



A guide to ordering and customizing OncoPrint™ tumor specific panels with Ion AmpliSeq Designer

Ion Torrent™ OncoPrint™ tumor specific panels are small (15–30 genes), curated panels with verified performance that complement the Ion Torrent™ OncoPrint™ menu of assays. They provide an end-to-end solution for molecular profiling and clinical research of specific tumors (bladder, prostate, gastric, and others) from formalin-fixed, paraffin-embedded (FFPE) tissue samples.

Panels focused for cancer research

On Ion AmpliSeq™ Designer, you will be able to order pre-designed OncoPrint tumor specific panels or customize them with OncoPrint tumor specific panel stock genes. These genes have been verified for performance in an end-to-end solution for molecular profiling of these specific tumor types from clinical research FFPE samples.

The genes have been associated with tumor type as well as prevalence, known relevant evidence, and potential value for cancer research. The core panels are designed to be small, targeting only the most relevant research genes.

Additional associated research genes are available for each panel. And all panels can be customized with any of the OncoPrint tumor specific stock genes.

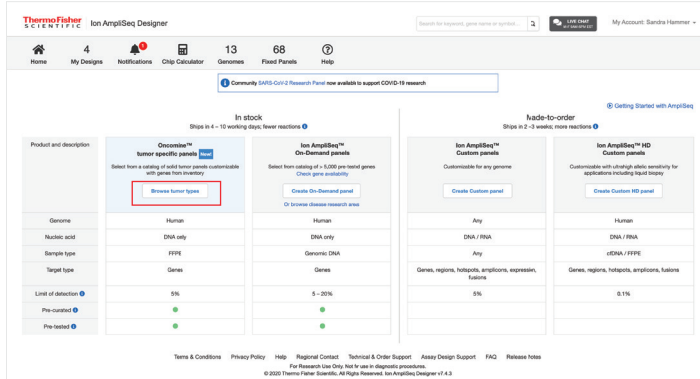
We also offer a 49-gene RNA panel that complements the OncoPrint tumor specific panels; however, it is not available with the Ion Torrent™ OncoPrint™ Lymphoma Panel. This RNA-only panel uses FusionSync technology to detect known, novel, and rare fusions from even small sample inputs.

In this guide, we will teach you how to order a panel and, if needed, how to customize a panel.

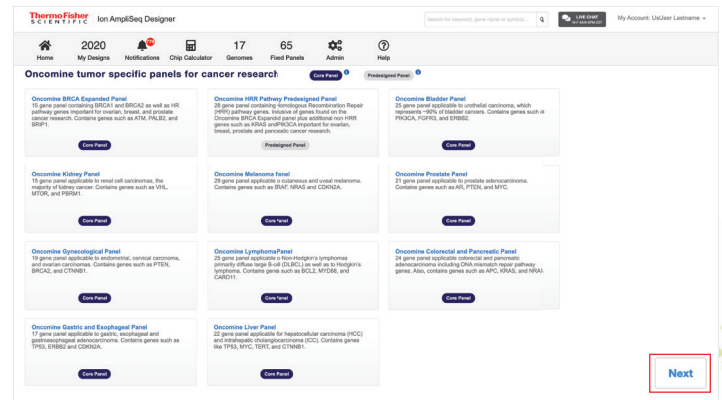
Ordering a panel

Step 1: Log in to Ion AmpliSeq Designer (ampliseq.com). After you log in, you will see four different types of panels.

Step 2: Choose the “Browse tumor types” button under OncoPrint tumor specific panels.



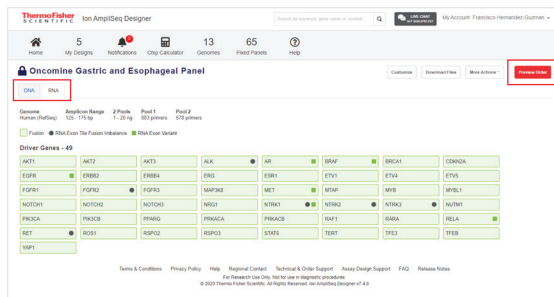
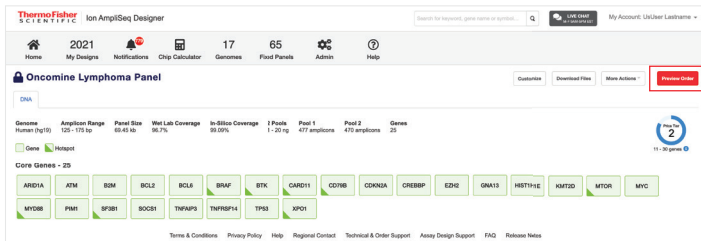
Step 3: Select the panel that you want to order and click the “Next” button in the lower-right corner of the screen.



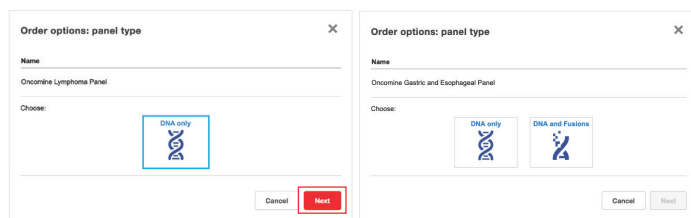
The following screens show the panel content. Compare the two panels and notice that one has an additional tab for RNA. This is the Ion Torrent™ OncoPrint™ tumor specific RNA panel that complements OncoPrint tumor specific DNA panels (available for all except the lymphoma panel).

If you would like to customize the panel, then see the “Customizing a panel” section of this brochure (page 5).

Step 4: Click the “Preview Order” button in the upper-right corner of the screen.

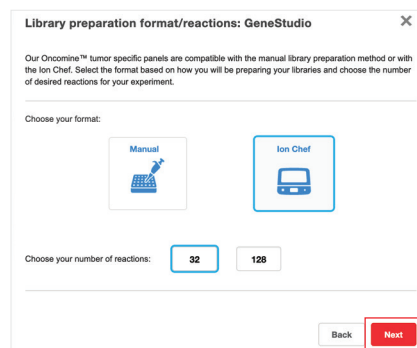
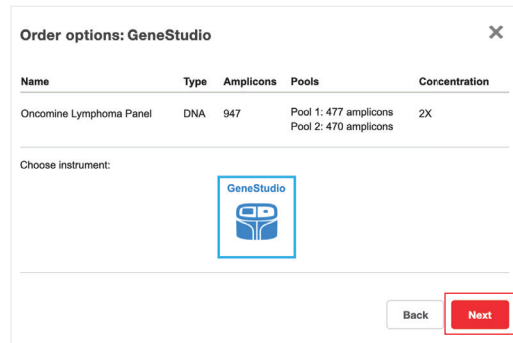


Step 5: Select your “Order options.”



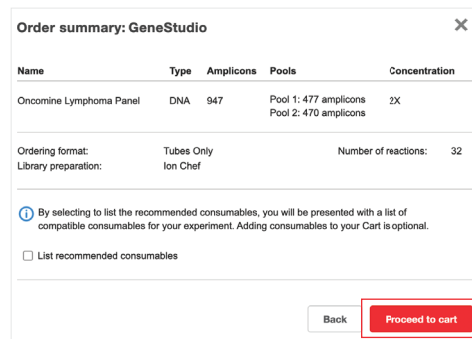
First is panel type. Most panels will have an option for “DNA and Fusions.” A notable exception is the OncoPrint Lymphoma Panel, as the complementary RNA panel is not available. For this panel, choose “DNA only” instead. Then click the “Next” button.

“GeneStudio” (Ion GeneStudio™ S5 instruments) will be your only instrument choice. Select it and click the “Next” button. Then choose your library preparation format and number of reactions. Make your selections and click the “Next” button.



Note: Manual preparation has 3 reaction sizes (24, 96 and 384).

Step 6: Review your order summary. Check the box for “List recommended consumables” if you would like them listed in the next screen, and click the “Proceed to cart” button.



Step 7: Preview your order and add any recommended consumables. Click the red “Add all to cart” button* when ready to order on **thermofisher.com**.

The screenshot shows the ThermoFisher Ion AmpliSeq Designer interface. The top navigation bar includes 'Home', 'My Designs', 'Notifications', 'Chip Calculator', 'Genomes', 'Fixed Panels', 'Admin', and 'Help'. The main content area is titled 'Oncomine Lymphoma Panel (DNA)' and 'Oncomine Lymphoma Panel / Order preview'. It features a sidebar with 'Edit list' and a table of specifications. The main area is divided into sections: 'Design order', 'Library preparation', 'Template preparation and sequencing', and 'Chips'. The 'Library preparation' section contains a table with columns for 'Catalog #', 'Description', and 'Qty'. The 'Template preparation and sequencing' section contains a table with columns for 'Catalog #', 'Description', and 'Qty'. A red 'Add all to cart' button is highlighted at the bottom right.

Catalog #	Description	Qty
A46797	Ion AmpliSeq™ Kit for ChIP Qx8-32 reactions	1

Catalog #	Description	Qty
A34461	Ion 10™/S20™/S30™ Kit-Chip (2 run/kit)	0
A34019	Ion 10™/S20™/S30™ Kit-Chip (1 run/kit)	0
A32011	Ion 540™ Kit-Chip (2 run/kit)	0
A32670	Ion 520™/S30™ Ext Kit-Chip	0
A34541*	Ion 550™ Kit-Chip	0
A39952*	Ion 550™ Single Chip Supplemental Kit	0

* This functionality is not available in all countries. Your country may show “Request quote” or another message.

Step 8: In the last step, review your cart and click the “Proceed to checkout” button. In some countries, the last step may be reviewing your quote request. Please follow the on-screen prompts, which will be specific to your situation.

Customizing a panel for cancer research

If you would like to modify content while still maintaining performance, then you can add or remove OncoPrint tumor specific stock genes. This also maintains the integrity of the bioinformatics workflow with some minor customizations.

Generally, there are two lists of genes: the core genes and the associated research genes. Both the core and associated research genes are considered OncoPrint tumor specific stock genes that have been associated with a specific tumor type as well as prevalence, known relevant evidence, and potential value for cancer research.

The interface makes it easy to customize the panel with a few cues:

- The check box in the upper-left corner is used to select/deselect genes
- The “X” in the upper-right corner is to permanently remove the gene from the selection
- Colors: green means included, and gray means excluded



Price Tier
2
11–30 genes i

There is also an indicator that tells you how many genes are in your panel design and the price tier of your panel.

Price Tier 1: 1–10 genes

Price Tier 4: 51–75 genes

Price Tier 2: 11–30 genes

Price Tier 5: 76–100 genes

Price Tier 3: 31–50 genes

Price Tier 6: 101–150 genes

When customizing a panel, follow the “Ordering a panel” process until step 4 (page 3), then click the “Customize” button. You will notice there is an RNA tab associated with this panel. The OncoPrint tumor specific RNA panel can be ordered with this panel; however, it cannot be customized.

Step 5: Name the new panel design. Provide details, then click the “Save” button.

Customize ✕

! This design will be unlocked for customization. At this time, only the DNA content may be edited. You must create a copy number baseline workflow preset. See the Ion Reporter™ Software Help or User Guide (Pub. No. [MAN0018032](#)) for more information. All genes have been designed and Wet Lab tested to ensure performance. See the FAQ for more information.

Show this warning next time


Name *


Details

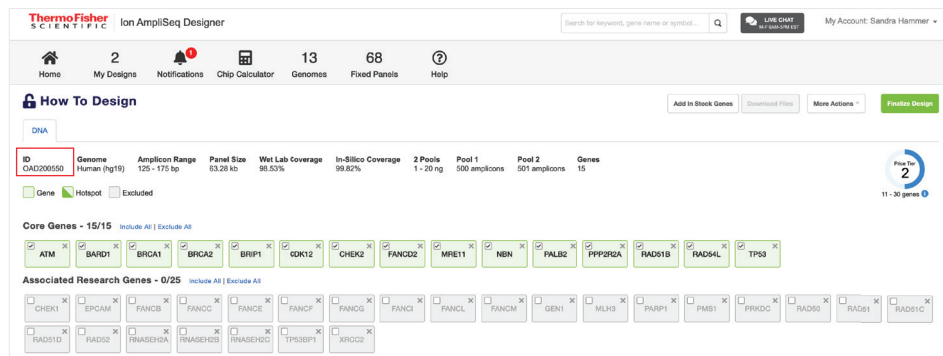
Cancel Save

Step 6: Alter the panel design to:

1. Remove genes from the core panel.
2. Add associated research genes.
3. Add Oncomine tumor specific stock genes. Before you log in to ampliseq.com, use the search genes form (thermofisher.com/oncomine-specific-search) to see if your gene of interest is part of a predesigned panel or in the Oncomine tumor specific panel stock gene inventory. Or simply ask your sales representative.

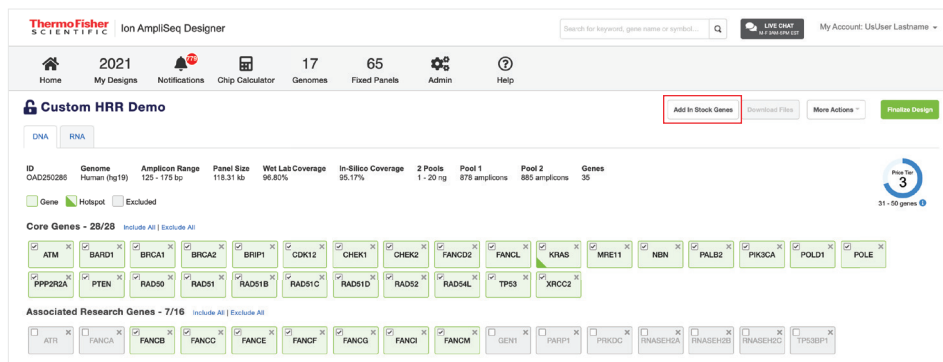
 **TIP:** As you alter the design, watch the price tier indicator, as it may change.

 **TIP:** When you create a custom design, the ID is used on the box label and tube labels. The ID can be found in the details on the design screen.



The screenshot shows the 'Ion AmpliSeq Designer' interface. At the top, there are navigation tabs: Home, My Designs (2), Notifications, Chip Calculator, Genomes (13), Fixed Panels (68), and Help. Below this is a 'How To Design' section with a search bar and buttons for 'Add in Stock Genes', 'Download Files', 'More Actions', and 'Finalize Design'. The main design area shows details for 'ID: CAG200550', 'Genome: Human (hg19)', 'Amplicon Range: 125 - 175 bp', 'Panel Size: 63.28 kb', 'Wet Lab Coverage: 98.53%', 'In-Silico Coverage: 99.82%', '2 Pools: 1 - 20 ng', 'Pool 1: 500 amplicons', 'Pool 2: 501 amplicons', and 'Genes: 15'. There are checkboxes for 'Gene', 'Hotspot', and 'Excluded'. Below this, there are two sections of gene cards: 'Core Genes - 15/15' and 'Associated Research Genes - 0/25'. The core genes include ATM, BARD1, BRCA1, BRCA2, BRIP1, CDK12, CHEK2, FANCD2, MRE11, NBN, PALB2, PPP2R2A, RAD51B, RAD54L, and TP53. The associated research genes include CHEK1, EPCAM, FANCB, FANCC, FANCG, FANCL, FANCM, FANCI, FANCL, FANCM, GEN1, MLH3, PARP1, PMS1, PRKDC, RAD50, RAD51, RAD51C, RAD51D, RAD52, RNASEH2A, RNASEH2B, RNASEH2C, TP53BP1, and XRCC2.

The Oncomine HRR Pathway Predesigned Panel



The screenshot shows the 'Ion AmpliSeq Designer' interface with a custom design named 'Custom HRR Demo'. The navigation tabs are: Home, My Designs (2021), Notifications, Chip Calculator, Genomes (17), Fixed Panels (65), Admin, and Help. The design details show 'ID: CAG250285', 'Genome: Human (hg19)', 'Amplicon Range: 125 - 175 bp', 'Panel Size: 115.31 kb', 'Wet Lab Coverage: 95.60%', 'In-Silico Coverage: 95.17%', '2 Pools: 1 - 20 ng', 'Pool 1: 678 amplicons', 'Pool 2: 695 amplicons', and 'Genes: 35'. There are checkboxes for 'Gene', 'Hotspot', and 'Excluded'. Below this, there are two sections of gene cards: 'Core Genes - 28/28' and 'Associated Research Genes - 7/16'. The core genes include ATM, BARD1, BRCA1, BRCA2, BRIP1, CDK12, CHEK1, CHEK2, FANCD2, FANCL, XRAS, MRE11, NBN, PALB2, PIK3CA, POLD1, and POLE. The associated research genes include PPP2R2A, PTEN, RAD50, RAD51, RAD51B, RAD51C, RAD51D, RAD52, RAD54L, TP53, and XRCC2.

Customizing the Oncomine HRR Pathway Predesigned Panel with associated research genes

Step 7: If your gene of interest does not appear in this panel's core gene list or associated research gene list, it is possible to add it using the "Add in Stock Genes" function.

By adding only the genes found within the >270-gene Oncomine tumor specific panel inventory of stock genes, panel performance and SVB and CNB files are generated within thresholds.

Click the "Add in Stock Genes" button.

In the "Add Genes" tab, enter the gene or gene list using RefSeq nomenclature and click the "Add Target" button.

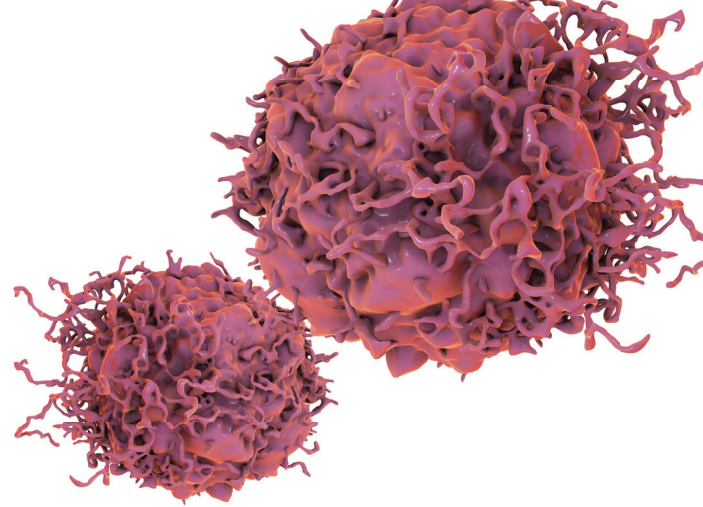
This tool will let you know if the gene is not available or if the gene symbol is not accepted.

If your gene is not found in the Oncomine tumor specific panel stock gene inventory, please ask your sales representative how to confirm that your gene(s) can be integrated into these panels while ensuring performance.

Step 8: Verify that your added gene(s) appears correctly.

Step 9: Click the "Finalize Design" button.

Once finalized, the BED files will be made available.



Step 10: In this case, both “DNA only” and “DNA and Fusions” options will be available. Make your selection and click the “Finalize Design” button.

Finalize Design ✕

By finalizing the design, you are agreeing to locking the design from further editing. You will then be able to download panel files including BED files, review panel design information, and order. Panel may be edited again by creating a copy. Note, only checked genes, will be submitted to finalized design.

DNA only

DNA and Fusions ✓

Cancel

Finalize Design

Step 11: Wait for the design to finalize.

Download Files

More Actions ▾

Finalizing...

Home
2021
My Designs
Notifications 779
Chip Calculator
Gen

DNA

RNA

Oncomine Tumor Specific

AmpliSeq On-Demand

AmpliSeq Custom

AmpliSeq HD Custom

Results Ready

Ordered

Step 12: Find your design in My Designs, on the “Oncomine Tumor Specific” tab, with a status of “Results Ready.” All of your designs are listed here. Note that the buttons at the top sort the designs by “DNA” or “DNA and Fusions” to help you keep them organized.

Design	Gene	Seq	Panel	Targets	Targets seen	Amplified	Yield	Coverage (%)	Modified	Pipeline Version	
Custom 1000 Genes	Human (hg19)	QAC000004	Results ready	FFPE (175 kb)	26	178.53 kb	1783	2	95.13	Dec 8, 2020	F.424
Custom 1000 Genes	Human (hg19)	QAC000004	Results ready	FFPE (175 kb)	26	178.53 kb	1783	2	95.13	Dec 8, 2020	F.424
Test_10_10genes	Human (hg19)	QAC000004	In Cart	FFPE (175 kb)	156	375.95 kb	4958	2	94.64	Dec 8, 2020	F.424
Test_10_10genes	Human (hg19)	QAC000007	In Cart	FFPE (175 kb)	162	328.71 kb	1947	2	94.03	Dec 8, 2020	F.424
Test_10_10genes	Human (hg19)	QAC000004	In Cart	FFPE (175 kb)	81	337.34 kb	4958	2	95.19	Dec 8, 2020	F.424
Test_10_10genes	Human (hg19)	QAC000004	In Cart	FFPE (175 kb)	44	165.93 kb	2298	2	95.26	Dec 8, 2020	F.424
Test_10_10genes	Human (hg19)	QAC000004	In Cart	FFPE (175 kb)	30	128.81 kb	1947	2	94.05	Dec 8, 2020	F.424
Test_10_10genes	Human (hg19)	QAC000004	In Cart	FFPE (175 kb)	10	34.93 kb	813	2	94.59	Dec 8, 2020	F.424
Test_10_10genes	Human (hg19)	QAC000004	In Cart	FFPE (175 kb)	8	11.45 kb	161	2	94.4	Dec 8, 2020	F.424
Test_10_10genes	Human (hg19)	QAC000004	Results ready	FFPE (175 kb)	4	20.18 kb	291	2	95.44	Dec 7, 2020	F.424
New Custom Design 12	Human (hg19)	QAC000007	Results ready	FFPE (175 kb)	18	87.53 kb	1002	2	93.94	Dec 4, 2020	F.424
New Custom Design 12	Human (hg19)	QAC000007	Results ready	FFPE (175 kb)	18	87.53 kb	1002	2	93.94	Dec 3, 2020	F.424
New Custom Design 18	Human (hg19)	QAC000007	Results ready	FFPE (175 kb)	13	94.93 kb	841	2	95.72	Dec 2, 2020	F.424
New Custom Design 18	Human (hg19)	QAC000007	Results ready	FFPE (175 kb)	13	83.28 kb	1001	2	94.49	Nov 3, 2020	F.424

Find out more at thermofisher.com/oncomine-specific