
Accel-Amplicon™ Custom NGS Panels



**More data.
One reaction.**

This guide provides an overview of Swift Biosciences' design process to help you easily develop an Accel-Amplicon™ Custom NGS Panel to sequence your chosen gene targets. With an easy and consultative design process, we'll help you design the most effective assays to identify and screen informative variants that may be present in your samples.

Four simple steps.

From submission to finalization, the Accel-Amplicon™ Custom NGS Panel design process is easy-to-follow and powerful too. And the Swift team is there every step of the way.



Step 1: Submit

Starting is easy. Just follow these 3 simple steps.

- 1) Download our simple Accel-Amplicon Custom NGS Panel Target Submission Form at swiftbiosci.com/customamplicon
- 2) Complete the form with your design targets including gene name, gene coordinates or SNP ID. Just fill in the appropriate column(s) of the submission form.
- 3) Email it to custom@swiftbiosci.com. Our team will be in touch within two business days.

With Accel-Amplicon Custom NGS Panels, you can interrogate base substitutions (SNVs) and small (< 15 bp) insertions and deletions occurring in the target sequence.

If you have any special requests or important information not accommodated by the submission form, please include when emailing your form to custom@swiftbiosci.com.



Step 2: Design Proposal

Within two business days, you'll receive an initial design proposal, which includes:

- Design target BED file
- List of incomplete regions not covered by design software
- Panel size with number of amplicons
- Pricing estimate
- Recommendations

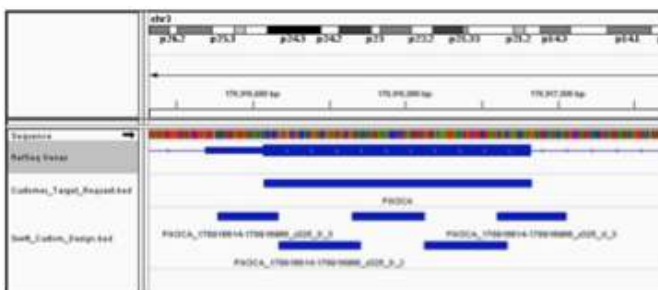
Our proprietary Accel-Amplicon Primer Design Software is based on an extensively optimized algorithm that quickly generates the most successful design to achieve maximum specificity and performance in our single-tube assay format. Our design process includes QC checks, including:

- Minor allele frequency polymorphisms
- COSMIC-annotated SNPs (for cancer panels)
- Off-target amplification
- Primer and amplicon T_m, base pair length, and GC content
- Other proprietary compatibility checks

The design target BED file is the blueprint of your design and forms the basis for our collaborative review and iteration. This file will also serve as the “boundaries” of the panel by which on-target rates, coverage uniformity, and variant calling are defined.

One powerful outcome.

Design Target BED File



Review the design BED file to verify coverage and iterate your design. Simply load the file, along with the human reference genome, into the Integrative Genomics Viewer (published by the Broad Institute <http://software.broadinstitute.org/software/igv/>). You can use the UCSC Genome Browser or a spreadsheet program, such as Microsoft Excel, as alternatives.



Step 3: Iteration

This is your opportunity to review the panel proposal and provide constructive feedback, including:

- Inclusion of critical genomic targets
- Critical areas of missing coverage
- Amplicon specifications including number, size and properties.

Potential Challenges

We are committed to attaining > 90% design coverage of your submitted targets. However, occasionally we encounter some common biological barriers that may be challenging, such as:

- Base composition—The AT/GC content of the target region, if heavily skewed, can complicate both primer design and attributes of the resulting PCR product which may affect library stability and the sequencing process on NGS platforms.
- Target region complexity—Low complexity regions where one or more bases are not represented can reduce the specificity and effectiveness of primer designs.
- Target region homology—Regions requested with high sequence homology to off-target regions, such as pseudogenes, can thwart design specificity.

Our experienced amplicon scientists are well-versed in these potential challenges and happy to collaborate to achieve your final design.



Step 4: Finalize

Once we've agreed to the final design, you'll complete the formal sign-off process. We will provide an approval packet including:

- Final design BED file with date
- Design acceptance form for sign-off
- Quotation to develop the panel

You will approve and return these forms along with your Purchase Order to Swift. Upon receiving the approved packet, we will begin developing and testing of your Accel-Amplicon Custom NGS Panel right away.

Even more advantages to customizing with Swift.



Our Amplicon Bioinformatics team will review and advise you on your target submission, providing a summary of relevant annotations for what is included or omitted from your design — this will assist your decision-making to arrive at a final panel composition.



Our wet lab verified panels guarantee technical performance, so you can expect the panel to perform within the strict specifications set for our custom panels — this saves you time and costs associated with establishing the panel in your own lab and enables you to create a panel to use with your own samples.

Questions about the Swift design process?

Submit any questions, targets, and design requests to custom@swiftbiosci.com, or download the submission form at: swiftbiosci.com/customamplicon.

Start designing your Custom Accel-Amplicon™ NGS Panel today.



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