

FusionPlex® Oncology Research

Part # SK0085

Description

The FusionPlex® Oncology Research panel is an optimized, balanced pool of gene-specific primers (GSPs) that is used in conjunction with FusionPlex® Reagents and Molecular Barcode (MBC) Adapters to produce targeted NGS libraries.

FusionPlex® Oncology Research contains **393** GPSs targeting **75** genes commonly mutated in solid tumor type cancers.

Contents

Description	Part Number	Storage Conditions
Archer® FusionPlex® Oncology Research Panel GSP1 - 8 reactions	SA0072-8-1	-20°C ± 10°C
Archer® FusionPlex® Oncology Research Panel GSP2 - 8 reactions	SA0072-8-2	
10X VCP Primer Mix	SA0126	

Recommended Reads per sample

The recommended sequencing depth for FusionPlex Oncology Research libraries is **3,000,000** reads per sample.

Assay Targets

Gene	Accession	Exon	Assay Type	Direction
ABL1	NM_005157.4	2, 3, 4	Fusion	5'
ABL2	NM_007314	4, 5, 6	Fusion	5'
AKT1	NM_005163	2, 3, 5	Fusion	5'
AKT2	NM_001626	5	Fusion	5'
AKT3	NM_005465	1, 2, 3	Fusion	5'
ALK	NM_004304	Intron 19	Fusion	5'
ALK	NM_004304	2, 17, 19, 20, 21, 22	Fusion	5'
ARHGAP26	NM_015071	2, 10, 11, 12	Fusion	5'
AXL	NM_021913	19, 20	Fusion	3'
BRAF	NM_004333	7, 8, 9, 10, 11, 12	Fusion	5'
BRAF	NM_004333	7, 8	Fusion	3'
BRAF	NM_004333	15 ⁱ	SNV (V600E)	5'
BRD3	NM_007371	9, 10, 11, 12	Fusion	3'
BRD4	NM_058243	10, 11	Fusion	3'
CRLF2	NM_022148	1	Fusion	5'

CSF1R	NM_005211	11, 12, 13	Fusion	5'
EGFR	NM_005228	7, 8, 9, 16, 20	Fusion	5'
EGFR	NM_005228	24, 25	Fusion	3'
EPOR	NM_000121	1, 2	Fusion	5'
EPOR	NM_000121	7, 8	Truncation	3'
ERBB2	NM_001005862	2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 17, 18	Fusion	5'
ERBB4	NM_005235	2, 3, 4	Fusion	3'
ERG	NM_004449	2, 3, 4, 5, 6, 7, 8, 9, 10, 11	Fusion	5'
ESR1	NM_001122742	1, 2, 3, 4, 5, 6	Fusion	3'
ESRRA	NM_004451.4	2, 3	Fusion	3'
ETV1	NM_004956	3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13	Fusion	5'
ETV4	NM_001986	2, 4, 5, 6, 7, 8, 9, 10	Fusion	5'
ETV5	NM_004454	2, 3, 7, 8, 9	Fusion	5'
ETV6	NM_001987	1, 2, 3, 4, 5, 6	Fusion	3'
ETV6	NM_001987	2, 3, 5, 6, 7	Fusion	5'
EWSR1	NM_005243	4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14	Fusion	3'
FGFR1	NM_015850	2, 8, 9, 10	Fusion	5'
FGFR1	NM_015850	17	Fusion	3'
FGFR2	NM_000141.4	2, 8, 9, 10	Fusion	5'
FGFR2	NM_000141.4	17	Fusion	3'
FGFR3	NM_000142	Intron 17	Fusion	3'
FGFR3	NM_000142	8, 9, 10	Fusion	5'
FGFR3	NM_000142	17	Fusion	3'
FGR	NM_005248	2	Fusion	5'
IL2RB	NM_000878.3	2	Fusion	5'
INSR	NM_000208	12, 13, 14, 15, 16, 17, 18, 19	Fusion	5'
INSR	NM_000208	20, 21, 22	Fusion	3'
JAK1	NM_002227	9, 11, 16, 17, 19	Fusion	5'
JAK1	NM_002227	9, 11, 16, 17, 19	Fusion	3'
JAK2	NM_004972	9, 10, 11, 12, 13, 14, 16, 17, 18, 19	Fusion	5'
JAK3	NM_000215	9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19	Fusion	5'
KIT	NM_000222	11	Fusion	5'
MAML2	NM_032427	2, 3	Fusion	5'
MAST1	NM_014975	7, 8, 9, 18, 19, 20, 21	Fusion	5'
MAST2	NM_015112.2	2, 3, 5, 6	Fusion	5'
MET	NM_000245	2, 13, 14, 15, 16	Fusion	5'
MET	NM_000245	13, 15 (exon 14 skipping event) ⁱⁱ	Mutation	N/A
MSMB	NM_002443	2, 3, 4	Fusion	3'
MUSK	NM_005592	7, 8, 9, 11, 12, 13, 14	Fusion	5'
MYB	NM_001130173	7, 8, 9, 11, 12, 13, 14, 15, 16	Fusion	3'
MYC	NM_002467	1, 2, 3	Fusion	5'
MYC	NM_002467	3	Fusion	3'
NOTCH1	NM_017617.3	26, 27, 28, 29 (internal deletion exons 3-27) ⁱⁱⁱ	Fusion	5'
NOTCH1	NM_017617.3	2, 4, 29, 30, 31	Fusion	3'

NOTCH2	NM_024408	26, 27, 28	Fusion	5'
NOTCH2	NM_024408	5, 6, 7	Fusion	3'
NRG1	NM_004495	1, 2, 3, 6	Fusion	5'
NTRK1	NM_002529	8, 10, 11, 12, 13	Fusion	5'
NTRK2	NM_006180	11, 12, 13, 14, 15, 16, 17	Fusion	5'
NTRK3	NM_002530	13, 14, 15, 16	Fusion	5'
NTRK3	NM_001007156	15	Fusion	5'
NUMBL	NM_004756	3	Fusion	5'
NUT	NM_175741	3	Fusion	5'
PDGFRA	NM_006206	10, 11, 12, 13, 14	Fusion	5'
PDGFRA	NM_006206	7 (exon 8 deletion) ^v	Fusion	3'
PDGFRA	NM_006206	T6741 ^v , D842 ^v , 15, 18	Mutation	N/A
PDGFRB	NM_002609	8, 9, 10, 11, 12, 13, 14	Fusion	5'
PIK3CA	NM_006218	2	Fusion	5'
PKN1	NM_002741	10, 11, 12, 13	Fusion	5'
PPARG	NM_015869	1, 2, 3, 4	Fusion	5'
PRKCA	NM_002737.2	4, 5, 6	Fusion	5'
PRKCB	NM_002738	3	Fusion	5'
PTK2B	NM_173174	6, 7, 8	Fusion	5'
RAF1	NM_002880	4, 5, 6, 7, 9, 10, 11, 12	Fusion	5'
RAF1	NM_002880	4, 5, 6, 7, 9	Fusion	3'
RARA	NM_000964	2, 3, 4	Fusion	5'
RARA	NM_000964	3	Fusion	3'
RELA	NM_021975.3	3, 4	Fusion	5'
RET	NM_020975.4	8, 9, 10, 11, 12, 13	Fusion	5'
ROS1	NM_002944.2	31, 32, 33, 34, 35, 36, 37	Fusion	5'
RSPO2	NM_178565.4	1, 2	Fusion	5'
RSPO3	NM_032784.4	2	Fusion	5'
SYK	NM_003177	5	Fusion	5'
TERT	NM_198253	2	Fusion	5'
TFE3	NM_006521	2, 3, 4, 5, 6, 7, 8	Fusion	5'
TFE3	NM_006521	2, 3, 4, 5, 6	Fusion	3'
TFEB	NM_007162.2	1, 2	Fusion	5'
THADA	NM_022065	24, 25, 26, 27, 28, 29, 30	Fusion	3'
TMPRSS2	NM_005656	1	Fusion	3'
TMPRSS2	NM_001135099	1, 2, 3, 4, 5, 6	Fusion	3'
TSLP	NM_033035.4	1	Fusion	5'
TYK2	NM_003331.4	18	Fusion	5'

References

- i. Cantwell-Dorris *et al.* BRAFV600E: Implications for Carcinogenesis and Molecular Therapy. *Mol Cancer Ther.* **10**(3):385-94 (2011)
- ii. Ma *et al.* c-MET mutational analysis in small cell lung cancer: novel juxtamembrane domain mutations regulating cytoskeletal functions. *Cancer Res.* **63**(19):6272-81 (2003)
- iii. Ashworth *et al.* Deletion-based mechanisms of Notch1 activation in T-ALL: key roles for RAG recombinase and a conserved internal translational start site in Notch1. *Blood.* **116**(25): 5455–5464 (2010)
- iv. Ozawa *et al.* PDGFRA gene rearrangements are frequent genetic events in PDGFRA-amplified glioblastomas. *Genes & Dev.* **24**:2205-2218 (2010)
- v. E. Lierman *et al.*, FIP1L1-PDGFRalpha D842V, a novel panresistant mutant, emerging after treatment of FIP1L1- PDGFRalpha T674I eosinophilic leukemia with single agent sorafenib. *Leukemia.* **23**:845–851 (2009).

Archer Analysis Settings

Sequencing data should be processed using **Archer Analysis** (v5.0 or greater). The FusionPlex® Oncology Research panel requires selection of the **RNA Fusion** pipeline, found under the RNA Analysis Type in Archer Analysis. The **RNA SNP/InDel** pipeline may optionally be chosen as well (see the software user manual for further details on setting up analyses).

Limitations of Use

For Research Use Only. Not for use in diagnostic procedures. Not intended to be used for treatment of human or animal disease.

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

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