

Digital Panel Designer

Modify your panel in minutes, not months

Adaptive Sampling is a unique on-device real-time targeted sequencing approach from Oxford Nanopore. Rather than relying on probe- or amplicon-based target enrichment panels, Adaptive Sampling uses BED-file-based digital panels to define the genomic regions you want to enrich during sequencing. As sequencing begins, native DNA molecules enter the nanopores and are assessed in real time against the digital panel. Molecules containing regions of interest continue to be sequenced, whilst those not containing regions of interest are rejected from the nanopores. This increases coverage across targets, generates low-pass whole-genome data from off-target reads, and preserves methylation information, giving you targeted and genome-wide genetic and epigenetic insights from the same run.

The Oxford Nanopore Digital Panel Designer is an intuitive browser-based tool that makes it easy for you to create, modify, and customise digital panels. Simply enter genes or genomic regions of interest or modify one of our ready-to-use digital panels, review your design, and export the files needed to begin an Adaptive Sampling run. Digital panels can be updated in minutes, removing the delays associated with designing and synthesising probe-based panels.

Simplify your workflow, not your questions

An intuitive browser-based tool for creating and modifying digital panels.

Digital Panel Designer ⓘ
1 Target input
2 Buffer configuration
3 Summary and export ⓘ

My panel
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Before you get started, learn more with our [Adaptive Sampling technical guide](#) and [Adaptive Sampling FAQs](#).

For technical questions and support, contact: technicalsupport@nanoporetech.com.

GRCh38.p14
Select reference assembly

GRCh38 GRCh38.p14 Selected ⓘ

LENGTH	CHROMOSOMES
3,099,750,718 bp	25
ENSEMBL GENOME	
59871324-7803-4234-856e-2a2bd96d7b3c	

Selected

GRCh37 GRCh37.p13 ⓘ

LENGTH	CHROMOSOMES
3,101,804,739 bp	25
ENSEMBL GENOME	
3704ceb1-948d-11ec-a39d-005056b38ce3	

Select

Choose the input format for your targets — gene names, genomic coordinates, BED files, or start from an Oxford Nanopore ready-to-use research-use-only (RUO) digital panel. Learn more about supported formats in our [Adaptive Sampling FAQs](#).

Preset panel
Gene input
Coordinates
BED file

Reference	GRCh38
Inputs resolved	259
Targets in panel	259
Rejected	0
Contigs	24

Simplified panel design

Build and modify digital panels without bioinformatics expertise. Add targets, review and check your design, and generate the files needed in just a few clicks.

No probes or baits required

Unlike traditional targeted sequencing approaches that rely on primers, probes, or baits, digital panels can be modified in minutes, helping you respond quickly as priorities change.

Targeted sequencing with genome-wide insight

Adaptive Sampling combines target enrichment with low-pass whole-genome data from the same run, enabling you to generate focused, genome-wide, and epigenetic insights simultaneously.

Create sequencing-ready digital panels in three simple steps

1. Design

Build custom digital panels from gene names or genomic coordinates or modify an existing Oxford Nanopore ready-to-use research-use-only digital panel by adding, removing, or changing targets. Simply select your reference genome and define the genes or regions you want to target, ranging from a single large genomic target to hundreds of genes (between 0.1–5% of your reference genome). The Digital Panel Designer then prepares all the files you need for an Adaptive Sampling run.

You can define targets in three ways:

- 1) Input gene names — enter one or more gene names, such as *BRCA1* or *TP53*
- 2) Input genomic coordinates — enter specific gene regions, such as chr17:43044294-43125482
- 3) Load an existing ready-to-use digital panel — import and modify an existing Oxford Nanopore digital panel

To support efficient enrichment during sequencing, the tool automatically applies a recommended 20 kb buffer on either side of each target. By extending beyond target boundaries, these buffer regions help Adaptive Sampling to identify and enrich DNA molecules containing regions of interest while reducing the risk of incorrectly rejecting them during sequencing. Buffer sizes can be easily adjusted between 10 and 30 kb to suit your research needs.

2. Review

Before exporting your custom digital panel, the Digital Panel Designer allows you to review key panel features, including:

- Number of targets
- Buffer size per target
- Total size of all targets, with and without buffers
- Percentage of the genome being targeted
- Target distribution across chromosomes

The tool performs built-in checks to highlight any potential design issues before you start sequencing (e.g. flags targets with known highly similar paralogues or pseudogenes) and will block export if the design would make an incorrect BED file (e.g. a file with invalid coordinates). For more information on panel design considerations and best practices, explore our [Adaptive Sampling technical guide](#).



Explore our Adaptive Sampling technical guide: nanoporetech.com/technical-guide

3. Export

Once your panel has been reviewed and passes the checks, the Digital Panel Designer generates and exports the files you need for sequencing and downstream analysis.

File	Purpose
Enrichment BED	Defines the genomic targets used for Adaptive Sampling enrichment during sequencing
Analysis BED	Supports downstream target-level analysis and coverage assessment
Exon BED	Enables exon-level coverage evaluation
Summary report HTML	Provides panel statistics and design validation information



Find out more: nanoporetech.com/digital-panel-designer



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FL_1354(EN)_V1_30Sep2026