

# Product selection guide | Ion S5 and Ion S5 XL Systems



APPLICATION	PRODUCTS
CANCER GENOMICS RESEARCH	<p><b>Molecular profiling</b></p> <ul style="list-style-type: none"> <li>Ion AmpliSeq™ Ready-to-Use Panels: Ion AmpliSeq™ Comprehensive Cancer Panel Cat. No. 4477685</li> <li>Ion AmpliSeq™ Custom DNA Panels (order at ampliseq.com)</li> <li>Ion AmpliSeq™ Community Panels: For a complete list of Ion AmpliSeq Community Panels, go to ampliseq.com</li> </ul>
	<ul style="list-style-type: none"> <li>Ion AmpliSeq™ Library Kit 2.0 (96 LV format) Cat. No. 4480441</li> <li>Ion Xpress™ Barcode Adapters 1-96 Kit Cat. No. 4474517</li> <li>OPTIONAL</li> <li>Ion Library Equalizer™ Kit Cat. No. 4482298</li> <li>Ion AmpliSeq™ Sample ID Panel Cat. No. 4479790</li> <li>OR</li> <li>Ion AmpliSeq™ Kit for Chef DL8, 32 rxns Cat. No. A29024</li> <li>Ion AmpliSeq Sample ID Panel Cat. No. 4479790</li> </ul>
	<ul style="list-style-type: none"> <li>Ion Chef™ Instrument Cat. No. 4484177</li> <li>AND</li> <li>Any of the following:                             <ul style="list-style-type: none"> <li>Ion 520™/530™ Kit-Chef Cat. No. A27757</li> <li>Ion 540™ Kit-Chef Cat. No. A27759</li> </ul>                             (includes template preparation and sequencing reagents)                         </li> <li>OR</li> <li>Ion OneTouch™ 2 System Cat. No. 4474779</li> <li>AND</li> <li>Any of the following:                             <ul style="list-style-type: none"> <li>Ion 520™/530™ Kit-OT2 Cat. No. A27751</li> <li>Ion 540™ Kit-OT2 Cat. No. A27753</li> </ul>                             (includes template preparation and sequencing reagents)                         </li> </ul>
	<ul style="list-style-type: none"> <li>Ion S5™ System Cat. No. A27212</li> <li>OR</li> <li>Ion S5™ XL System Cat. No. A27214</li> <li>Ion 520™ Chip Kit (8 rxns) Cat. No. A27762</li> <li>Ion 530™ Chip Kit (8 rxns) Cat. No. A27764</li> <li>Ion 540™ Chip Kit (8 rxns) Cat. No. A27766</li> <li>OPTIONAL</li> <li>Ion S5™ Controls Kit Cat. No. A27760</li> <li>Ion S5™ Calibration Standard Cat. No. A27988</li> </ul>
	<ul style="list-style-type: none"> <li>Torrent Suite™ Software                             <ul style="list-style-type: none"> <li>• Torrent Variant-Caller Plugin</li> </ul> </li> <li>AND</li> <li>Ion Reporter™ Software (cloud or server)</li> </ul>
	<ul style="list-style-type: none"> <li>Ion AmpliSeq™ Cancer Hotspot Panel v2 Chef-Ready Kit Cat. No. A32914 (Ion AmpliSeq Chef Reagents DL8 included)</li> <li>Oncomine™ Comprehensive Library Assay* Cat. No. A29226 (Ion AmpliSeq Library Kit 2.0 included)</li> <li>Oncomine™ Focus Assay* Cat. No. A29230 (Ion AmpliSeq Library Kit 2.0 included with the assay) (Go to thermofisher.com/oncomine-assays for details, then contact a member of the clinical research team to order.)</li> <li>Oncomine™ BRCA Research Assay*, Chef Ready Cat. No. A32841 (Ion AmpliSeq Kit for Chef DL8 included)</li> <li>Oncomine™ BRCA Research Assay*, Manual Cat. No. A32840 (Ion AmpliSeq Library Kit Plus included)</li> </ul>
	<ul style="list-style-type: none"> <li>Oncomine™ Lung cfDNA Assay* Cat. No. A31149 (library construction reagents included)</li> <li>Oncomine™ Breast cfDNA Assay* Cat. No. A31183 (library construction reagents included)</li> <li>Oncomine™ Colon cfDNA Assay* Cat. No. A31182 (library construction reagents included)</li> </ul>
	<ul style="list-style-type: none"> <li>Oncomine™ Immune Response Research Assay*, Automated* Cat. No. A32928 (Ion AmpliSeq Kit for Chef DL8 included)</li> <li>Oncomine™ Immune Response Research Assay* Cat. No. A32881 (Ion AmpliSeq Library Kit 2.0 included)</li> </ul>

\* To learn more about Oncomine™ assays, go to [thermofisher.com/oncomine-assays](http://thermofisher.com/oncomine-assays), then contact a member of the clinical research team to order. All Chef-Ready kits include library equalization reagents and barcodes.

# Product selection guide

## Ion S5 and Ion S5 XL Systems



APPLICATION	PRODUCTS	
CANCER GENOMICS RESEARCH AND INHERITED DISEASE RESEARCH	<p><b>Quantitative gene expression</b></p> <ul style="list-style-type: none"> <li>●</li> </ul>	<p><b>Ion AmpliSeq™ RNA Cancer Research Panel</b> Cat. No. 4482572  <b>Ion AmpliSeq™ RNA Apoptosis Panel</b> Cat. No. 4482571</p> <p><b>Ion AmpliSeq™ RNA Fusion Lung Cancer Research Panel</b> (order at ampliseq.com)  <b>Ion AmpliSeq™ Custom RNA Panels</b> (order at ampliseq.com)</p> <p><b>Ion AmpliSeq Library Kit 2.0</b> (96 LV format) Cat. No. 4480441</p> <p>OPTIONAL</p> <p>Multiplexed sequencing  <b>Ion Xpress™ Barcode Adapters 1-16 Kit</b> Cat. No. 4471250  <b>Ion Xpress Barcode Adapters 1-96 Kit</b> Cat. No. 4474517  <b>Ion AmpliSeq Kit for Chef DL8</b>, 32 rxns Cat. No. A29024</p>
	<p><b>Targeted RNA-Seq</b></p> <ul style="list-style-type: none"> <li>●</li> </ul>	<p><b>Ion AmpliSeq™ Transcriptome Human Gene Expression Kit</b> Cat. No. A26325 (24 reactions), Cat. No. A26326 (96 reactions), Cat. No. A26327 (384 reactions).</p> <p><b>Ion AmpliSeq™ Transcriptome Human Gene Expression Panel, Chef-Ready Kit</b> Cat. No. A31446 (32 reactions)</p>
	<p><b>Whole transcriptome RNA-Seq</b></p> <ul style="list-style-type: none"> <li>●</li> </ul>	<p><b>rRNA depletion:</b>  <b>Invitrogen™ RiboMinus™ Eukaryote System v2</b> Cat. No. A15026</p> <p>OR</p> <p><b>Invitrogen™ Low Input RiboMinus™ Eukaryote System v2</b> Cat. No. A15027</p> <p>OPTIONAL</p> <p><b>Sample controls:</b>  <b>Invitrogen™ ERCC RNA Spike-In Mix</b> Cat. No. 4456740</p> <p><b>Ion Total RNA-Seq Kit v2</b> Cat. No. 4475936 (12 reactions) and Cat. No. 4479789 (48 reactions)</p> <p>Or for less hands-on time:  <b>Ion Total RNA-Seq Kit for AB Library Builder™ System</b> Cat. No. 4482416</p> <p>AND</p> <p><b>Ion Total RNA Library Protocol Card for AB Library Builder™ System</b> Cat. No. 4482563</p> <p>OPTIONAL</p>
	<p><b>mRNA-Seq</b></p> <ul style="list-style-type: none"> <li>●</li> </ul>	<p><b>mRNA isolation:</b>  <b>Invitrogen™ Dynabeads™ mRNA DIRECT™ Micro Kit</b> Cat. No. 61021</p> <p>OPTIONAL</p> <p><b>Sample controls:</b>  <b>ERCC RNA Spike-In Mix</b> Cat. No. 4456740</p> <p>Multiplexed sequencing:  <b>Ion Xpress™ RNA-Seq Barcode 1-16 Kit</b> Cat. No. 4475485            Check quality and quantity of RNA:  <b>Invitrogen™ Qubit™ 3 Fluorometer</b> Cat. No. Q33216</p> <p>AND</p> <p><b>Invitrogen™ Qubit™ RNA HS Assay Kit</b> Cat. No. Q32852</p>
	<p><b>Small RNA analysis</b></p> <ul style="list-style-type: none"> <li>●</li> </ul>	<p><b>Invitrogen™ mirVana™ miRNA Isolation Kit</b> Cat. No. AM1560</p> <p><b>Ion Total RNA-Seq Kit v2</b> Cat. No. 4475936  <b>Ion Xpress RNA-Seq Barcode 1-16 Kit</b> Cat. No. 4475485</p>
	<p><b>Ion Chef Instrument</b> Cat. No. 4484177</p> <p>AND</p> <p>Any of the following:  <b>Ion 520/530 Kit-Chef</b> Cat. No. A27757  <b>Ion 540 Kit-Chef</b> Cat. No. A27759            (includes template preparation and sequencing reagents)</p> <p>OR</p> <p><b>Ion OneTouch 2 System</b> Cat. No. 4474779</p> <p>AND</p> <p>Any of the following:  <b>Ion 520/530 Kit-OT2</b> Cat. No. A27751  <b>Ion 540 Kit-OT2</b> Cat. No. A27753            (includes template preparation and sequencing reagents)</p>	
	<p><b>Ion S5 System</b> Cat. No. A27212</p> <p>OR</p> <p><b>Ion S5 XL System</b> Cat. No. A27214</p> <p><b>Ion 520 Chip Kit (8 rxns)</b> Cat. No. A27762  <b>Ion 530 Chip Kit (8 rxns)</b> Cat. No. A27764  <b>Ion 540 Chip Kit (8 rxns)</b> Cat. No. A27766</p> <p>OPTIONAL</p> <p><b>Ion S5 Controls Kit</b> Cat. No. A27760  <b>Ion S5 Calibration Standard</b> Cat. No. A27988</p>	
	<p><b>Torrent Suite Software</b></p> <ul style="list-style-type: none"> <li>• Coverage Analysis Plugin</li> </ul> <p>AND</p> <ul style="list-style-type: none"> <li>• AmpliSeq RNA plugin</li> </ul> <p>AND</p> <p><b>Third-party software (e.g., Partek™ software)</b></p>	
	<p><b>Torrent Suite Software</b></p> <ul style="list-style-type: none"> <li>• Coverage Analysis Plugin</li> <li>• Ion RNASeq Analysis Plugin</li> </ul> <p>AND</p> <p><b>Third-party software (e.g., Partek software)</b></p>	
	<p><b>Torrent Suite Software</b></p> <ul style="list-style-type: none"> <li>• Ion AmpliSeq™ SmallRNA Analysis</li> </ul>	

# Product selection guide

## Ion S5 and Ion S5 XL Systems



APPLICATION		PRODUCTS				
INHERITED DISEASE RESEARCH	Variant detection with targeted sequencing 	<b>Ion AmpliSeq Pharmacogenomics Research Panel</b> Cat. No. A29251  <b>Community panels</b> For a complete list of Ion AmpliSeq Community Panels, go to <a href="http://ampliseq.com">ampliseq.com</a>  <b>Ion AmpliSeq Custom DNA Panels</b> (order at <a href="http://ampliseq.com">ampliseq.com</a> )	<b>Ion AmpliSeq Library Kit 2.0 (96 LV format)</b> Cat. No. 4480441 <b>Ion Xpress Barcode Adapters 1-96 Kit</b> Cat. No. 4474517  OPTIONAL  <b>Ion Library Equalizer Kit</b> Cat. No. 4482298 <b>Ion AmpliSeq Sample ID Panel</b> Cat. No. 4479790  OR  <b>Ion AmpliSeq Kit for Chef DL8, 32 rxns</b> Cat. No. A29024	<b>Ion Chef Instrument</b> Cat. No. 4484177  AND  any of the following: <b>Ion 520/530 Kit-Chef</b> Cat. No. A27757 <b>Ion 540 Kit-Chef</b> Cat. No. A27759 (includes template preparation and sequencing reagents)  OR  <b>Ion OneTouch 2 System</b> Cat. No. 4474779  AND	<b>Ion S5 System</b> Cat. No. A27212  OR  <b>Ion S5 XL System</b> Cat. No. A27214  <b>Ion 520 Chip Kit (8 rxns)</b> Cat. No. A27762 <b>Ion 530 Chip Kit (8 rxns)</b> Cat. No. A27764 <b>Ion 540 Chip Kit (8 rxns)</b> Cat. No. A27766  OPTIONAL  <b>Ion S5 Controls Kit</b> Cat. No. A27760 <b>Ion S5 Calibration Standard</b> Cat. No. A27988	<b>Torrent Suite Software</b> • Torrent Variant-Caller Plugin  AND  <b>Ion Reporter Software</b> (cloud or server)
	Variant detection with exome sequencing 	<b>Ion AmpliSeq™ Exome RDY Kit 1x8</b> Cat. No. A29854  OR  <b>Ion AmpliSeq™ Exome RDY Kit 4x2</b> Cat. No. A29855	Ion AmpliSeq™ library kits included in Ion AmpliSeq™ exome kits  OPTIONAL  Check quality and quantity of dsDNA <b>Invitrogen™ Qubit™ 3 NGS Starter Kit</b> Cat. No. Q33218 (includes Qubit 3 Fluorometer, Qubit™ dsDNA HS Assay Kit, and Qubit™ Assay Tubes) <b>Multiplexed sequencing</b> <b>Ion Xpress Barcode Adapters 1-16 Kit</b> Cat. No. 4471250	any of the following: <b>Ion 520/530 Kit-OT2</b> Cat. No. A27751 <b>Ion 540 Kit-OT2</b> Cat. No. A27753 (includes template preparation and sequencing reagents)	<b>Ion S5 Controls Kit</b> Cat. No. A27760 <b>Ion S5 Calibration Standard</b> Cat. No. A27988	<b>Torrent Suite Software</b>  AND  <b>Ion Reporter Software</b> (cloud or server)



**SELECT TARGETS**



**CONSTRUCT LIBRARY**



**PREPARE TEMPLATE**



**RUN SEQUENCE**



**ANALYZE DATA**

APPLICATION	PRODUCTS				
INFECTIOUS DISEASE RESEARCH	Discovery and characterization	<p><b>Ion Xpress™ Plus Fragment Library Kit</b> Cat. No. 4471269</p> <p>OR</p> <p><b>MuSeek Library Preparation Kit, Ion Torrent compatible</b> Cat. No. K1331</p> <p>OPTIONAL</p> <p><b>Ion Xpress Barcode Adapters 1-96 Kit</b> Cat. No. 4474517</p> <p><b>Ion Total RNA-Seq Kit v2</b> Cat. No. 4475936</p>	<p><b>Ion Chef Instrument</b> Cat. No. 4484177</p> <p>AND</p> <p>any of the following:  <b>Ion 520/530 Kit-Chef</b> Cat. No. A27757  <b>Ion 540 Kit-Chef</b> Cat. No. A27759                      For 600 bp (longer-read) sequencing <b>Ion 520™ and Ion 530™ ExT Kit-Chef</b> Cat. No. A30670 (for Ion 520 and 530 chips only; includes template preparation and sequencing reagents)</p> <p>OR</p> <p><b>Ion OneTouch 2 System</b> Cat. No. 4474779</p>	<p><b>Ion S5 System</b> Cat. No. A27212</p> <p>OR</p> <p><b>Ion S5 XL System</b> Cat. No. A27214</p> <p><b>Ion 520 Chip Kit (8 rxns)</b> Cat. No. A27762  <b>Ion 530 Chip Kit (8 rxns)</b> Cat. No. A27764  <b>Ion 540 Chip Kit (8 rxns)</b> Cat. No. A27766</p> <p>OPTIONAL</p> <p><b>Ion S5 Controls Kit</b> Cat. No. A27760  <b>Ion S5 Calibration Standard</b> Cat. No. A27988</p>	<p><b>Torrent Suite Software</b></p> <ul style="list-style-type: none"> <li>• Assembler SPAdes v3.1 Plugin</li> </ul>
	Targeted sequencing	<p><b>Ion AmpliSeq Community Panels</b> For a complete list of Ion AmpliSeq Community Panels visit <a href="http://ampliseq.com">ampliseq.com</a></p> <p><b>Ion AmpliSeq Custom DNA or RNA Panels</b> Order at <a href="http://ampliseq.com">ampliseq.com</a></p>	<p><b>Ion AmpliSeq Library Kit 2.0 (96 LV format)</b> Cat. No. 4480441</p> <p><b>Ion Xpress Barcode Adapters 1-96 Kit</b> Cat. No. 4474517</p> <p>OPTIONAL</p> <p><b>Ion Library Equalizer Kit</b> Cat. No. 4482298</p>	<p>AND</p> <p>any of the following:  <b>Ion 520/530 Kit-OT2</b> Cat. No. A27751  <b>Ion 540 Kit-OT2</b> Cat. No. A27753                      (includes template preparation and sequencing reagents)</p>	<p><b>Torrent Suite Software</b></p> <p>AND</p> <p><b>Ion Reporter Software</b> (cloud or server)</p>
	Metagenomics	<p><b>Ion 16S™ Metagenomics Kit</b> Cat. No. A26216</p>	<p><b>Ion Xpress Plus Fragment Library Kit</b> Cat. No. 4471269</p> <p>OR</p> <p><b>MuSeek Library Preparation Kit, Ion Torrent compatible</b> Cat. No. K1331</p>		<p><b>Torrent Suite Software</b></p> <p>AND</p> <p><b>Ion Reporter Software</b> (cloud or server)</p> <ul style="list-style-type: none"> <li>• Ion 16S Metagenomics workflow</li> </ul>
	Bacterial and viral typing research		<p>OPTIONAL</p> <p><b>Ion Xpress Barcode Adapters 1-96 Kit</b> Cat. No. 4474517</p> <p><b>For use with Ion 16S™ Metagenomics Kit</b>  <b>Ion Universal Library Quantitation Kit</b> Cat. No. A26217</p>		<p><b>Torrent Suite Software</b></p> <ul style="list-style-type: none"> <li>• Pathogen Detector Plugin</li> </ul> <p><b>ABL ViroScore-HIV Application Subscription</b></p>
PLANT AND ANIMAL GENOMICS RESEARCH	Variant detection	<p>Design custom panels for any reference genome using the Ion AmpliSeq™ Designer at <a href="http://ampliseq.com">ampliseq.com</a>. Upload a custom reference or use one of the preloaded reference genomes: Mouse, chicken, cow, pig, sheep, Chinese hamster, dog, maize, rice, soybean, or tomato.</p>	<p><b>Ion AmpliSeq Library Kit 2.0 (96 LV format)</b> Cat. No. 4480441</p> <p><b>Ion Xpress Barcode Adapters 1-96 Kit</b> Cat. No. 4474517</p> <p>OPTIONAL</p> <p><b>Ion Library Equalizer Kit</b> Cat. No. 4482298</p> <p>OR</p> <p><b>Ion AmpliSeq Kit for Chef DL8, 32 rxns</b> Cat. No. A29024</p>	<p><b>Torrent Suite Software</b></p> <ul style="list-style-type: none"> <li>• Torrent Variant-Caller Plugin</li> </ul>	