

## FusionPlex® Lymphoma

### Part # SK0090

#### Description

The FusionPlex Lymphoma 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 Lymphoma contains **716** GSPs targeting **125** genes commonly mutated in lymphoid malignancies.

#### Contents

| Description                                     | Part Number | Storage Conditions |
|---|-------------|--------------------|
| Archer® FusionPlex® Lymphoma GSP1 - 8 reactions | SA0077-8-1  | -20°C ± 10°C       |
| Archer® FusionPlex® Lymphoma GSP2 - 8 reactions | SA0077-8-2  |                    |
| 10X VCP Primer Mix                              | SA0126      |                    |

#### Recommended Reads and Multiplexing

The recommended sequencing depth for FusionPlex Lymphoma libraries is **2,000,000** reads per sample.

#### Assay Targets

| Gene   | Accession | Exon  | Assay Type | Description                            |
|--------|-----------|---|------------|--|
| AICDA  | NM_020661 | N/A   | Expression | N/A                                    |
| AKT3   | NM_005465 | N/A   | Mutation   | K172                                   |
| ALK    | NM_004304 | N/A   | Mutation   | T1151-C1156, F1174, L1196-S1206, G1269 |
| ALK    | NM_004304 | 2, 4, 6, 10, 16, 17, 18, 19, 20, 21, 22, 23 | Fusion     | 5'                                     |
| ASB13  | NM_024701 | N/A   | Expression | N/A                                    |
| BATF3  | NM_018664 | N/A   | Expression | N/A                                    |
| BAX    | NM_138761 | N/A   | Mutation   | G179                                   |
| BCL2   | NM_000633 | N/A   | Mutation   | F104                                   |
| BCL2   | NM_000633 | N/A   | Expression | N/A                                    |
| BCL2   | NM_000633 | 3   | Fusion     | 3'                                     |
| BCL2   | NM_000633 | 2   | Fusion     | 5'                                     |
| BCL2A1 | NM_004049 | N/A   | Expression | N/A                                    |
| BCL3   | NM_005178 | N/A   | Expression | N/A                                    |
| BCL6   | NM_001706 | N/A   | Expression | N/A                                    |
| BCL6   | NM_001706 | 2, 3  | Fusion     | 5'                                     |

|         |           |                                |            |   |
|---------|-----------|--------------------------------|------------|---|
| BCR     | NM_004327 | 1, 2, 3, 8, 12, 13, 14, 15, 16 | Fusion     | 3'                                      |
| BIRC3   | NM_001165 | N/A                            | Mutation   | Q547                                    |
| BIRC3   | NM_001165 | 4, 5, 6, 7                     | Fusion     | 3'                                      |
| BLNK    | NM_013314 | N/A                            | Expression | N/A                                     |
| BMF     | NM_033503 | N/A                            | Expression | N/A                                     |
| BMP7    | NM_001719 | N/A                            | Expression | N/A                                     |
| BRAF    | NM_004333 | N/A                            | Mutation   | V600                                    |
| BTK     | NM_000061 | N/A                            | Mutation   | C481                                    |
| CARD11  | NM_032415 | N/A                            | Mutation   | D230                                    |
| CBFB    | NM_022845 | 4,5                            | Fusion     | 3'                                      |
| CCDC50  | NM_174908 | N/A                            | Expression | N/A                                     |
| CCND1   | NM_053056 | N/A                            | Expression | N/A                                     |
| CCND1   | NM_053056 | 5                              | Fusion     | 3'                                      |
| CCND1   | NM_053056 | N/A                            | Mutation   | E36, V42-C47                            |
| CCND2   | NM_001759 | N/A                            | Expression | N/A                                     |
| CCND3   | NM_001760 | N/A                            | Expression | N/A                                     |
| CCND3   | NM_001760 | 2                              | Fusion     | 5'                                      |
| CD274   | NM_014143 | N/A                            | Expression | N/A                                     |
| CD44    | NM_000610 | N/A                            | Expression | N/A                                     |
| CD79B   | NM_000626 | N/A                            | Mutation   | Y196                                    |
| CDC25A  | NM_001789 | N/A                            | Expression | N/A                                     |
| CDK6    | NM_001259 | 1, 2, 3, 4                     | Fusion     | 3'                                      |
| CDKN2A  | NM_000077 | N/A                            | Expression | N/A                                     |
| CDKN2B  | NM_004936 | N/A                            | Expression | N/A                                     |
| CEBPD   | NM_005195 | N/A                            | Expression | N/A                                     |
| CEBPE   | NM_001805 | N/A                            | Expression | N/A                                     |
| CEBPG   | NM_001806 | N/A                            | Expression | N/A                                     |
| CHIC2   | NM_012110 | 1, 2, 3                        | Fusion     | 3'                                      |
| CIITA   | NM_000246 | 1, 2                           | Fusion     | 3'                                      |
| CREB3L2 | NM_194071 | N/A                            | Expression | N/A                                     |
| CREBBP  | NM_004380 | N/A                            | Mutation   | P1053, C1240,<br>R1446, S1680-<br>L1681 |
| CREBBP  | NM_004380 | 2, 3, 4, 5, 6                  | Fusion     | 5'                                      |
| CTLA4   | NM_005214 | N/A                            | Expression | N/A                                     |
| CYB5R2  | NM_016229 | N/A                            | Expression | N/A                                     |
| DEK     | NM_003472 | 2, 3                           | Fusion     | 3'                                      |
| DENND3  | NM_014957 | N/A                            | Expression | N/A                                     |
| DLEU1   | NR_002605 | N/A                            | Expression | N/A                                     |
| DNMT3A  | NM_175629 | N/A                            | Mutation   | R688-K693,<br>R882                      |
| DNMT3B  | NM_006892 | N/A                            | Expression | N/A                                     |
| DNTT    | NM_004088 | N/A                            | Expression | N/A                                     |
| DUSP22  | NM_020185 | 1, 2                           | Fusion     | 3'                                      |
| E2F2    | NM_004091 | N/A                            | Expression | N/A                                     |
| EIF4A1  | NM_001416 | 2, 3                           | Fusion     | 5'                                      |

|          |           |  |            |   |
|----------|-----------|--|------------|---|
| ENTPD1   | NM_001776 | N/A  | Expression | N/A   |
| ETV6     | NM_001987 | N/A  | Mutation   | Y104-R105   |
| ETV6     | NM_001987 | 1, 2, 3, 4, 5, 6   | Fusion     | 3'  |
| ETV6     | NM_001987 | 2, 3, 4, 5, 6  | Fusion     | 5'  |
| EXOC2    | NM_018303 | N/A  | Expression | N/A   |
| EZH2     | NM_004456 | N/A  | Mutation   | Y602, Y646, R690  |
| FAM216A  | NM_013300 | N/A  | Expression | N/A   |
| FBXW7    | NM_033632 | N/A  | Mutation   | R224-T226, R338-I347, T385, R465, R479, R505  |
| FGFR1    | NM_023110 | 12, 17   | Fusion     | 3'  |
| FGFR1    | NM_023110 | 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 17   | Fusion     | 5'  |
| FOXP1    | NM_032682 | N/A  | Expression | N/A   |
| FUT8     | NM_004480 | N/A  | Expression | N/A   |
| IDH1     | NM_005896 | N/A  | Mutation   | R132  |
| IDH2     | NM_002168 | N/A  | Mutation   | R140, R172  |
| IL16     | NM_004513 | N/A  | Expression | N/A   |
| IRF4     | NM_002460 | N/A  | Expression | N/A   |
| IRF8     | NM_002163 | N/A  | Expression | N/A   |
| ITPKB    | NM_002221 | N/A  | Expression | N/A   |
| JAK1     | NM_002227 | N/A  | Mutation   | V658, S703, R724  |
| JAK2     | NM_004972 | N/A  | Mutation   | F537-F547, V617-C618, L681-R683, L855, V863, A880, V911, M929-R938, I960, R980-E985, D994 |
| JAK2     | NM_004972 | 6, 7, 8, 9, 10, 11, 12, 13, 15, 16, 17, 18, 19, 20   | Fusion     | 5'  |
| JAK2     | NM_004972 | 9, 10, 11, 12  | Fusion     | 3'  |
| JAK3     | NM_000215 | N/A  | Mutation   | M511, A572-A573, R657, S789   |
| KIAA0101 | NM_014736 | N/A  | Expression | N/A   |
| KMT2A    | NM_005933 | 2, 3   | Fusion     | 5'  |
| KMT2A    | NM_005933 | 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 | Fusion     | 3'  |
| KRAS     | NM_004985 | N/A  | Mutation   | G12-G13, Q61,   |

|          |              |   |               |   |
|----------|--------------|---|---------------|---|
|          |              |   |               | A146  |
| LIMD1    | NM_014240    | N/A   | Expression    | N/A   |
| LMO2     | NM_005574    | N/A   | Expression    | N/A   |
| LRMP     | NM_006152    | N/A   | Expression    | N/A   |
| LZTS1    | NM_021020    | N/A   | Expression    | N/A   |
| MAL      | NM_002371    | N/A   | Expression    | N/A   |
| MALT1    | NM_006785    | 9   | Fusion        | 3'  |
| MAML3    | NM_018717    | N/A   | Expression    | N/A   |
| MKL1     | NM_020831    | 4, 5, 6   | Fusion        | 5'  |
| MLF1     | NM_022443    | 2, 3, 4   | Fusion        | 5'  |
| MLLT10   | NM_004641    | 2, 3, 4, 5, 6, 7, 8, 9, 10, 11,<br>12, 13, 14, 15, 16, 17, 18 | Fusion        | 5'  |
| MLLT10   | NM_004641    | 7, 8, 9, 10   | Fusion        | 3'  |
| MME      | NM_000902    | N/A   | Expression    | N/A   |
| MUC1     | NM_002456    | N/A   | Expression    | N/A   |
| MYBL1    | NM_001080416 | N/A   | Expression    | N/A   |
| MYC      | NM_002467    | N/A   | Expression    | N/A   |
| MYC      | NM_002467    | 1, 2  | Fusion        | 5'  |
| MYD88    | NM_002468    | N/A   | Mutation      | V217-S219,<br>M232, S243,<br>L265   |
| NEK6     | NM_014397    | N/A   | Expression    | N/A   |
| NFKB1    | NM_003998    | N/A   | Expression    | N/A   |
| NFKB2    | NM_002502    | 14, 15, 16, 17, 18, 19, 20,<br>21                             | Fusion        | 3'  |
| NME1     | NM_000269    | N/A   | Expression    | N/A   |
| NOTCH1   | NM_017617    | N/A   | Mutation      | L1574, V1578,<br>L1585, F1592-<br>L1593, R1598-<br>L1600, L1678-<br>I1680, P2514-<br>E2515, P2525 |
| NOTCH1   | NM_017617    | 24, 25, 26, 27, 28, 29  | Fusion        | 5'  |
| NOTCH1   | NM_017617    | 24  | Fusion        | 3'  |
| NOTCH1   | NM_017617    | 34  | Exon Skipping | N/A   |
| NOTCH2   | NM_024408    | N/A   | Mutation      | R2400   |
| NRAS     | NM_002524    | N/A   | Mutation      | G12-G13, G60-<br>Q61  |
| P2RY8    | NM_178129    | 1   | Fusion        | 3'  |
| PAICS    | NM_006452    | N/A   | Expression    | N/A   |
| PDCD1    | NM_005018    | N/A   | Expression    | N/A   |
| PDCD1LG2 | NM_025239    | 1, 2, 3   | Fusion        | 5'  |
| PDCD1LG2 | NM_025239    | 5, 6  | Fusion        | 3'  |
| PDCD1LG2 | NM_025239    | N/A   | Expression    | N/A   |
| PDGFRA   | NM_006206    | N/A   | Mutation      | T674  |
| PDGFRA   | NM_006206    | 9, 10, 11, 12, 13, 14   | Fusion        | 5'  |

|           |           |                                   |            |   |
|-----------|-----------|-----------------------------------|------------|---|
| PIM1      | NM_002648 | N/A                               | Expression | N/A   |
| PIM2      | NM_006875 | N/A                               | Expression | N/A   |
| PLCG1     | NM_002660 | N/A                               | Mutation   | S345  |
| PLCG2     | NM_002661 | N/A                               | Mutation   | R665, L845  |
| PPAT      | NM_002703 | N/A                               | Expression | N/A   |
| PRDM16    | NM_022114 | 1, 2, 3, 4                        | Fusion     | 5'  |
| PRKAR2B   | NM_002736 | N/A                               | Expression | N/A   |
| PTPN1     | NM_002827 | N/A                               | Expression | N/A   |
| PYCR1     | NM_006907 | N/A                               | Expression | N/A   |
| RAB29     | NM_003929 | N/A                               | Expression | N/A   |
| RAG1      | NM_000448 | N/A                               | Expression | N/A   |
| RAG2      | NM_000536 | N/A                               | Expression | N/A   |
| RANBP1    | NM_002882 | N/A                               | Expression | N/A   |
| RHOA      | NM_001664 | N/A                               | Mutation   | G17   |
| S1PR2     | NM_004230 | N/A                               | Expression | N/A   |
| SERPINA9  | NM_175739 | N/A                               | Expression | N/A   |
| SF3B1     | NM_012433 | N/A                               | Mutation   | E622-N626,<br>H662-K666,<br>K700, G742              |
| SH3BP5    | NM_004844 | N/A                               | Expression | N/A   |
| STAT3     | NM_003150 | N/A                               | Mutation   | Y640-N647,<br>D661                                  |
| STAT5B    | NM_012448 | N/A                               | Mutation   | N642  |
| STAT6     | NM_003153 | N/A                               | Mutation   | D419  |
| STIL      | NM_003035 | 1, 2                              | Fusion     | 3'  |
| STRBP     | NM_018387 | N/A                               | Expression | N/A   |
| TCF3      | NM_003200 | 11, 12, 13, 14, 15, 16, 17,<br>18 | Fusion     | 3'  |
| TNFRSF13B | NM_012452 | N/A                               | Expression | N/A   |
| TNFSF4    | NM_003326 | N/A                               | Expression | N/A   |
| TP63      | NM_003722 | 3, 4, 5                           | Fusion     | 5'  |
| WT1       | NM_000378 | N/A                               | Mutation   | R301-V303,<br>R352-V354,<br>P359-A365,<br>R445-H448 |
| WT1       | NM_000378 | N/A                               | Expression | N/A   |
| XPO1      | NM_003400 | N/A                               | Mutation   | E571  |

**Note:** Fusions involving BCR and TCR loci, including IGH, IGL and IGK, are targeted for expression and may not be explicitly called as a fusion because these often do not result in chimeric transcripts. For the “Expression” assay type, unique molecules originating from probes across these genes can be counted and normalized to target control genes to enable relative expression level detection. Results are visualized in Archer Analysis.

## SNPs 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   |               |

**Note:** SNPs may be used in combination to uniquely tag and track samples over time. Contact [tech@archerdx.com](mailto:tech@archerdx.com) for further details.

## Archer Analysis Settings

Sequencing data should be processed using **Archer Analysis** (v5.0 or greater). The FusionPlex Lymphoma 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.

© 2018 ArcherDX, Inc. All rights reserved. Archer® and FusionPlex® are trademarks of ArcherDX, Inc.

**ArcherDX, Inc.**  
 2477 55th Street, Suite 202  
 Boulder, CO 80301  
 303-357-9001  
<http://www.archerdx.com>