

# How to Design and Order Your MRD Express Panel

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MRD testing volume is growing fast as researchers push the limits of early molecular signal. Target enrichment has become the tool of choice for personalized, tumor-informed MRD, letting labs track the rarest sample fragments. Designing a personalized panel at scale has historically been a bottleneck.

Twist's MRD Express eCommerce platform removes that bottleneck. Upload the genomic coordinates of the variants you want to track, or your own probe sequences, and our panel designer builds a personalized target enrichment panel around them. Design, review, and place your order online in minutes, with same-day synthesis and shipping within a day.

This guide walks through each step of the MRD Express design and ordering workflow, from your first file upload to checkout.

## AT A GLANCE

- Up to 10,000 probes per panel
- 6 hybridization reactions
- 120 bp probes, 1x or 2x tiling
- hg19 and hg38 reference genome support

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## HAVE QUESTIONS?

Get in touch at [sales@twistbioscience.com](mailto:sales@twistbioscience.com) or learn more at [twistbioscience.com](https://twistbioscience.com)

## THE MRD EXPRESS WORKFLOW

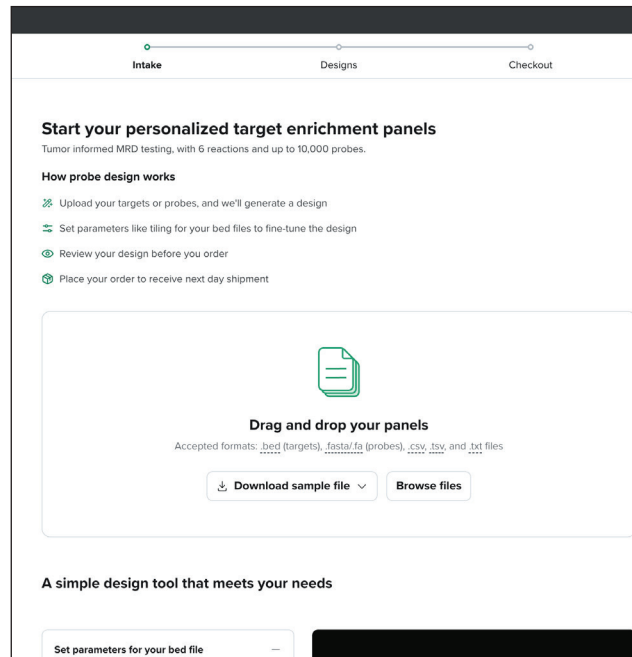
Designing and ordering a personalized MRD Express panel takes five steps, all from your browser. Here's what to expect at each stage.

### STEP 1: UPLOAD YOUR TARGET OR PROBE FILE

MRD Express accepts two types of files, depending on how far along your panel design already is:

- **BED file:** a list of the genomic coordinates (chromosome, start position, stop position) for each variant or region you want to track. Use this when you want Twist to design the probes for you. MRD Express supports SNVs, small indels, CNVs, and exonic target regions.
- **Probe sequence file (FASTA, CSV, TSV, or TXT):** your own 120 bp probe sequences, ready to order as-is.

Not sure your file is formatted correctly?  
Download a sample file directly from the MRD Express Designer Tool webpage.

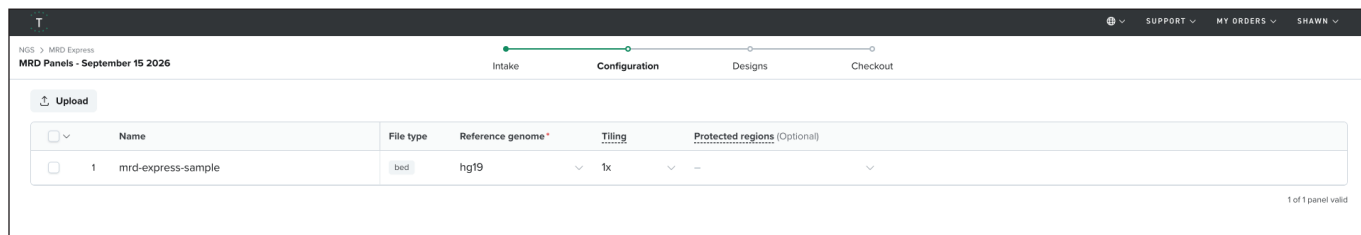


The intake page: drag and drop your BED or FASTA file to start a design.

### STEP 2: CONFIGURE YOUR PANEL DESIGN

If you uploaded a BED file, the configuration page is where you tell Twist how to design around your targets:

- **Reference genome:** choose hg19 or hg38 to match the coordinates in your file.
- **Tiling density:** choose 1x or 2x tiling per target. 2x tiling increases probe coverage over a region, which can improve capture robustness and molecule yield. 1x tiling stretches your probe budget across more targets. Choose 2x for maximum sensitivity on fewer targets, or 1x to cover more targets overall.
- **Repeat filter:** on by default, this reviews and removes probes that fall in highly repetitive sequence, since these tend to drive up off-target rates and reduce capture performance. If you need guaranteed coverage over a specific region regardless of repeat content, upload a BED file of the coordinates you want preserved and the filter will be skipped for those regions.



The configuration page: set reference genome, tiling, and protected regions for each panel.



### STEP 3: REVIEW YOUR DESIGN SUMMARY

Once the design algorithm runs, you'll land on a summary page. Every panel design is assigned a unique XTE identifier so you can track it through review and ordering. From here you can:

- Download some or all of the design files for review
- Check the status of each design, which flags any issues encountered during design so you can address them before ordering



|                          | Status | Name               | Probes | Twist design ID | File name              | Price    |
|--------------------------|--------|--------------------|--------|-----------------|------------------------|----------|
| <input type="checkbox"/> | 1      | mrd-express-sample | 2      | XTE-235551364   | mrd-express-sample.bed | \$475.00 |

1 panel

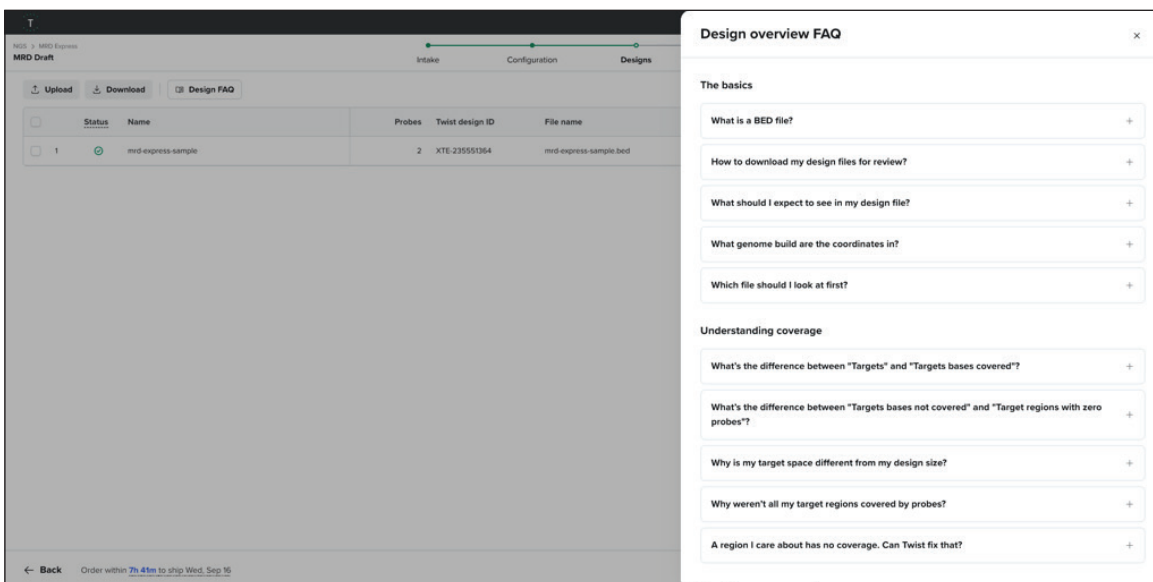
The design summary page: each panel gets a unique XTE ID and status you can track.

### STEP 4: REVIEW PANEL COVERAGE

Before you commit to an order, review exactly what your panel covers. Every design comes with a full design output package:

- A design report summarizing overall panel coverage
- BED files marking which target regions are covered and which are not
- A UCSC-compatible file you can load directly into the genome browser to inspect coverage at the base-pair level

Built-in FAQs on this page walk through common review questions. Once you're satisfied with coverage, click Continue to move to checkout. Additional resources on MRD Express can be found here: [MRD Express Resource Hub](#).



MRD Express

MRD Draft

Intake Configuration Designs Checkout

Upload Download Design FAQ

|                          | Status | Name               | Probes | Twist design ID | File name              | Price    |
|--------------------------|--------|--------------------|--------|-----------------|------------------------|----------|
| <input type="checkbox"/> | 1      | mrd-express-sample | 2      | XTE-235551364   | mrd-express-sample.bed | \$475.00 |

#### Design overview FAQ

The basics

What is a BED file? +

How to download my design files for review? +

What should I expect to see in my design file? +

What genome build are the coordinates in? +

Which file should I look at first? +

Understanding coverage

What's the difference between "Targets" and "Targets bases covered"? +

What's the difference between "Targets bases not covered" and "Target regions with zero probes"? +

Why is my target space different from my design size? +

Why weren't all my target regions covered by probes? +

A region I care about has no coverage. Can Twist fix that? +

The review designs page: download coverage files and get answers to common review questions.



## STEP 5: CHECKOUT AND PLACE YOUR ORDER

Complete checkout on the platform to enter your panel into that day's synthesis run. Orders placed before the daily cutoff ship next day; orders placed after the cutoff, or panels that don't pass QC, automatically roll to the next available run so your order is automatically rescheduled.

- Panels ship in a 0.5 mL tube
  - Need to design and order at scale, without the manual upload steps? Ask your Twist representative about panel-designer and order APIs that integrate directly into your LIMS, taking you from tumor/normal sequencing data to a placed order with zero manual steps.
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### Need help along the way?

- In-platform FAQs are available at every step of the design and order flow
- A short walkthrough video is available on the upload page
- Live chat support is available whenever you need it



## FREQUENTLY ASKED QUESTIONS

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### How are probes designed to cover my targets?

Based on your reference genome (hg19 or hg38) and desired tiling density, our probe designer places probes directly over the variants in your BED file. The algorithm finds the most optimal placement, factoring in repetitive regions to maximize capture performance.

### How many reactions come with an MRD Express panel, and how many probes can I order?

Each MRD Express panel includes enough material for 6 hybridization reactions and supports up to 10,000 probes, sold across six tiers (1-500, 501-1,000, 1,001-2,500, 2,501-5,000, 5,001-7,500, 7,501-10,000).

### What tiling density should I use?

2x tiling can provide more comprehensive coverage over a variant and may result in a more robust capture. 1x tiling stretches your probe budget to cover more targets. Choose 2x for maximum sensitivity on fewer targets, or 1x to cover more targets overall.

### How do you filter variants, and how do I add them back?

By default, we apply a repeat filter that screens out probe sequences falling in repetitive regions, since these tend to have high off-target rates and poor capture performance. To keep coverage over a filtered region, upload a BED file with the coordinates you want preserved.

### How do I review my panel design?

Every panel comes with a design output package for review: a design report, BED files showing covered and uncovered target regions, and a UCSC file you can upload to the genome browser to inspect coverage directly.

### What file formats can I upload?

A BED file if you want Twist to design your probes from your target coordinates, or a probe sequence file (FASTA, CSV, TSV, or TXT) if you already have 120 bp probe sequences you want to order directly. Sample files for every format are available to download from the MRD Express landing page.

### What reference genomes are supported?

hg38 and hg19.

### What if I need to design and order at scale?

Twist offers panel-designer and order APIs for LIMS integration, enabling touchless design-to-order for high-volume ordering.

*Turnaround times are estimates only and are not guaranteed. Actual turnaround may vary based on order specifications, sample characteristics, processing requirements, operational capacity, and other applicable factors. Product information, specifications, features, availability, and timing are subject to change without notice. Twist products are for research use only. They are not intended for the diagnosis, prevention, monitoring, or treatment of a disease or condition. Twist Bioscience assumes no liability regarding the use of its products in unintended applications.*

## HAVE FURTHER QUESTIONS?

For additional support please contact Twist Bioscience's support team at [customersupport@twistbioscience.com](mailto:customersupport@twistbioscience.com).