

VariantPlex-HT Expanded Solid Tumor

Description

The VariantPlex-HT Expanded Solid Tumor panel is a balanced pool of gene-specific primer (GSP) oligonucleotides that is optimized for use with VariantPlex-HT reagents and molecular barcode (MBC) adapters to produce targeted NGS libraries. This product insert should be used in conjunction with VariantPlex-HT protocol for Illumina® (RA-DOC-058).

VariantPlex-HT Expanded Solid Tumor contains **2676** GSPs targeting **76** genes commonly mutated in solid tumors.

Description	Part number	Storage
VariantPlex-HT Expanded Solid Tumor GSP1, 24 reactions or VariantPlex-HT Expanded Solid Tumor GSP1, 96 reactions	SA20123241 or SA20123961	-20°C ± 10°C
VariantPlex-HT Expanded Solid Tumor GSP2, 24 reactions or VariantPlex-HT Expanded Solid Tumor GSP2, 96 reactions	SA20123242 or SA20123962	

Required reagent volumes

Protocol reference	Protocol step	Reagent	Volume per reaction (µL)
A	Ligation Step 2 Elution	5mM NaOH	20
B	First PCR	VariantPlex-HT Expanded Solid Tumor GSP1	8
C	First PCR	10mM Tris-HCl pH 8.0	18
D	First PCR	Purified PCR1 eluate	16
E	Second PCR	VariantPlex-HT Expanded Solid Tumor GSP2	8

Recommended PCR cycling

	Step	Temperature (°C)	Time	Cycles
First PCR reaction	1	95	3 min	1
	2	95	30 sec	
	3	62	10 min (100% ramp rate)	15
	4	72	3 min	1
	5	4	Hold	1
Second PCR reaction	1	95	3 min	1
	2	95	30 sec	
	3	65	10 min (100% ramp rate)	20†
	4	72	3 min	1
	5	4	Hold	1

†The number of PCR2 cycles may be decreased if you regularly experience library yields greater than 200 nM.

Recommended reads and multiplexing

VariantPlex-HT Expanded Solid Tumor libraries should be sequenced to a minimum of **6M** reads. Starting read depth recommendations for standard profiling may be adjusted based on user needs.

Archer™ Analysis settings

Sequencing data should be processed using Archer Analysis (v7, or greater). The VariantPlex-HT Expanded Solid Tumor panel requires selection of **SNV/Indel, Structural Variation, and Copy Number Variation** pipelines, found under the **DNA** Input Type (see the Archer Analysis User Guide for more details on setting up your analysis). Selection of the DNA Target Coverage pipeline is optional.

Processing of VariantPlex-HT Expanded Solid Tumor libraries requires a one-time upload of the Panel GTF. When performing DNA Target Coverage analysis, users must also select a Region of Interest BED file. Users may optionally add a Targeted Mutations VCF file for targeted SNV/Indel detection. Files can be obtained by contacting archer-tech@idtdna.com

Assay targets

Gene	Accession	Exon
<i>AKT1</i>	NM_005163	2,3,6,11
<i>ALK</i>	NM_004304	21,22,23,24,25
<i>APC</i>	NM_000038	16
<i>AR</i>	NM_000044	4,5,6,7,8
<i>ATM</i>	NM_000051	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36,37,38,39,40,41,42,43,44,45,46,47,48,49,50,51,52,53,54,55,56,57,58,59,60,61,62,63
<i>ATRX</i>	NM_000489	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35
<i>BARD1</i>	NM_000465	1,2,3,4,5,6,7,8,9,10,11
<i>BRAF</i>	NM_004333	11,15
<i>BRCA1</i>	NM_007294	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23
<i>BRCA1</i>	NM_007300	13
<i>BRCA2</i>	NM_000059	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27
<i>BRIP1</i>	NM_032043	2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20
<i>CDK12</i>	NM_015083	1,2,3,4,5,6,7,8,9,10,11,12,13
<i>CDK12</i>	NM_016507	14
<i>CDK4</i>	NM_000075	2,3,4,5,6,7,8
<i>CDK6</i>	NM_001259	CNV Only

Gene	Accession	Exon
<i>CDKN2A</i>	NM_000077	2,3
<i>CDKN2A</i>	NM_058197	1
<i>CHEK1</i>	NM_001114121	1
<i>CHEK1</i>	NM_001274	3,4,5,6,7,8,9,10,11,12,13
<i>CHEK1</i>	NM_001330427	2
<i>CHEK2</i>	NM_001349956	4
<i>CHEK2</i>	NM_001005735	3
<i>CHEK2</i>	NM_007194	2,3,4,5,6,7,8,9,10,11,12,13,14,15
<i>CTNNB1</i>	NM_001904	3
<i>DDR2</i>	NM_006182	8,15,17
<i>EGFR</i>	NM_005228	3,7,12,15,18,19,20,21,22
<i>EGFR</i>	NM_201282	16
<i>EGFR</i>	NM_201283	10
<i>ERBB2</i>	NM_004448	8,10,17,19,20,21,22,24
<i>ERBB3</i>	NM_001005915	3
<i>ERBB3</i>	NM_001982	2,3,7,8,9,18,23,27,28
<i>ERBB4</i>	NM_005235	3,4,6,7,8,9,15,23
<i>ESR1</i>	NM_000125	5,6,7,8
<i>FANCA</i>	NM_000135	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36,37,38,39,40,41,42,43

Gene	Accession	Exon
<i>FANCA</i>	NM_001018112	11
<i>FANCL</i>	NM_001114636	7
<i>FANCL</i>	NM_018062	1,2,3,4,5,6,8,9,10,11,12,13,14
<i>FBXW7</i>	NM_001013415	1
<i>FBXW7</i>	NM_001257069	4
<i>FBXW7</i>	NM_018315	1,2,3,4,5,6,7,8,9,10,11
<i>FGFR1</i>	NM_001174064	3
<i>FGFR1</i>	NM_001174067	2
<i>FGFR1</i>	NM_015850	2,4,5,8,13,14
<i>FGFR2</i>	NM_000141	2,5,7,9,12,13,14,15
<i>FGFR2</i>	NM_022970	8
<i>FGFR3</i>	NM_000142	3,7,9,13,14,16
<i>FOXL2</i>	NM_023067	1 (p.C134)
<i>GNA11</i>	NM_002067	5
<i>GNAQ</i>	NM_002072	4,5
<i>GNAS</i>	NM_000516	6,7,8,9
<i>H3F3A</i>	NM_002107	2
<i>HIST1H3B</i>	NM_003537	1
<i>HRAS</i>	NM_005343	2,3

Gene	Accession	Exon
<i>IDH1</i>	NM_005896	3,4
<i>IDH2</i>	NM_002168	4
<i>JAK2</i>	NM_004972	6,12,14,23
<i>KIT</i>	NM_000222	2,8,9,10,11,12,13,14,15,17,18
<i>KRAS</i>	NM_004985	2,3,4,5
<i>MAP2K1</i>	NM_002755	2,3,6
<i>MAP2K2</i>	NM_030662	2,6
<i>MET</i>	NM_000245	2,11,14,15,16,19,20,21
<i>MTOR</i>	NM_004958	30,39,40,44,45,47,48,50
<i>MYC</i>	NM_002467	1,2,3
<i>NOTCH1</i>	NM_017617	24,25,26,27,28,29,34,c.*7668+371 to c.*7668+378
<i>NOTCH2</i>	NM_024408	24,25,26,27,28,29,34
<i>NOTCH3</i>	NM_000435	24,25,26,27,28,29,33
<i>NOTCH4</i>	NM_004557	26,27,28,29,30
<i>NRAS</i>	NM_002524	2,3,4,5
<i>NTRK1</i>	NM_002529	14,15
<i>NTRK2</i>	NM_006180	18,19
<i>NTRK3</i>	NM_002530	16,17
<i>PALB2</i>	NM_024675	1,2,3,4,5,6,7,8,9,10,11,12,13

Gene	Accession	Exon
<i>PDGFRA</i>	NM_006206	7,10,11,12,14,15,16,18,23
<i>PIK3CA</i>	NM_006218	2,3,5,7,8,9,10,14,19,21
<i>POLD1</i>	NM_001308632	14
<i>POLD1</i>	NM_002691	2,3,4,5,6,7,8,9,10,11,12,13,14,16,17,18,19,20,21,22,23,24,25,26,27
<i>POLE</i>	NM_006231	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36,37,38,39,40,41,42,43,44,45,46,47,48,49
<i>PTEN</i>	NM_000314	1,2,3,4,5,6,7,8,9
<i>RAD51B</i>	NM_001321809	12
<i>RAD51B</i>	NM_001321810	11
<i>RAD51B</i>	NM_001321814	11
<i>RAD51B</i>	NM_001321818	11
<i>RAD51B</i>	NM_001321819	11
<i>RAD51B</i>	NM_002877	2,3,4,5,6,7,8,9,10,11
<i>RAD51B</i>	NM_133509	11
<i>RAD51B</i>	NM_133510	11
<i>RAD51C</i>	NM_002876	1,2
<i>RAD51C</i>	NM_058216	3,4,5,6,7,8,9
<i>RAD51D</i>	NM_001142571	3
<i>RAD51D</i>	NM_002878	1,2,3,4,5,6,7,8,9,10
<i>RAD54L</i>	NM_003579	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18

Gene	Accession	Exon
<i>RAF1</i>	NM_002880	3,7,10,14
<i>RB1</i>	NM_000321	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27
<i>RET</i>	NM_020630	10,11,13,14,15,16
<i>RICTOR</i>	NM_152756	CNV Only
<i>ROS1</i>	NM_002944	36,37,38,39,40,41,42
<i>SMAD4</i>	NM_005359	2,3,4,5,6,7,8,9,10,11,12
<i>SMO</i>	NM_005631	1,2,3,4,5,6,7,8,9,10,11,12
<i>STK11</i>	NM_000455	1,2,3,4,5,6,7,8,9
<i>TERT</i>	NM_198253	3,6,10
<i>TERT</i>	NM_198253	Promoter (chr5:1295148-1295374)
<i>TP53</i>	NM_000546	1,2,3,4,5,6,7,8,9,10,11
<i>TP53</i>	NM_001276696	10
<i>VHL</i>	NM_000551	1,2,3

Genes targeted for CNV

<i>AKT1</i>	<i>BRCA2</i>	<i>EGFR</i>	<i>JAK2</i>	<i>PIK3CA</i>
<i>ALK</i>	<i>BRIP1</i>	<i>ERBB2</i>	<i>KIT</i>	<i>PTEN</i>
<i>AR</i>	<i>CDK12</i>	<i>ERBB3</i>	<i>KRAS</i>	<i>RAD51B</i>
<i>ATM</i>	<i>CDK4</i>	<i>ESR1</i>	<i>MET</i>	<i>RAF1</i>
<i>BARD1</i>	<i>CDK6</i>	<i>FGFR1</i>	<i>MYC</i>	<i>RET</i>
<i>BRAF</i>	<i>CHEK1</i>	<i>FGFR2</i>	<i>NRAS</i>	<i>RICTOR</i>
<i>BRCA1</i>	<i>CHEK2</i>	<i>FGFR3</i>	<i>PDGFRA</i>	<i>STK11</i>
				<i>TERT</i>



Product Insert

VariantPlex™-HT Expanded Solid Tumor

Please contact archer-tech@idtdna.com to inquire about enabling additional genes for CNV detection.

SNPs and sites targeted for sample tracking

rs560681	rs430046	rs987640	rs10776839	rs12393891
rs740598	rs8078417	rs6444724	rs6530357	chrX:4429309
rs1498553	rs9951171	rs6811238	rs5971553	chrX:11314433
rs10773760	rs576261	rs13182883	rs5953060	chrY:6738552
rs1058083	rs1109037	rs214955	rs6524626	chrY:19490214
rs4530059	rs1523537	rs321198	rs5940270	
rs1821380	rs221956	rs4606077	rs722847	

SNPs may be used in combination to uniquely tag and track samples over time. Contact archer-tech@idtdna.com for further details.

Limitations of use

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Safety data sheets pertaining to this product are available upon request.

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