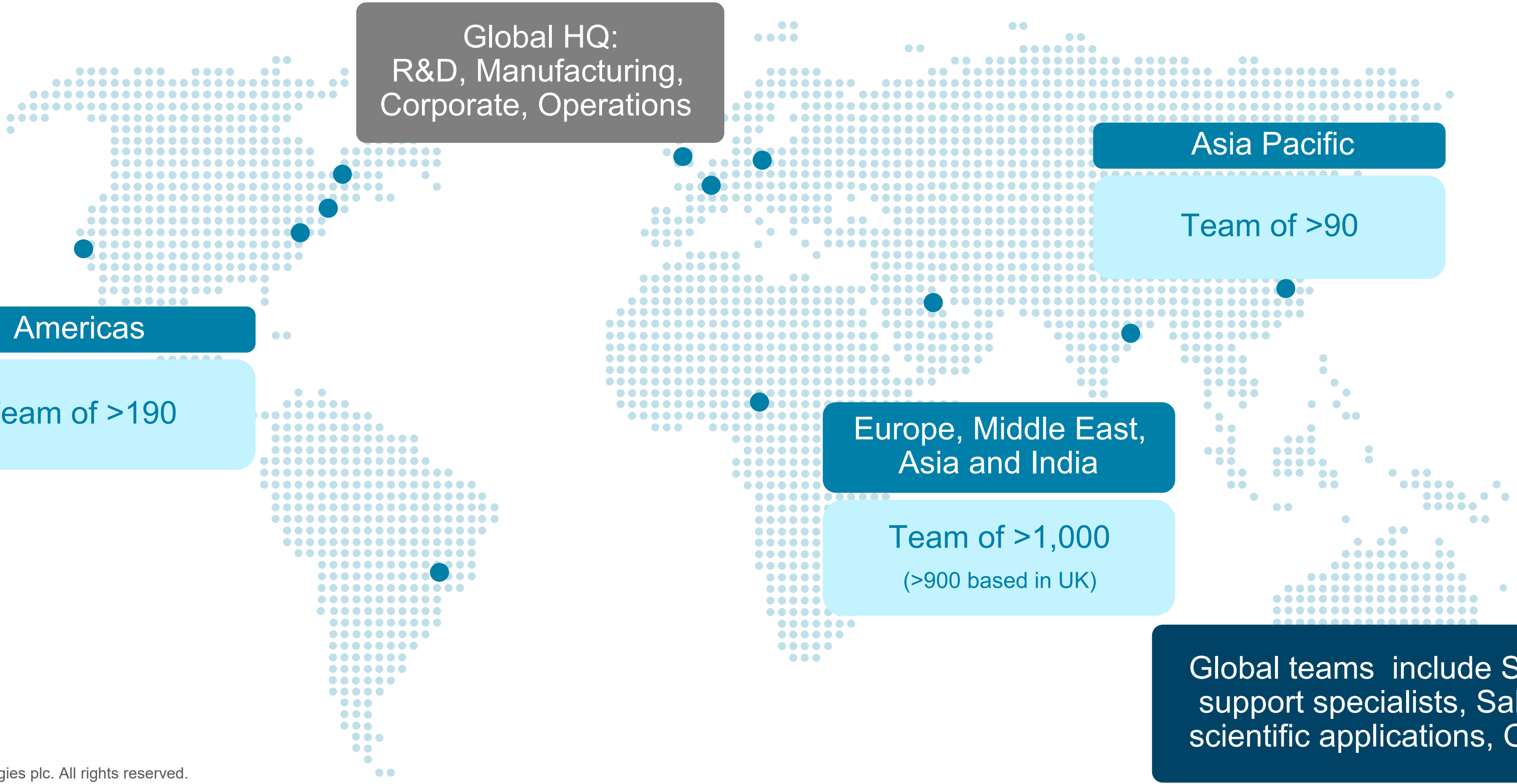
Oxford
Nanopore
Technologies

GENERATE ULTRA-RICH DATA FOR ANSWERS WITH IMPACT

Jonghwa Ahn, Ph.D
Senior Field Applications Scientist
Oxford Nanopore Technologies

A UK-headquartered company with an international footprint



UK

Global HQ:
R&D, Manufacturing,
Corporate, Operations

Asia Pacific

Team of >90

Americas

Team of >190

Europe, Middle East, Asia and India

Team of >1,000

(>900 based in UK)

Global teams include Service and support specialists, Sales teams, scientific applications, Operations

Nanopore sequencing: An end-to-end platform

Comprehensive solutions for library preparation, sequencing and data analysis

Platform technology: Flexibility and control at every stage

Prepare

- ✓ Output optimised
- ✓ Speed optimised
- ✓ Manual & Automated

Sequence

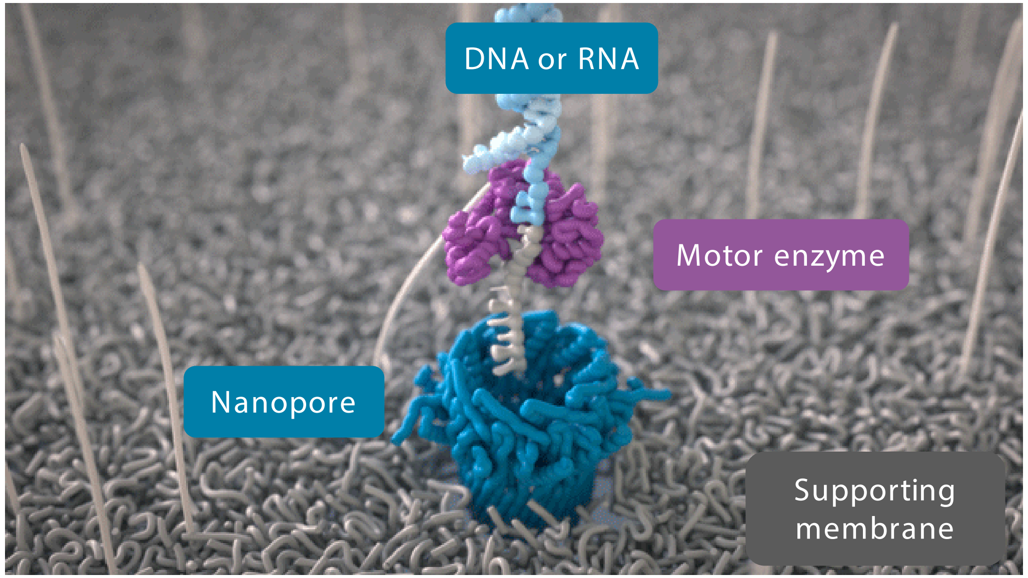
- ✓ Field devices
- ✓ Lab devices
- ✓ Low & high output platforms (low $ / test & low $ / Gb)

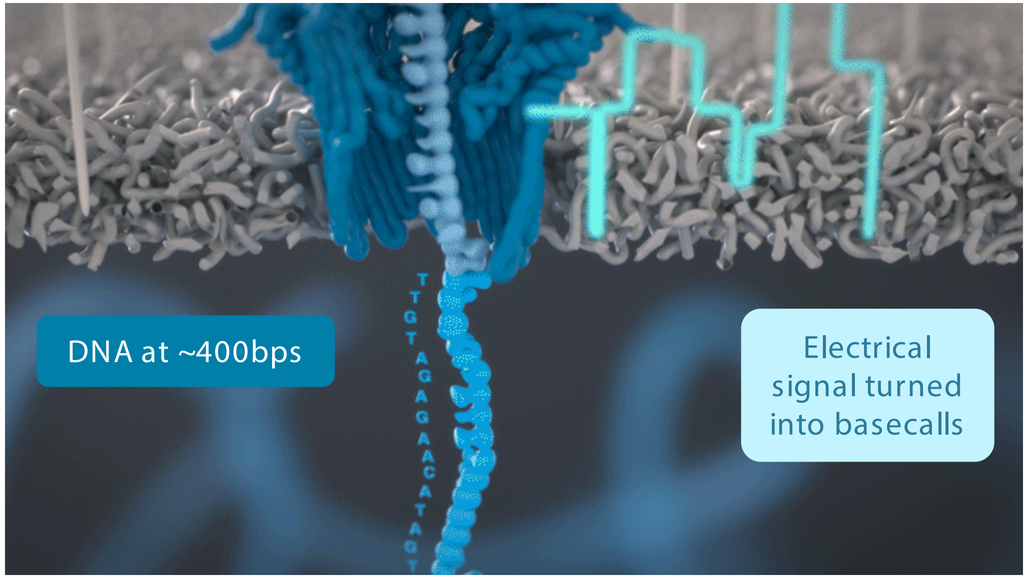
Analyse

- ✓ Accessible
- ✓ Scalable
- ✓ Versatile

Nanopore sequencing: how it works

An adapted DNA/RNA strand is passed through a nanopore, an electrical signal is interpreted into sequence data



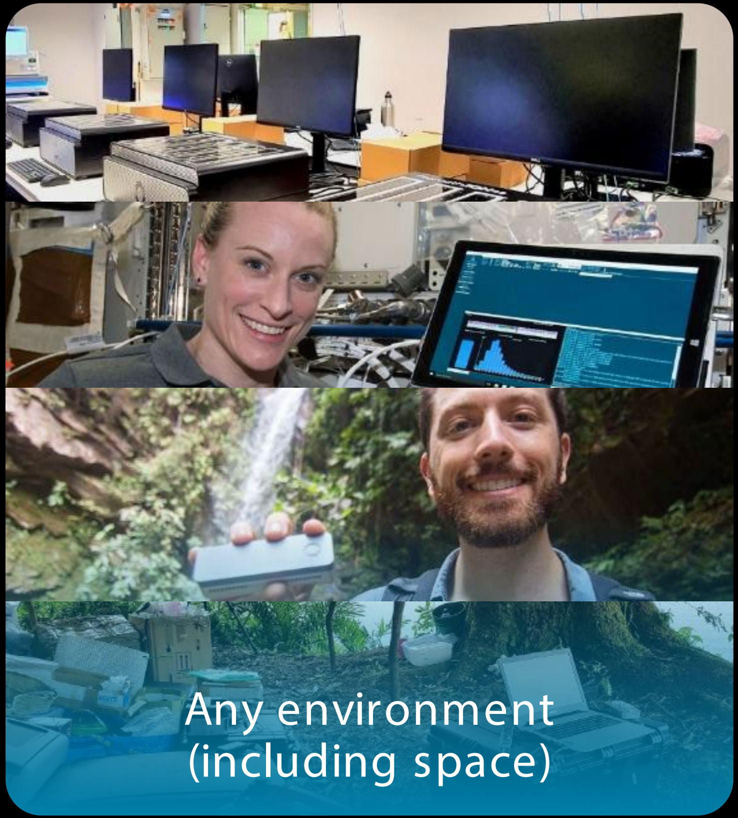


Features	Direct sequencing of DNA and RNA	PCR free, no amplification bias	Read length-agnostic	Real-time analysis	Chemistry on bespoke electronics
Benefits	Richer information including epigenetics	Simpler workflows, Richer information including epigenetics	One platform for any sample; see the true scope in your biology	Rapid results Intelligent analyses e.g. adaptive sampling	Scalable, from small to large formats Low-cost

Our vision is to enable the analysis of anything, by anyone, anywhere

Our mission: We empower people to explore and answer biological questions with our transformative technology platform

Any community



Any environment
(including space)

Any industry

We continue to innovate for research – and lock down for applied/clinical uses

01. 02. 03. 04.

Beta

Registration based Early Access

Open Early Access

Released

Q-Line

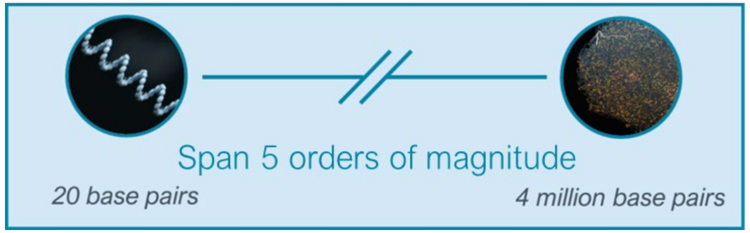
Locked down software & chemistry
Robust platforms

The benefits of PCR-free sequencing

Avoid the limitations of short read technologies

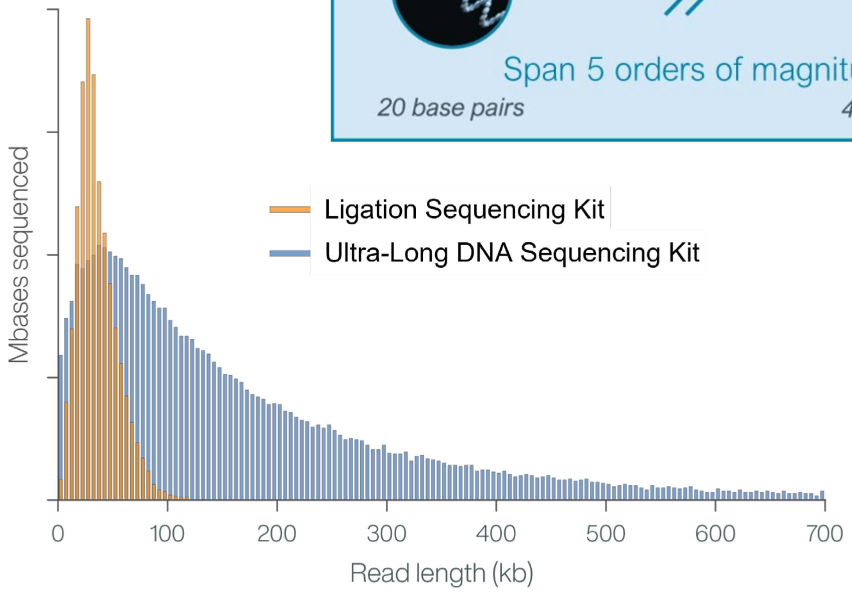
Unrestricted read lengths

Sequence short to ultra-long reads


Span 5 orders of magnitude

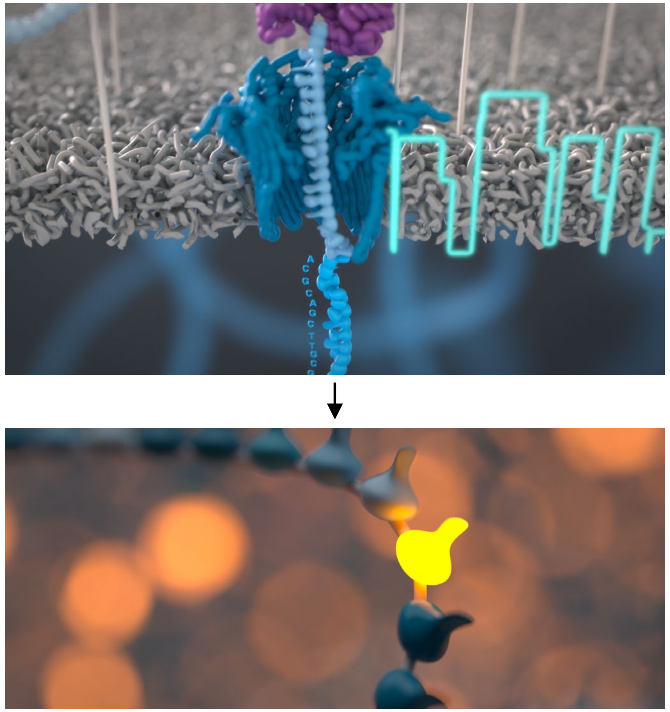
20 base pairs

4 million base pairs

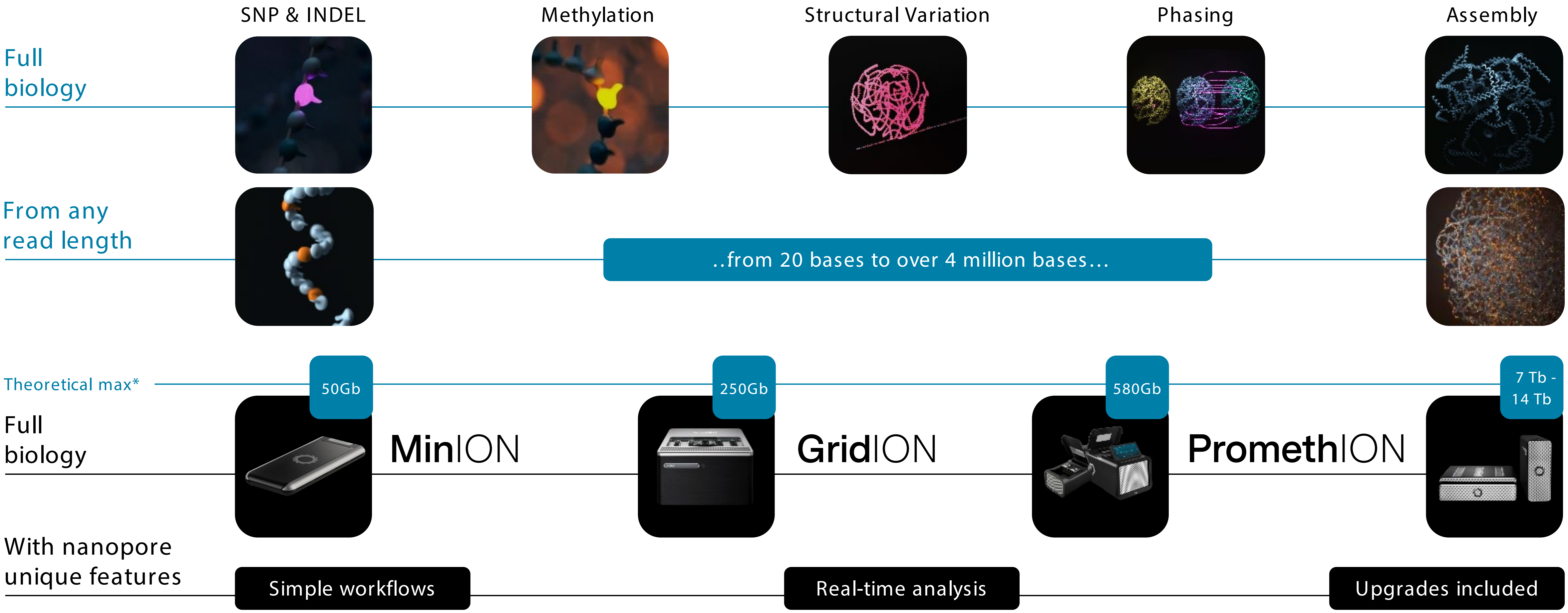


Nanopore sequencing delivers long and ultra-long read lengths that match the fragment length in your library

Methylation included



ONE sequencing platform



SNP & INDEL

Methylation

Structural Variation

Phasing

Assembly

Full biology

From any read length

..from 20 bases to over 4 million bases...

Theoretical max*

Full biology

MinION 50Gb

GridION 250Gb

PromethION 580Gb

7 Tb - 14 Tb

With nanopore unique features

Simple workflows

Real-time analysis

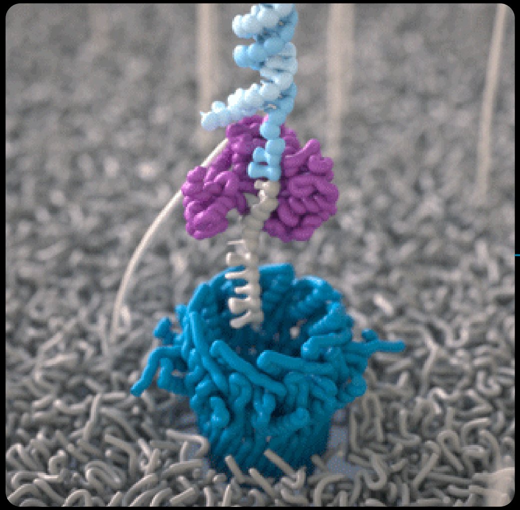
Upgrades included

*Theoretical max output when system is run for 72 hours at 400 bases / second. Outputs may vary according to library type, run conditions, etc.

One core technology at any scale

Flow Cells

Devices



MinION

MinION Mk1D

GridION™

PromethION

PromethION 2 Solo

PromethION 2 Integrated

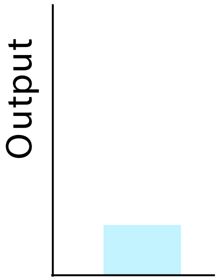
PromethION 24

⚙ = compute on board

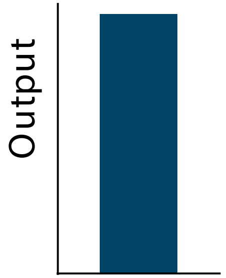
It starts with a flow cell

A single chemistry delivered across increasing number of nanopores

MinION



PromethION



Choose MinION™

- ✓ 10-20 Gb of Ultra-long reads
- ✓ Multiplex small genomes
- ✓ Low-pass sequencing of larger genomes
- ✓ From $600

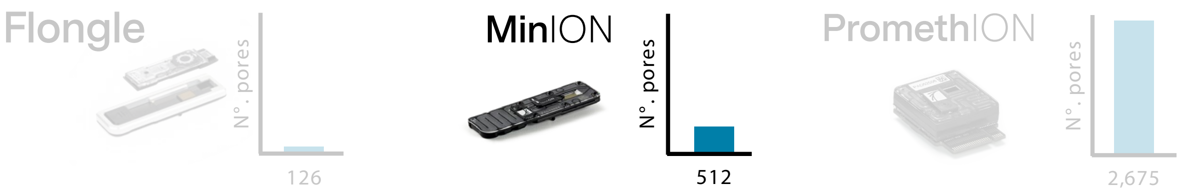
Choose PromethION™

- ✓ Generate hundreds of Gigabases of data
- ✓ Sequence large genomes to high coverage
- ✓ From $900

Oxford Nanopore Technologies

MinION™ Flow Cells

Flexible and versatile for multiple applications



15-35 Gb native gDNA reads (read N50 ~25 kb)

Multiplexed sequencing of up to 96 samples with PCR or PCR-free barcoding

Highly accurate full-length plasmid sequencing

Wash and re-use for multiple successive libraries with Flow Cell Wash Kit

10-20 Gb ultra-long native DNA reads (>50 kb read N50)

Plus: direct methylation detection, direct RNA sequencing, read lengths from short (20 bases) to ultra-long (>4 million bases), …

The MinION™ Mk1D devices

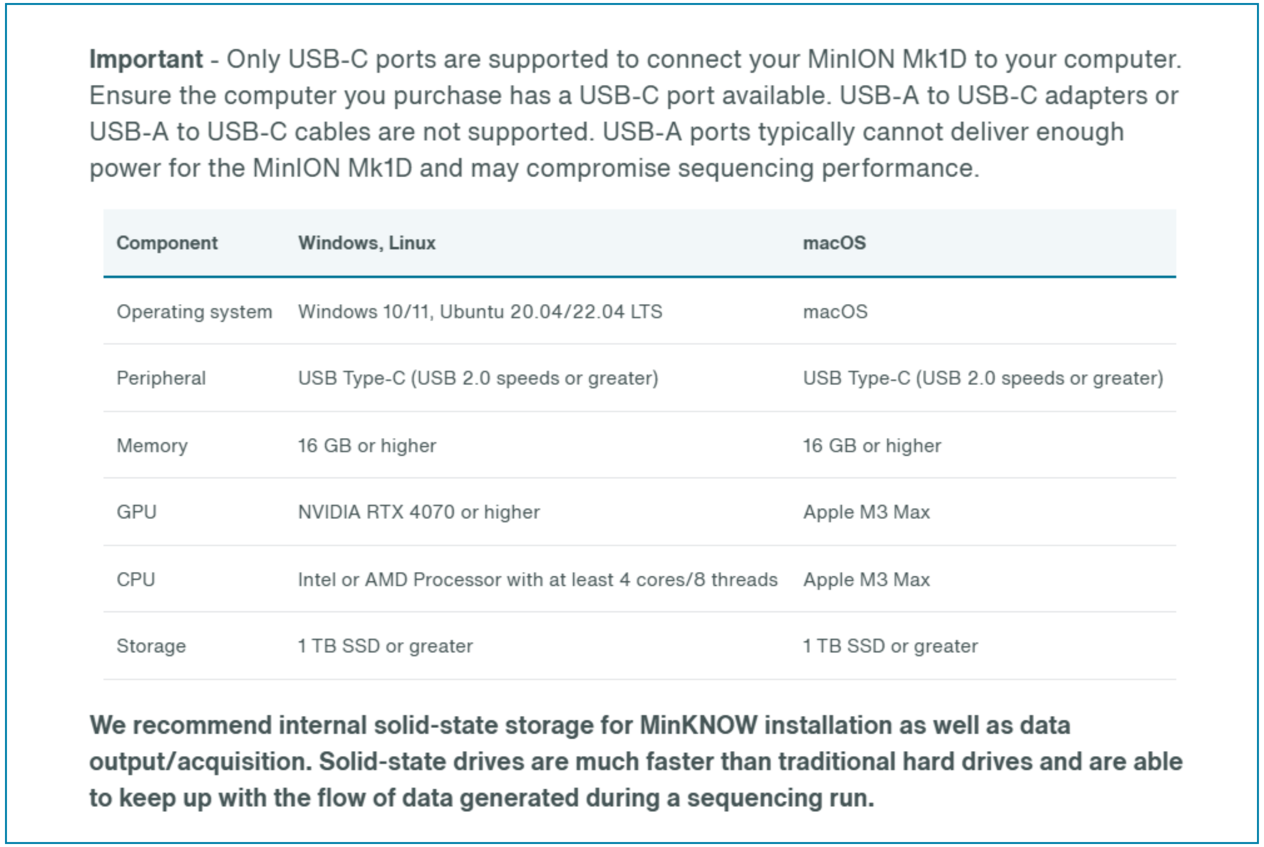
Sequencing of anything, anywhere by anyone in real-time

Simple installation and operation with reproducible results

Improved thermal regulation enables reproducible results in ambient temperature 10-35°C

For small genomes, metagenomics, targeted sequencing, and more

Mk1D IT specification



Important - Only USB-C ports are supported to connect your MinION Mk1D to your computer. Ensure the computer you purchase has a USB-C port available. USB-A to USB-C adapters or USB-A to USB-C cables are not supported. USB-A ports typically cannot deliver enough power for the MinION Mk1D and may compromise sequencing performance.

Component	Windows, Linux	macOS
Operating system	Windows 10/11, Ubuntu 20.04/22.04 LTS	macOS
Peripheral	USB Type-C (USB 2.0 speeds or greater)	USB Type-C (USB 2.0 speeds or greater)
Memory	16 GB or higher	16 GB or higher
GPU	NVIDIA RTX 4070 or higher	Apple M3 Max
CPU	Intel or AMD Processor with at least 4 cores/8 threads	Apple M3 Max
Storage	1 TB SSD or greater	1 TB SSD or greater

We recommend internal solid-state storage for MinKNOW installation as well as data output/acquisition. Solid-state drives are much faster than traditional hard drives and are able to keep up with the flow of data generated during a sequencing run.

Example laptops meeting spec (non exhaustive list)

Razer blade 18 (RTX 4070 or greater)

Apple MacBook Pro 14” M3 Max

Benchmarked to run all different basecalling models of over a 72 hour run

Oxford
Nanopore
Technologies

Thank you