**Title: Making of Fusion Genes in Cancer: An in silico study of mechanism of chromosomal translocations**

**Supplementary Materials**

*Table 1: Nucleotide sequence of fusion partners retrieved from TICdb of BCR/ABL translocation*

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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Sr. No. | TICdb Reference ID | Fusion Sequence (FS) | Length of FS in bps | Partner chr. having 100% identity | BLAT result of FS | UCSC location of FS | UCSC location for 500 US/DS | UCSC location for 50 US/DS |
| 1 | [AH001427](http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?db=nuccore&cmd=search&term=AH001427) | ATGATGAGTCTCCGGGGCTCTATGGGTTTCTGAATGTCATCGTCCACTCAGCCACTGGATTTAAGCAGAGTTCAAGTAAGTACTGGTTTGCCCTTTCTCTTCCAGAAGCCCTTCAGCGGCCAGTAGCATCTGACTTTGAGCCTCAGGGTCTGAGTGAAGC | 159 | Chr. 22 | 1-90 | 23290339-23290428 | 23289884-23290884 | 23290378-23290478 |
| Chr. 9 | 91-160 | 130854049-130854118 | 130853549-130854549 | 130852999-130853099 |
| 2 | [AJ131466](http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?db=nuccore&cmd=search&term=AJ131466) | TGACCATCAATAAGGAAGATGATGAGTCTCCGGGGCTCTATGGGTTTCTGAATGTCATCGTCCACTCAGCCACTGGATTTAAGCAGAGTTCAAAAGCCCTTCAGCGGCCAGTAGCATCTGACTTTGAGCCTCAGGGTCTGAGTGAAGCCGCTCGTTGGAACTCCAAGGAAAACCTTCTCGCTGGACCCAGTGAAAATGACCCCAACCTTT | 206 | Chr. 22 | 1-93 | 23289604-23290413 | 23289913-23290913 | 23290363-23290463 |
| Chr. 9 | 94-210 | 130854064-130854180 | 130853564-130854564 | 130854014-130854114 |
| 3 | [AJ131467](http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?db=nuccore&cmd=search&term=AJ131467) | CTGACATCCGTGGAGCTGCAGATGCTGACCAACTCGTGTGTGAAACTCCAGACTGTCCACAGCATTCCGCTGACCATCAATAAGGAAGAAGCCCTTCAGCGGCCAGTAGCATCTGACTTTGAGCCTCAGGGTCTGAGTGAAGCCGCTCGTTGGAACTCCAAGGAAAACCTTCTCGCTGGACCCAGTGAAAATGACCCCAACCTTTTCGTT | 209 | Chr. 22 | 1-88 | 23289534-23289621 | 23289121-23290121 | 23289571-23289671 |
| Chr. 9 | 87-210 | 130854062-1308540185 | 130853562-130854562 | 130854012-130854112 |

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| Sr. No. | TICdb Reference ID | Fusion Sequence (FS) | Length of FS in bps | Partner chr. having 100% identity | BLAT result of FS | UCSC location of FS | UCSC location for 500 US/DS | UCSC location for 50 US/DS |  |  |
| 4 | [M25946](http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?db=nuccore&cmd=search&term=M25946) | TCATCGTCCACTCAGCCACTGGATTTAAGCAGAGTTCAAAAGCCCTTCAGCGGCCAGTAGCATCTGACTTTGAGCCTCAGGGTCTGAGTGAAGCCGCTCGTTGGAACTCCAAGGAAAACCTTCTCGCTGGACCCAGTGAA | 140 | Chr. 22 | 1-39 | 23290375-23290413 | 23289913-23290913 | 23290363-23290463 |
| Chr. 9 | 40-140 | 130854064-130854164 | 130853564-130854564 | 130854014-130854114 |
| 5 | [S72478](http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?db=nuccore&cmd=search&term=S72478) | ATTCCGCTGACCATCAATAAGGAAGATGATGAGTCTCCGGGGCTCTATGGGTTTCTGAATGTCATCGTCCACTCAGCCACTGGATTTAAGCAGAGTTCAAGTGAAAAGCTCCGGGTCTTAGGCTATAATCACAATGGGGA | 140 | Chr. 22 | 1-102 | 23289579-23290415 | 23289915-23290915 | 23290365-23290465 |
| Chr. 9 | 101-140 | 130854801-130854841 | 130854301-130855301 | 130854751-130854851 |
| 6 | [S72479](http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?db=nuccore&cmd=search&term=S72479) | GTTGTCGTGTCCGAGGCCACCATCGTGGGCGTCCGCAAGACCGGGCAGATCTGGCCCAACGATGGCGAGGGCGCCTTCCATGGAGACGCAGGTGAAAAGCTCCGGGTCTTAGGCTATAATCACAATGGGGA | 133 | Chr. 22 | 1-95 | 23182149-23182243 | 23181743-23182743 | 23182193-23182293 |
| Chr. 9 | 89-131 | 130854789-130854840 | 130854298-130855298 | 130854748-130854848 |
| 7 | [U19398](http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?db=nuccore&cmd=search&term=U19398) | CCTCATAAACGCTGGTGTTTGGCTTGTCATAGAAGGGCATTTAAGTGACTTTGCCAAGAGAAACAGTAA | 69 | Chr. 22 | 1-20 | 23291490-23291509 | 23291009-23292009 | 23291459-23291559 |
| Chr. 9 | 22-68 | 130786726-130786772 | 130786226-130787226 | 130786676-130786776 |
| 8 | [U19399](http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?db=nuccore&cmd=search&term=U19399) | TGGGAGCTGGTGAGCTGCCCATAATGACATGATTTGGGATTACTCTTTCAGAGAA | 55 | Chr. 22 | 1-20 | 23290639-23290658 | 23290158-23291158 | 23290608-23290708 |
| Chr. 9 | 20-55 | 130852112-130852147 | 130851612-130852612 | 130852062-130852162 |

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| Sr. No. | TICdb Reference ID | Fusion Sequence (FS) | Length of FS in bps | Partner chr. having 100% identity | BLAT result of FS | UCSC location of FS | UCSC location for 500 US/DS | UCSC location for 50 US/DS |
| 9 | [U19404](http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?db=nuccore&cmd=search&term=U19404) | AATTGCAGGGGTTTGGCAAGCACCTTTTCATATGTTTACTGGCCATTTGGAATATATGTGT | 61 | Chr. 22 | 1-20 | 23290677-23290696 | 23290196-23291196 | 23290646-23290746 |
| Chr. 9 | 18-61 | 130730434-130730477 | 130729934-130730934 | 130730384-130730484 |
| 10 | [U19408](http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?db=nuccore&cmd=search&term=U19408) | ACACAGTGTCCACCGGATGGATTTTATAAGTTGATCCAACCATGGTATGACTTCTGTGGGTAA | 63 | Chr. 22 | 1-25 | 23290237-23290264 | 23290124-23291124 | 23290574-23290674 |
| Chr. 9 | 17-62 | 130739679-130730724 | 130739179-130740179 | 130739629-130739729 |
| 11 | [X07537](http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?db=nuccore&cmd=search&term=X07537) | CAGATCTGGCCCAACGATGGCGAGGGCGCCTTCCATGGAGACGCAGAAGCCCTTCAGCGGCCAGTAGCATCTGACTTTGAGCCTCAGGGTCTGAGTGAAGCC | 102 | Chr. 22 | 1-46 | 23182194-23182239 | 23181739-23182739 | 23182189-23182289 |
| Chr. 9 | 44-102 | 130854061-130854119 | 130853561-130854561 | 130854011-130854111 |
| 12 | U19400 | CTAAAATTCTTTAAACCCTAAAGCGGATTTACTCTAAGGCAGTTCAGATTTGGTCCCAGCTGAGAATTATAGCCTGGAAATACCAACAGGAAAATCAGTGTCATTTGAAGGACAGTCATCTGTGCAGCCTGTGCATGAAATCATGGGTCTGAATTAGGCCCCATTCAAGATGCGGGGGTGTGGGGTTT | 188 | Chr. 22 | 1-20 | 23291389-23291408 | 23290908-23291908 | 23291358-23291458 |
| Chr. 9 | 20-188 | 130830245-130830415 | 130829745-130830745 | 130830195-130830295 |

*Table 2: Nucleotide sequence of fusion partners retrieved from TICdb of PML/RARA translocation*

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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Sr. No. | TICdb Reference ID | Fusion Sequence (FS) | Length of FS in bps | Partner chr. having 100% identity | BLAT result of FS | UCSC location of FS | UCSC location for 500 US/DS | UCSC location  for 50 US/DS |
| 1 | S57797 | GGGGTACCCAGAATAATGGGCTTTTGGGGCCCTGGGGACTAACGCGTTGTGGTGATCAGCAGCTCGGAAGACTCAGATGC | 80 | Chr. 17 | 1-40 | 40347629-40347668 | 40347168-40348168 | 40347618-  40347718 |
| Chr. 15 | 41-80 | 74034481-74034520 | 74033981-74034981 | 74034431-  74034531 |
| 2 | [S76370](http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?db=nuccore&cmd=search&term=S76370) | GCTGGGGAGTCCCAGTTTTCGGGGAGGCAGGTAGGGAGGTGGGTAGGGCAGTGGC | 56 | Chr. 17 | 1-20 | 40348164-40348183 | 40347683-40348683 | 40348133-40348233 |
| Chr. 15 | 20-55 | 74033404-74033439 | 74032904-74033904 | 74033354-74033454 |
| 3 | [S76372](http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?db=nuccore&cmd=search&term=S76372) | CCGGACATAGTATTGAGGCCAGACAGACAGGGAGGCAGGTAGGGAGGTGGGTAGG | 56 | Chr. 17 | 1-30 | 40347549-40347578 | 40347078-40348078 | 40347528-40347628 |
| Chr. 15 | 30-55 | 74033406-74033431 | 74032906-74033906 | 74033356-74033456 |
| 4 | [S76373](http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?db=nuccore&cmd=search&term=S76373) | CATGACCTTAACTCTGCTCTCTCAGTCTGCCCCTCCCCTCTTCTCTCTCTAGCCA | 55 | Chr. 17 | 1-28 | 40348290-40348318 | 40347818-40348818 | 40348268-40348368 |
| Chr. 15 | 27-55 | 74033778-74033805 | 74033278-74034278 | 74033228-74033328 |
| 5 | [S76387](http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?db=nuccore&cmd=search&term=S76387) | GTTTCCTCTGCCCCCAGCTTATGTCCCTTGGTCACACACTGAGCACTGACTGATA | 55 | Chr. 17 | 1-26 | 40347888-40347913 | 40347413-40348413 | 40347863-40347963 |
| Chr. 15 | 26-55 | 74034010-74034039 | 74033510-74034510 | 74033460-74033560 |
| 6 | [S76389](http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?db=nuccore&cmd=search&term=S76389) | CAAATGCTATTGGTAATCGATGGGTTCTATTGTTACTGCTTTTACGTCTTGGAAA | 55 | Chr. 17 | 1-26 | 40346538-40346567 | 40346067-40347067 | 40346517-40346617 |
| Chr. 15 | 26-55 | 74034051-74034076 | 74033551-74034551 | 74033501-74033601 |

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| Sr. No. | TICdb Reference ID | Fusion Sequence (FS) | Length of FS in bps | Partner chr. having 100% identity | BLAT result of FS | UCSC location of FS | UCSC location for 500 US/DS | UCSC location for 50 US/DS |
| 7 | [S76395](http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?db=nuccore&cmd=search&term=S76395) | CCCCTCCCCCCACCAGTCTGGATTGTCTAACTAAATGAAGCGTCTTTAACTCTAG | 55 | Chr. 17 | 1-29 | 40346513-40346541 | 40346041-40347041 | 40346491-40346591 |
| Chr. 15 | 28-55 | 74034082-74034110 | 74033582-74034582 | 74033532-74033632 |
| 8 | [S76399](http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?db=nuccore&cmd=search&term=S76399) | TCAGGAGAGAATCTGCTGGGCTGGGGATGGCCAGGTAGCAGTTGTCAGGCCTCCT | 55 | Chr. 17 | 1-30 | 40346773-40346802 | 40346302-40347302 | 40346752-  40346852 |
| Chr. 15 | 31-55 | 74034177-74034201 | 74033677-74034677 | 74033627-  74033727 |
| 9 | [S76402](http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?db=nuccore&cmd=search&term=S76402) | ACAGCAAGAAATTATGGAAACCCATTTGTGTTGGAGTGAAGAGCAGACGGCGGTG | 55 | Chr. 17 | 1-30 | 40346739-40346766 | 40346266-40347266 | 40346716-  40346816 |
| Chr. 15 | 28-55 | 74034263-74034292 | 74033763-74034763 | 74034213-  74034313 |
| 10 | [S76405](http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?db=nuccore&cmd=search&term=S76405) | TGGGAGAAAACCAGGCCAGGGCAGTTGATTTGTGAATTACTCAAATCCAAATGCA | 55 | Chr. 17 | 1-27 | 40346712-40346738 | 40346238-40347238 | 40346688-  40346788 |
| Chr. 15 | 28-55 | 74034286-74034313 | 74033786-74034786 | 74034236-  74034336 |
| 11 | [19100514](http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?db=pubmed&cmd=search&term=19100514) | TgccacctggagaccgagatctgcaggagaaaggcctgggaaaaATCTtccctcgccaccccctctaccccgcatctacaagccttgctttg | 92 | Chr. 17 | 49-92 | 40348362-40348405 | 40347362-40348362 | 40348362-40348462 |
| Chr. 15 | 1-44 | 74037052-74037095 | 74036595-74037595 | 74037045-74037145 |
| 12 | [17454588](http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?db=pubmed&cmd=search&term=17454588) | gtggccagtggcgccggggaggcagCcattgagacccagagcagcagttctgaagagatagtgcccagc | 69 | Chr. 17 | 24-69 | 40348314-40348359 | 40347814-40348814 | 40348264-40348364 |
| Chr. 15 | 1-25 | 74033390-74033414 | 74032914-74033914 | 74033364-74033464 |
| 13 | [17454588](http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?db=pubmed&cmd=search&term=17454588) | atcaaaggcccttcctatggagagCcattgagacccagagcagcagttctgaagagatagtgcccagc | 68 | Chr. 17 | 23-68 | 40348314-40348359 | 40347814-40348814 | 40348264-40348364 |
| Chr. 15 | 1-24 | 74032692-74032715 | 74032215-74033215 | 74032665-74032765 |
| 14 | [17454588](http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?db=pubmed&cmd=search&term=17454588) | agctcttgcatcacccaggggaaagCcattgagacccagagcagcagttctgaagagatagtgcccagc | 69 | Chr. 17 | 24-69 | 40348314-40348359 | 40347814-40348814 | 40348264-40348364 |
| Chr. 15 | 1-25 | 74033390-74033414 | 74032914-74033914 | 74033364-74033464 |

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| Sr. No. | TICdb Reference ID | Fusion Sequence (FS) | Length of FS in bps | Partner chr. having 100% identity | BLAT result of FS | UCSC location of FS | UCSC location for 500 US/DS | UCSC location for 50 US/DS |
| 15 | [12508246](http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?db=pubmed&cmd=search&term=12508246) | TAAGGCACAGCAAGAAATTaAAAGCCACAGTTCTTATTCT | 40 | Chr. 17 | 19-40 | 40337599-40337620 | 40337099-40338099 | 40337549-40337649 |
| Chr. 15 | 1-20 | 74034257-74034276 | 74033776-74034776 | 74034226-74034326 |
| 16 | [12508246](http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?db=pubmed&cmd=search&term=12508246) | TCCACCTAGGTAGTGAATGtTCTTGACATTTGATGGAAAT | 40 | Chr. 17 | 21-40 | 40331743-40331762 | 40331243-40332243 | 40331693-40331793 |
| Chr. 15 | 1-20 | 74024334-74024353 | 74023853-74024853 | 74024303-74024403 |
| 17 | [12508246](http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?db=pubmed&cmd=search&term=12508246) | AACTAAATGAAGCGTCTTTtAGCGTGGGTGTGCATATATA | 40 | Chr. 17 | 21-40 | 40344720-40344739 | 40344220-40345220 | 40344670-40344790 |
| Chr. 15 | 1-21 | 74034083-74034103 | 74033602-74034602 | 74034053-74034153 |
| 18 | [12508246](http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?db=pubmed&cmd=search&term=12508246) | AGGTAGGGAGGTGGGTAGGGaGGAAGGCTGGCTGGAACCC | 40 | Chr. 17 | 20-40 | 40331852-40331872 | 40331352-40332352 | 40331802-40331902 |
| Chr. 15 | 1-20 | 74033413-74033432 | 74032932-74033932 | 74033382-74033482 |

*Table 3: Nucleotide sequence of fusion partners retrieved from TICdb of AML/ETO translocation*

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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Sr. No. | TICdb Reference ID | Fusion Sequence (FS) | Length of FS in bps | Partner chr. having 100% identity | BLAT result of FS | UCSC location of FS | UCSC location for 500 US/DS | UCSC location for 50 US/DS |
| 1 | AY152436 | GACCCTGATTCTTCTTTATGAGTGAAAAGCTTGAGAACACTTTCCTGTATATTTAGACATTTA | 63 | Chr. 8 | 24-63 | 92036311-92036348 | 92035811-92036811 | 92036261-92036361 |
| Chr. 21 | 1-30 | 34857891-34857920 | 34857420-34858420 | 34857870-34857970 |
| 2 | AY152437 | TATGCTGTGTACCTGTATAAAGAGGTTATTAAACCTCTTGGCAGTCAGAGGGGAAAAAAGATG | 63 | Chr. 8 | 38-63 | 92054442-92054480 | 92053942-92054942 | 92054392-92054492 |
| Chr. 21 | 1-39 | 34857347-34857372 | 34856875-34857875 | 34857325-34857425 |
| 3 | AY152439 | GCTTAACTGTACTGAAATCCATTACAGAGATGAGGTGAAATCTCACTCTGTTGCCCATGCTGG | 63 | Chr. 8 | 1-30 | 92064423-92064452 | 92063952-92064952 | 92064402-92064502 |
| Chr. 21 | 21-63 | 34854553-34854585 | 34854053-34855053 | 34854503-34854603 |
| 4 | AY152440 | ATTGTATGACATGCCATAAGAAAAAAAAAACCCGGACTATGACAGTGTTTTGTACTGGAGAA | 63 | Chr. 8 | 38-62 | 92065319-92065343 | 92064819-92065819 | 92065269-92065369 |
| Chr. 21 | 1-33 | 34851587-34851619 | 34851119-34852119 | 34851569-34851669 |
| 5 | AY152442 | ACTTTCATCTTCATTTTCCTCTCCTGTGAGACCTTGTTTTCCATGTGGCATTAAAAATTTA | 62 | Chr. 8 | 35-62 | 92074004-92074031 | 92073504-92074504 | 92073954-92074054 |
| Chr. 21 | 1-28 | 34851427-34851454 | 34850954-34851954 | 34851404-34851504 |

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| |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | | Sr. No. | TICdb Reference ID | Fusion Sequence (FS) | Length of FS in bps | Partner chr. having 100% identity | BLAT result of FS | UCSC location of FS | UCSC location for 500 US/DS | UCSC location for 50 US/DS | | TICdb Reference ID | Fusion Sequence (FS) | Length of FS in bps | Partner chr. having 100% identity | BLAT result of FS | UCSC location of FS | UCSC location for 500 US/DS | UCSC location for 50 US/DS |
| 6 | AY152443 | GTATGTGTGGTGTGTGTACATACTTTAAACATAGCAAAAAGGGTAACAAAATATGGTCAGC | 61 | Chr. 8 | 1-32 | 92074092-92074123 | 92073623-92074623 | 92074073-92074173 |
| Chr.21 | 24-61 | 34851355-34851382 | 34850855-34851855 | 34851305-34851405 |
| 7 | AY152444 | CTTGAAATCCTTCTGGAAATGAGAAAACTTTAGAAAGTACAGTCGTAGAGTCCATTA | 57 | Chr. 8 | 34-57 | 92067467-92067490 | 92066967-92067967 | 92067417-92067517 |
| Chr.21 | 1-32 | 34850870-34850901 | 34850401-34851401 | 34850851-34850951 |
| 8 | AY152446 | ACTTTTAGAAATTTTACCTTTTTCCAAAAATAAAAAAATAGGGAATAAATATTGTATAT | 59 | Chr. 8 | 26-59 | 92069113-92069146 | 92068613-92069613 | 92069063-92069163 |
| Chr.21 | 1-26 | 34847293-34847318 | 34846818-34847818 | 34847268-34847368 |
| 9 | AY152447 | TTGAATTTATTTAAAGATATCTGGGATACCCTTTTTAAATGTTGGAAACAAAAGAAGTAA | 60 | Chr. 8 | 1-24 | 92069023-92069046 | 92068546-92069546 | 92068996-92069096 |
| Chr.21 | 25-60 | 34847222-34847257 | 34846722-34847722 | 34847172-34847272 |
| 10 | AY152449 | GAAACATAATAAACCAGATCATAGATCAAGGGGGGGGCAGCGGGCAGGCTGTTTCTCAATCTG | 63 | Chr. 8 | 33-63 | 92072304-92072329 | 92071804-92072804 | 92072254-92072354 |
| Chr. 21 | 1-26 | 34835761-34835791 | 34835291-34836291 | 34835741-34835841 |
|  |  |  |  |  |  |  |  |  |
| Sr. No. | TICdb Reference ID | Fusion Sequence (FS) | Length of FS in bps | Partner chr. having 100% identity | BLAT result of FS | UCSC location of FS | UCSC location for 500 US/DS | UCSC location for 50 US/DS |
| 11 | AY152450 | TTGTTTTGGTGAAGAGCATGATGAGGACACTTGCTATAAAAATGTTTGTAGGCTGTTTGGGAT | 63 | Chr. 8 | 35-63 | 92063148-92063176 | 92062648-92063648 | 92063098-92063189 |
| Chr. 21 | 1-37 | 34835463-34835499 | 34834999-34835999 | 34835449-34835549 |
| 12 | AY152452 | TATAGCAAACCTATTATATATGTGAACATGAGAAATACTATCCTTAGAATTCCCAGGCTCCA | 63 | Chr. 8 | 33-63 | 92068933-92068962 | 92068433-92069433 | 92068883-92068983 |
| Chr. 21 | 1-37 | 34854177-34854213 | 34853713-34854713 | 34854163-34854263 |
| 13 | AY152453 | AGTATGATTGACACATGGTATTACAGCTCCTTTGAATTAACTCACTTAATACCCACTGT | 59 | Chr.8 | 24-59 | 92065860-92065895 | 92065360-92066360 | 92065359-92065459 |
| Chr. 21 | 1-21 | 34849603-34849623 | 34849123-34850123 | 34846573-34846673 |
| 14 | AY152455 | CTGCATGATACCTCTCTTGCTAGGGGATGTTTTTTATGAACGAAAAGTTATTCTGTCTGAGTA | 63 | Chr.8 | 31-63 | 92065146-92065178 | 92064646-92065646 | 92065096-92065196 |
| Chr. 21 | 1-30 | 34848315-34848344 | 34847844-34848844 | 34848294-34848394 |
| 15 | AY152457 | GGCCTGACCTGGTGGAAAGACTGCGGGCCTGCCCGCAGAGTCCATTATTAACTTACTTT | 59 | Chr. 8 | 37-59 | 92067455-92067477 | 92066955-92067955 | 92067405-92067505 |
| Chr. 21 | 1-35 | 34846629-34846663 | 34846163-34847163 | 34846613-34846713 |
|  |  |  |  |  |  |  |  |  |
| Sr. No. | TICdb Reference ID | Fusion Sequence (FS) | Length of FS in bps | Partner chr. having 100% identity | BLAT result of FS | UCSC location of FS | UCSC location for 500 US/DS | UCSC location for 50 US/DS |
| 16 | AY152458 | GGAAGTCATTATTTAAAATATTTTAACATTGGAATCCGAACTGGAAACCACTGAAATTTGAGT | 63 | Chr. 8 | 1-30 | 92067494-92067529 | 92067029-92068029 | 92067479-92067579 |
| Chr. 21 | 38-63 | 34846738-34846763 | 34846238-34847238 | 34846688-34846788 |
| 17 | AY152459 | GTGACATGCTCTAAGTAGGGGAAATCTTCCTTTATATGTGGGCATAGATTTTGATAATTTG | 61 | Chr. 8 | 35-61 | 92069500- 92069526 | 92069000-92070000 | 92069450-92069550 |
| Chr. 21 | 1-31 | 34846248-34846278 | 34845778-34846778 | 34846228-34846328 |
| 18 | Z35296 | AAACCCACCGCAAGTCGCCACCTACCACAGAGCCATCAAAATCACAGTGGATGGGCCCCGAGAACCTCGAAATAAACCCCACTTGAAAAACTGAGGTGCTTAAGGAGTAAAATAATATGTTCCTG | 125 | Chr. 21 | 1-71 | 34859474-34859544 | 34859044-34860044 | 34859494-34859594 |
| Chr. 8 | 72-125 | 92017378-92017431 | 92016878-92017878 | 92017328-92017428 |
| 19 | D14822 | AAGCTTCACTCTGACCATCACTGTCTTCACAAACCCACCGCAAGTCGCCACCTACCACAGAGCCATCAAAATCACAGTGGATGGGCCCCGAGAACCTCGAAATCGTACTGAGAAGCACTCCACAATGCCAGACTCACCTGTGGATGTGAAGACGCAATCTAGGCTGACTCCTCCAACAATGCCACCTCCCCCAACTACTCAAGGAGCTCC | 210 | Chr. 21 | 1-101 | 34859474-34859574 | 34859074-34860074 | 34859524-34859624 |
| Chr. 8 | 101-210 | 92017255-92017363 | 92016755-92017755 | 92017205-92017305 |
| 20 | AY152476 | CCACACCAGTGAGGTCAGGATCTAAACAGATCTAAGAATTTGGCTCTATTTTACACTTCTGG | 62 | Chr. 21 | 1-27 | 34851648-34851674 | 34851174-34852174 | 34851624-34851724 |
| Chr. 8 | 28-62 | 92071465-92071499 | 92070965-92071965 | 92071415-92071515 |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Sr. No. | TICdb Reference ID | Fusion Sequence (FS) | Length of FS in bps | Partner chr. having 100% identity | BLAT result of FS | UCSC location of FS | UCSC location for 500 US/DS | UCSC location for 50 US/DS |
| 21 | AY152475 | AAATATTATGCCAAAGTATGATGATGATGACTCACTCCAGTGGGCCTATTNTGCTGGGAATAA | 63 | Chr. 21 | 35-63 | 34835311-34835339 | 34834811-34835811 | 34835261-34835361 |
| Chr. 8 | 1-30 | 92068987-92069016 | 92068516-92069516 | 92068966-92069066 |
| 22 | AY152474 | GAAGCTCACCAGATAGGCTGTAGCTACCTTTGTTTTTTGGACAAATACTATCCTTAGAATTCC | 63 | Chr. 21 | 1-29 | 34835345-34835373 | 34834873-34835873 | 34835323-34835423 |
| Chr. 8 | 34-64 | 92068942-92068971 | 92068442-92069442 | 92068892-92068992 |
| 23 | AY152473 | AAGGCATTGGCACTATCAGAAACAATTTGTAAAGTTTGATCATCAGGAAGCCAAGGATCTATG | 63 | Chr. 21 | 33-63 | 34836466-34836496 | 34835966-34836966 | 34836416-34836516 |
| Chr. 8 | 1-32 | 92067803-92067834 | 92067334-92068334 | 92067784-92067884 |
| 24 | AY152472 | TCTTCTTTACCCCAACTCGTAATGCCAGGCATAAAGACACTCTAATATTTTATTCTGTAGACA | 63 | Chr. 21 | 1-32 | 34836595-34836626 | 34836126-34837126 | 34836576-34836676 |
| Chr. 8 | 43-63 | 92067580-92067601 | 92067080-92068080 | 92067530-92067630 |
| 25 | AY152471 | GTACAATAATCCATAATTTTAATAAGATTATAACATTCGGGGGGCAAATGAGCCTTTTAACTG | 63 | Chr. 21 | 31-63 | 34837578-34837610 | 34837078-34838078 | 34837528-34837628 |
| Chr. 8 | 1-31 | 92069861-92069891 | 92069391-92070391 | 92069841-92069941 |
| 26 | AY152470 | AAAGGCAGCTCGGGTATCAACGAGATATGCCCATTGATATAAAAGCAAATATACTATGCTGGG | 63 | Chr. 21 | 1-30 | 34838167-34838196 | 34837696-34838696 | 34838146-34838246 |
| Chr. 8 | 32-63 | 92069638-92069669 | 92069138-92070138 | 92069588-92069688 |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Sr. No. | TICdb Reference ID | Fusion Sequence (FS) | Length of FS in bps | Partner chr. having 100% identity | BLAT result of FS | UCSC location of FS | UCSC location for 500 US/DS | UCSC location for 50 US/DS |
| 27 | AY152469 | CATTCACTTGCATAAATGCATTCATCATGTTGCCGCCCTGGCCGTGTGAGATTGGGCAAATGA | 63 | Chr. 21 | 38-63 | 34839170-34839195 | 34838670-34839670 | 34839120-34839220 |
| Chr. 8 | 1-31 | 92065260-92065290 | 92064790-92065790 | 92065240-92065340 |
| 28 | AY152468 | TTTTCAGACCTGCCCTCTTCCTGTAACCCATTCCTTTTTTATTATACAATTTGGATGTTAGAG | 63 | Chr. 21 | 1-27 | 34839195-34839221 | 34838721-34839721 | 34839171-34839271 |
| Chr. 8 | 36-63 | 92065220-92065247 | 92064720-92065720 | 92065170-92065270 |
| 29 | AY152467 | CAAAATCATTTATTTCTTGGTGAGCCTTCTTTCCATTGTCATAAAACAGTAGCAAATCAAAGG | 63 | Chr. 21 | 30-63 | 34838648-34838681 | 34838148-34839148 | 34838598-34838698 |
| Chr. 8 | 1-32 | 92072179-92072210 | 92071710-92072710 | 92072160-92072260 |
| 30 | AY152465 | TCGCTCTGTCGCTCAGGCTGGAGTGCACTGGCATGATGAATATAATCAAGTTCATCAAGAATT | 63 | Chr. 21 | 1-37 | 34843022-34843058 | 34842558-34843558 | 34843008-34843108 |
| Chr. 8 | 36-63 | 92068900- 92068927 | 92068400-92069400 | 92068850-92068950 |
| 31 | AY152464 | TTTGCTTTTGTGGGAGCCCAGCATTTTGTTTTTGCTGTGTGTGTGTCCAGGTGTCTGTGTATG | 63 | Chr. 21 | 27-63 | 34843191- 34843229 | 34842691-34843691 | 34843141-34843241 |
| Chr. 8 | 1-20 | 92065537- 92065566 | 92065066-92066066 | 92065456-92065556 |
| 32 | AY152463 | TGTGTCTGTATGTGTTTACATGCATGCCTGTGTTGGGTTGTCAGAAAACAACTTATGTATTTG | 63 | Chr. 21 | 1-34 | 34843155-34843188 | 34842688-34843688 | 34843138-34843238 |
| Chr. 8 | 37-63 | 92065563-92065589 | 92065063-92066063 | 92065513-92065613 |
| 33 | AY152462 | GCCACGAATTCCTGGGCTCGAGCAATCCTCCCAGGGCTCACTGTCCATTTCTGTCTGGTGACT | 63 | Chr. 21 | 31-63 | 34843851-34843883 | 34843351-34844351 | 34843801-34843901 |
| Chr. 8 | 1-33 | 92073777-92073809 | 92073309-92074309 | 92073759-92073859 |
| 34 | AY152460 | CTCAGTTGGCGTCTGTGACAGGAGAGATGCCCCCTAGATTTTCCTCCCCCTGATTTCTTC | 60 | Chr. 21 | 1-27 | 34844795-34844821 | 34844321-34845321 | 34844771-34844871 |
| Chr. 8 | 33-60 | 92050174-92050201 | 92049674-92050674 | 92050124-92050224 |

*Table 4:* *Nucleotide sequence of fusion partners retrieved from TICdb of CBFB/MYH11 translocation*

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Sr. No. | TICdb Reference ID | Fusion Sequence (FS) | Length of FS in bps | Partner chr. having 100% identity | BLAT result of FS | UCSC location of FS | UCSC location for 500 US/DS | UCSC location for 50 US/DS |
| 1 | 18024381 | GTCTCATCGGGAGGAAATGGAGccctgtccctggctcgggcc | 42 | Chr. 16 | 1-22 | 67082287-67082308 | 67081808-67082808 | 67082258-67082358 |
| Chr. 16 | 22-42 | 15721527-15721547 | 15721027-15722027 | 15721477-15721577 |
| 2 | AF202996 | ACGCGAATTTGAAGATAGAGACAGGTCTCATCGGGAGGAAATGGAGGAGCTGCTTCAAGAAGAAACCCGGCAGAAGCTCAACGTGTCTA | 89 | Chr. 16 | 1-54 | 67082263-67082328 | 67081828-67082828 | 67082278-67082378 |
| Chr. 16 | 45-89 | 15724757-15724801 | 15724257-15725257 | 15724707-15724807 |
| 3 | AF249897 | GAATTTGAAGATAGAGACAGGTCTCATCGGGAGGAAATGGAGAATGAAGTTGAGAGCGTCACAGGGATGCTTAACGAGGCCGAGGGGAAGGCCATTAAGCTGGCCAAGGACGTGGCGTCCCTCAGTTCCCAGCTCCAGGACACCCAGGAGTT | 149 | Chr. 16 | 1-42 | 67082267-67082308 | 67081808-67082808 | 67082258-67082358 |
| Chr. 16 | 41-148 | 15724887-15724994 | 15724387-15725387 | 15724837-15724937 |
| 4 | AF249898 | GAATTTGAAGATAGAGACAGGTCTCATCGGGAGGAAATGGAGGTCCATGAGCTGGAGAAGTCCAAGCGGGCCCTGGAGACCCAGATGGAGGAGATGAAGACG | 102 | Chr. 16 | 1-44 | 67082267-67082310 | 67081810-67082810 | 67082260-67082360 |
| Chr. 16 | 41-102 | 15720992-15721053 | 15720492-15721492 | 15720942-15721042 |
| Sr. No. | TICdb Reference ID | Fusion Sequence (FS) | Length of FS in bps | Partner chr. having 100% identity | BLAT result of FS | UCSC location of FS | UCSC location for 500 US/DS | UCSC location for 50 US/DS |
| 5 | AF251768 | GAATTTGAAGATAGAGACAGGTCTCATCGGGAGGAAATGGAGTTCAAGAGGGCCAAGGCGAACCTAGACAAGAATAAG | 78 | Chr. 16 | 1-42 | 67082267-67082308 | 67081808-67082808 | 67082258-67082358 |
| Chr. 16 | 51-78 | 15727028-15727055 | 15726528-15727528 | 15726978-15727078 |
| 6 | AF390860 | GACTCCGTCTCAAAAAAAAAAAAAAAAAAtACATCTGAGTCGTACATGGTTGTTAGCCGAGGAGAAAAACATCTCTTCCAAATACGCGGATG | 92 | Chr. 16 | 1-50 | 67096915-67096964 | 67096464-67097464 | 67096914-67097014 |
| Chr. 16 | 49-92 | 15721592-15721635 | 15721092-15721192 | 15721542-15721642 |
| 7 | X87833 | GAATTTGAAGATAGAGACAGGTCTCATCGGGAGGAAATGGAGACTTAGCAATAGGGAGAACTAGCAGTGACTAAGGAGGCTGACATTAATGCCAATTGCCAAGGCGAACCTAGACAAGAATaAGCAGAATGAGGAGAAGAG | 141 | Chr. 16 | 1-98 | 67082267-67092422 | 67091922-67092922 | 67092372-67092472 |
| Chr. 16 | 98-141 | 15720858-15727054 | 15720350-15721350 | 15720800-15720900 |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Sr. No. | Chr. Partner | Partner Gene | Base Pair Location | AT (%) | Flexibility  (kJ/mol A-2) | Melting Temperature  (oC) | Stacking Energy  (kcal/mol) | Enthalpy  (kcal/mol) | Entropy  (cal/mol/K) | Free energy  (kcal/mol) |
| 1 | Chr22 | BCR | 1..1000 | 45.1 | 7.471292 | 75.116656 | -8.167228 | -8.711611 | -22.767367 | -1.222162 |
| 1..100 | 42 | 7.819798 | 73.710303 | -8.055556 | -8.511111 | -22.29697 | -1.188788 |
| Chr9 | ABL | 1..1000 | 58.9 | 8.658959 | 69.398048 | -7.500251 | -8.322422 | -21.977477 | -1.083924 |
| 1..100 | 49 | 7.657071 | 76.012626 | -8.228687 | -8.832323 | -23.055555 | -1.248283 |
| 2 | Chr22 | BCR | 1..1000 | 44.7 | 7.449209 | 75.206536 | -8.173804 | -8.726626 | -22.803503 | -1.225375 |
| 1..100 | 46 | 8.664142 | 71.64909 | -7.75101 | -8.445454 | -22.137374 | -1.137374 |
| Chr9 | ABL | 1..1000 | 59.5 | 8.692373 | 69.12029 | -7.467808 | -8.304204 | -21.937137 | -1.078258 |
| 1..100 | 52 | 7.837374 | 75.037575 | -8.164647 | -8.70505 | -22.775757 | -1.211414 |
| 3 | Chr22 | BCR | 1..1000 | 42 | 7.213614 | 76.346145 | -8.297838 | -8.768869 | -22.851051 | -1.254164 |
| 1..100 | 48 | 8.702526 | 71.84606 | -7.745354 | -8.487879 | -22.241414 | -1.143737 |
| Chr9 | ABL | 1..1000 | 59.3 | 8.367898 | 70.348077 | -7.635656 | -8.349349 | -21.99019 | -1.10984 |
| 1..100 | 51 | 8.075657 | 74.29202 | -8.176667 | -8.625252 | -22.580808 | -1.19697 |
| 4 | Chr22 | BCR | 1..1000 | 44.7 | 7.449209 | 75.206536 | -8.173804 | -8.726626 | -22.803503 | -1.225375 |
| 1..100 | 46 | 8.664142 | 71.64909 | -7.75101 | -8.445454 | -22.137374 | -1.137374 |
| Chr9 | ABL | 1..1000 | 59.5 | 8.692373 | 69.12029 | -7.467808 | -8.304204 | -21.937137 | -1.078258 |
| 1..100 | 52 | 7.837374 | 75.037575 | -8.164647 | -8.70505 | -22.775757 | -1.211414 |
| 5 | Chr22 | BCR | 1..1000 | 44.9 | 7.451191 | 75.169018 | -8.171612 | -8.720821 | -22.79059 | -1.224254 |
| 1..100 | 46 | 8.496667 | 70.206464 | -7.614445 | -8.336363 | -21.948485 | -1.105253 |
| Chr9 | ABL | 1..1000 | 56.3 | 7.70945 | 73.383483 | -7.97995 | -8.573273 | -22.466867 | -1.182713 |
| 1..100 | 56 | 7.712424 | 75.039696 | -8.176768 | -8.707071 | -22.766667 | -1.216667 |

*Table 5: Analysis of physico-chemical parameters/AT% of fusion sequences (100 &1000 bp upstream and downstream FS) for BCR/ABL*

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
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|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Sr. No. | | Chr. Partner | | Partner Gene | | Base Pair Location | | AT (%) | | Flexibility  (kJ/mol A2) | | Melting Temperature  (oC) | | Stacking Energy  (kcal/mol) | | Enthalpy (kcal/mol) | | Entropy (kcal/mol-K) | | Free energy | |
| 6 | | Chr22 | | BCR | | 1..1000 | | 41.4 | | 7.70945 | | 73.383483 | | -7.97995 | | -8.573273 | | -22.466867 | | -1.182713 | |
|  | |  | | 1..100 | | 36 | | 8.418788 | | 70.785858 | | -7.695758 | | -8.40303 | | -22.112121 | | -1.118485 | |
| Chr9 | | ABL | | 1..1000 | | 56.3 | | 8.365776 | | 70.388828 | | -7.6396 | | -8.353153 | | -22.0005 | | -1.1105 | |
|  | |  | | 1..100 | | 55 | | 6.98798 | | 79.699393 | | -8.728485 | | -9.212121 | | -23.911111 | | -1.327172 | |
| 7 | | Chr22 | | BCR | | 1..1000 | | 47.5 | | 7.822873 | | 73.944844 | | -8.66036 | | 7.998269 | | -22.66997 | | -1.227307 | |
| 1..100 | | 39 | | 9.162424 | | 67.531212 | | -8.166667 | | -7.305051 | | -21.641414 | | -1.038081 | |
| Chr9 | | ABL | | 1..1000 | | 56.5 | | 8.351832 | | 70.331231 | | -7.651352 | | -8.296797 | | 21.843343 | | -1.108068 | |
| 1..100 | | 50 | | 7.412222 | | 77.40505 | | -8.386162 | | -8.90606 | | 23.164646 | | -1.278283 | |
| 8 | | Chr22 | | BCR | | 1..1000 | | 44.6 | | 7.527748 | | 75.327016 | | -8.726827 | | -8.183984 | | -22.786486 | | -1.227307 | |
| 1..100 | | 41 | | 9.162424 | | 67.531212 | | 8.166667 | | -7.305051 | | -21.641414 | | -1.038081 | |
| Chr9 | | ABL | | 1..1000 | | 55.6 | | 8.42976 | | 70.578007 | | -7.652413 | | -8.361461 | | 22.004004 | | -1.115666 | |
| 1..100 | | 63 | | 7.300808 | | 76.069999 | | -8.246869 | | -8.716161 | | 22.664646 | | -1.25505 | |
| 9 | | Chr22 | | BCR | | 1..1000 | | 47.3 | | 7.781992 | | 74.165264 | | -8.655355 | | -8.042243 | | -22.639339 | | -1.19996 | |
| 1..100 | | 63 | | 9.162727 | | 65.19303 | | -7.887879 | | -7.08202 | | -20.936363 | | -1.00202 | |
| Chr9 | | ABL | | 1..1000 | | 64.3 | | 8.85027 | | 66.874274 | | -7.247508 | | -8.051551 | | 21.342342 | | -1.02969 | |
| 1..100 | | 67 | | 8.304647 | | 68.298888 | | -7.454142 | | -8.173737 | | 21.621212 | | -1.054343 | |
| 10 | | Chr22 | | BCR | | 1..1000 | | 43.8 | | 7.446797 | | 75.681491 | | -8.746546 | | -8.225916 | | -22.817818 | | -1.236276 | |
| 1..100 | | 38 | | 8.424445 | | 67.283232 | | -8.025252 | | -7.316667 | | -21.241414 | | -1.046667 | |
| Chr9 | | ABL | | 1..1000 | | 51.6 | | 8.030301 | | 72.404824 | | -7.846917 | | -8.534634 | | 22.408008 | | -1.159159 | |
| 1..100 | | 62 | | 7.196263 | | 77.658282 | | -8.326768 | | -9.060606 | | 23.627273 | | -1.284848 | |
| 11 | | Chr22 | | BCR | | 1..1000 | | 45.1 | | 7.546377 | | 75.098428 | | -8.703603 | | -8.15927 | | -22.735035 | | -1.221552 | |
| 1..100 | | 60 | | 7.350909 | | 77.124949 | | -80873737 | | 8.349697 | | -23.075757 | | -1.275354 | |
| Chr9 | | ABL | | 1..1000 | | 65.3 | | 8.795556 | | 66.688688 | | -7.23956 | | -8.055956 | | 21.365265 | | -1.021451 | |
| 1..100 | | 39 | | 8.259899 | | 68.541616 | | -7.436364 | | -8.210101 | | 21.758586 | | -1.069091 | |
| 12 | | Chr9 | | ABL | | 1..1000 | | 41.4 | | 7.415866 | | 76.855665 | | -8.91061 | | -8.373324 | | -23.216917 | | -1.263994 | |
| 1..100 | | 34 | | 8.729798 | | 72.12909 | | -8.510101 | | -7.77596 | | -22.313131 | | -1.143232 | |
| Chr22 | | BCR | | 1-1000 | | 59.2 | | 8.69013 | | 69.278388 | | -8.315515 | | -7.485656 | | -21.963463 | | -1.080751 | |
| 1..100 | | 52 | | 6.918384 | | 80.559797 | | -9313131 | | -8.818283 | | -24.134343 | | -1.349192 | |

*Table 6: Analysis of physico-chemical parameters/AT% of fusion sequences (100 &1000 bp upstream and downstream FS) for PML/RARA*

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Sr. No. | | Chr. Partner | | Partner Gene | | Base Pair Location | | AT (%) | | Flexibility  (kJ/mol A2) | | Melting Temperature  (oC) | | Stacking Energy  (kcal/mol) | | Enthalpy (kcal/mol) | | Entropy (kcal/mol-K) | | Free energy(kcal/mol) |
| 1 | | Chr15 | | PML | | 1..1000 | | 48.6 | | 7.716977 | | 73.501391 | | -7.985626 | | -8.554354 | | -22.392793 | | -1.184585 |
| 1..100 | | 47 | | 7.472526 | | 77.091313 | | -8.355354 | | -8.886868 | | -23.157576 | | -1.264545 |
| Chr17 | | RARA | | 1..1000 | | 42.2 | | 7.574104 | | 75.256235 | | -8.080361 | | -8.793493 | | -22.972873 | | -1.236587 |
| 1..100 | | 42 | | 7.997172 | | 73.804444 | | -7.825253 | | -8.777778 | | -23.010101 | | -1.216869 |
| 2 | | Chr15 | | PML | | 1..1000 | | 42.9 | | 7.356517 | | 75.621371 | | -8.194565 | | -8.724324 | | -22.757758 | | -1.240991 |
| 1..100 | | 32 | | 6.646364 | | 80.463938 | | -8.639091 | | -9.247475 | | -23.973737 | | -1.360404 |
| Chr17 | | RARA | | 1..1000 | | 41.8 | | 7.548509 | | 75.745024 | | -8.15992 | | -8.792592 | | -22.946847 | | -1.244514 |
| 1..100 | | 43 | | 7.528586 | | 74.906463 | | -8.111415 | | -8.584848 | | -22.335353 | | -1.229394 |
| 3 | | Chr15 | | PML | | 1..1000 | | 43.1 | | 7.365095 | | 75.601641 | | -8.193924 | | -8.71992 | | -22.748348 | | -1.23984 |
| 1..100 | | 31 | | 6.585758 | | 80.923837 | | -8.681819 | | -9.30707 | | -24.121212 | | -1.369192 |
| Chr17 | | RARA | | 1..1000 | | 42.8 | | 7.557558 | | 75.129068 | | -8.073654 | | -8.779379 | | -22.941041 | | -1.232893 |
| 1..100 | | 46 | | 7.831717 | | 73.401414 | | -7.930606 | | -8.627273 | | -22.629293 | | -1.190404 |
| 4 | | Chr15 | | PML | | 1..1000 | | 48.6 | | 7.718639 | | 73.282692 | | -7.943784 | | -8.547948 | | -22.392592 | | -1.184725 |
| 1..100 | | 33 | | 7.05 | | 79.061716 | | -8.504748 | | -9.077778 | | -23.532323 | | -1.328384 |
| Chr17 | | RARA | | 1..1000 | | 40.5 | | 7.457207 | | 76.405044 | | -8.242483 | | -8.835335 | | -23.023824 | | -1.259519 |
| 1..100 | | 42 | | 7.66495 | | 75.476969 | | -8.249293 | | -8.556565 | | -22.244444 | | -1.239495 |
| 5 | | Chr15 | | PML | | 1..1000 | | 51.2 | | 7.846827 | | 72.387937 | | -7.874094 | | -8.463864 | | -22.209109 | | -1.15993 |
| 1..100 | | 49 | | 8.158182 | | 72.55303 | | -7.770202 | | -8.618182 | | -22.615151 | | -1.170404 |
| Chr17 | | RARA | | 1..1000 | | 41.9 | | 7.568329 | | 75.495895 | | -8.125686 | | -8.778278 | | -22.911011 | | -1.241381 |
| 1..100 | | 46 | | 8.376566 | | 73.502121 | | -7.894344 | | -8.668687 | | -22.710101 | | -1.19101 |
| 6 | | Chr15 | | PML | | 1..1000 | | 50.8 | | 7.811622 | | 72.692202 | | -7.916357 | | -8.481581 | | -22.245345 | | -1.165225 | |
| 1..100 | | 52 | | 8.013031 | | 72.389293 | | -7.816364 | | -8.586868 | | -22.613131 | | -1.158283 | |
| Chr17 | | RARA | | 1..1000 | | 42.9 | | 7.567348 | | 75.336636 | | -8.092593 | | -8.78068 | | -22.926426 | | -1.235385 | |
| 1..100 | | 49 | | 7.881616 | | 72.854343 | | -7.83394 | | -8.623232 | | -22.615151 | | -1.180101 | |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Sr. No. | Chr. Partner | Partner Gene | Base Pair Location | AT (%) | Flexibility  (kJ/mol A2) | Melting Temperature  (oC) | Stacking Energy  (kcal/mol) | Enthalpy (kcal/mol) | Entropy (kcal/mol-K) | Free energy (kcal/mol) |
| 7 | Chr15 | PML | 1..1000 | 50.7 | 7.833874 | 72.694734 | -7.906967 | -8.483283 | -22.246046 | -1.165696 |
| 1..100 | 50 | 7.608889 | 73.004545 | -7.94596 | -8.591919 | -22.586869 | -1.175253 |
| Chr17 | RARA | 1..1000 | 42.7 | 7.577197 | 75.426295 | -8.098939 | -8.79009 | -22.950851 | -1.236877 |
| 1..100 | 51 | 8.184344 | 72.37707 | -7.750101 | -8.595959 | -22.592929 | -1.162828 |
| 8 | Chr15 | PML | 1..1000 | 49.3 | 7.767528 | 73.257166 | -7.967198 | -8.520921 | -22.317417 | -1.178168 |
| 1..100 | 52 | 7.674243 | 72.459494 | -7.882021 | -8.410101 | -22.041414 | -1.162626 |
| Chr17 | RARA | 1..1000 | 41.4 | 7.422833 | 75.886776 | -8.153043 | -8.820821 | -23.011611 | -1.249029 |
| 1..100 | 37 | 6.928788 | 78.054241 | -8.456263 | -8.932323 | -23.180808 | -1.297273 |
| 9 | Chr15 | PML | 1..1000 | 49 | 7.737268 | 73.38123 | -7.985196 | -8.526626 | -22.324825 | -1.181271 |
| 1..100 | 68 | 7.674243 | 72.459494 | -7.882021 | -8.410101 | -22.041414 | -1.162626 |
| Chr17 | RARA | 1..1000 | 41.1 | 7.402573 | 75.925985 | -8.154885 | -8.824825 | -23.017617 | -1.251451 |
| 1..100 | 40 | 7.293738 | 77.33505 | -8.373738 | -8.910101 | -23.216161 | -1.268889 |
| 10 | Chr15 | PML | 1..1000 | 49 | 7.722533 | 73.425775 | -7.994215 | -8.522122 | -22.307908 | -1.182182 |
| 1..100 | 65 | 8.475354 | 66.876363 | -7.296768 | -8.033333 | -21.267677 | -1.023939 |
| Chr17 | RARA | 1..1000 | 41.3 | 7.413143 | 75.847847 | -8.145085 | -8.822122 | -23.016116 | -1.24992 |
| 1..100 | 40 | 7.472526 | 77.091313 | -8.355354 | -8.886868 | -23.157576 | -1.264545 |
| 11 | Chr15 | PML | 1..1000 | 41 | 7.476917 | 76.408858 | -8.785986 | -22.877677 | -8.288349 | -1.254174 |
|  |  | 1..100 | 41 | 7.18202 | 76.32788 | -8.7303 | -22.6838 | -8.3102 | -1.26141 |
| Chr17 | RARA | 1..1000 | 41.8 | 7.55998 | 75.469268 | -8.777878 | -22.91001 | -8.112313 | -1.241522 |
|  |  | 1..100 | 39 | 6.992829 | 77.25162 | -8.86667 | -23.0424 | -8.38364 | -1.28869 |
| 12 | Chr15 | PML | 1..1000 | 43 | 7.35964 | 75.667647 | -8.725325 | -22.761261 | -8.19949 | -1.240791 |
|  |  | 1..100 | 29 | 6.49202 | 81.23697 | -9.35758 | -24.2364 | -8.69535 | -1.38242 |
| Chr17 | RARA | 1..1000 | 40.8 | 7.471181 | 76.276976 | -8.821822 | -22.993193 | -8.22999 | -1.256296 |
|  |  | 1..100 | 44 | 7.731111 | 74.79252 | -8.49596 | -22.1212 | -8.14515 | -1.22313 |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Sr. No. | Chr. Partner | Partner Gene | Base Pair Location | AT (%) | Flexibility  (kJ/mol A2) | Melting Temperature  (oC) | Stacking Energy  (kcal/mol) | Enthalpy | Entropy | Free energy |
| 13 | Chr15 | PML | 1..1000 | 42.6 | 7.413033 | 75.891621 | -8.727728 | -22.744044 | -8.230531 | -1.243694 |
| 1..100 | 40 | 7.724748 | 76.44879 | -8.89899 | -23.2192 | -8.19232 | -1.26 |
| Chr17 | RARA | 1..1000 | 40.8 | 7.471181 | 76.276976 | -8.821822 | -22.993193 | -8.22999 | -1.256296 |
| 1..100 | 44 | 7.731111 | 74.79252 | -8.49596 | -22.1212 | -8.14515 | -1.22313 |
| 14 | Chr15 | PML | 1..1000 | 42.6 | 7.413033 | 75.891621 | -8.727728 | -22.744044 | -8.230531 | -1.243694 |
| 1..100 | 29 | 6.49202 | 81.23697 | -9.35758 | -24.2364 | -8.69535 | -1.38242 |
| Chr17 | RARA | 1..1000 | 40.8 | 7.471181 | 76.276976 | -8.821822 | 22.993193 | -8.22999 | -1.256296 |
| 1..100 | 44 | 7.731111 | 74.79252 | -8.49596 | -22.1212 | -8.14515 | -1.22313 |
| 15 | Chr15 | PML | 1..1000 | 48.9 | 7.710891 | 73.402402 | -8.523423 | 22.312713 | -7.990691 | -1.182112 |
| 1..100 | 65 | 8.664546 | 66.93394 | -8.02222 | -21.2495 | -7.28111 | -1.02081 |
| Chr17 | RARA | 1..1000 | 46.2 | 7.802453 | 74.104153 | -8.661661 | 22.667667 | -7.997238 | -1.202272 |
| 1..100 | 53 | 8.314445 | 71.53818 | -8.51616 | -22.3929 | -7.75556 | -1.13667 |
| 16 | Chr15 | PML | 1..1000 | 49.7 | 7.828739 | 72.799449 | -8.437037 | -22.087187 | -7.917598 | -1.173193 |
|  |  |  | 1..100 | 51 | 7.899091 | 71.52202 | -8.46263 | -22.2505 | -7.7002 | -1.15626 |
|  | Chr17 | RARA | 1..1000 | 38.6 | 7.161252 | 77.255054 | -8.917417 | -23.204805 | -8.332423 | -1.282372 |
|  |  |  | 1..100 | 52 | 7.819798 | 72.51677 | -8.41515 | -22.098 | -7.89717 | -1.15667 |
| 17 | Chr15 | PML | 1..1000 | 49.9 | 7.791642 | 72.89071 | -8.500801 | -22.279579 | -7.925736 | -1.171802 |
|  |  | 1..100 | 58 | 8.344849 | 70.0703 | -8.2202 | -21.6333 | -7.67929 | -1.0995 |
| Chr17 | RARA | 1..1000 | 41.4 | 7.558899 | 75.721451 | -8.787287 | -22.938038 | -8.175576 | -1.245526 |
|  |  | 1..100 | 44 | 7.541313 | 75.0904 | -8.75657 | -22.9556 | -8.14909 | -1.23505 |
| 18 | Chr15 | PML | 1..1000 | 43.3 | 7.397728 | 75.509819 | -8.716216 | -22.746046 | -8.183994 | -1.237087 |
|  |  | 1..100 | 28 | 6.454748 | 81.73505 | -9.42323 | -24.3828 | -8.75606 | -1.39818 |
| Chr17 | RARA | 1..1000 | 38 | 7.096146 | 77.543763 | -8.926326 | -23.21051 | -8.356667 | -1.288078 |
|  |  | 1..100 | 32 | 7.257172 | 78.83859 | -9.15253 | -23.7535 | -8.41798 | -1.32859 |

*Table 7: Analysis of physico-chemical parameters/AT% of fusion sequences (100 &1000 bp upstream and downstream FS) for AML/ETO*

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Sr. No. | Chr. Partner | Partner Gene | Base Pair Location | AT (%) | Flexibility  (kJ/mol A-2) | Melting Temperature  (oC) | Stacking Energy  (kcal/mol) | Enthalpy (kcal/mol) | Entropy (cal/mol/K) | Free energy (kcal/mol) |
| 1 | Chr 8 | ETO | 1..1000 | 66.4 | 8.966166 | 66.06554 | -8.00921 | -21.2826 | -7.17133 | -1.0091 |
| 1..100 | 74 | 9.393637 | 62.83737 | -7.74444 | -20.702 | -6.84717 | -0.93182 |
| Chr 21 | AML | 1..1000 | 51 | 7.73023 | 73.11935 | -8.52002 | -22.3034 | -7.93181 | -1.17771 |
| 1..100 | 52 | 8.006667 | 71.77323 | -8.32323 | -21.8475 | -7.84404 | -1.14354 |
| 2 | Chr 8 | ETO | 1..1000 | 57.8 | 8.340281 | 69.81962 | -8.29349 | -21.8662 | -7.57783 | -1.0987 |
| 1..100 | 65 | 8.627677 | 66.79333 | -7.97374 | -21.1434 | -7.29677 | -1.03748 |
| Chr 21 | AML | 1..1000 | 56.2 | 8.813924 | 67.78904 | -8.0988 | -21.4148 | -7.3745 | -1.04709 |
| 1..100 | 60 | 8.767879 | 69.90667 | -8.31616 | -21.9394 | -7.64384 | -1.08485 |
| 3 | Chr 8 | ETO | 1..1000 | 63.4 | 8.690351 | 67.49622 | -8.08218 | -21.4052 | -7.34456 | -1.0423 |
| 1..100 | 62 | 8.277677 | 68.03131 | -7.97273 | -21.0485 | -7.4795 | -1.05546 |
| Chr 21 | AML | 1..1000 | 55.4 | 8.844865 | 67.54869 | -8.0956 | -21.422 | -7.33944 | -1.04151 |
| 1..100 | 53 | 8.271212 | 72.92333 | -8.57172 | -22.4859 | -7.92243 | -1.14849 |
| 4 | Chr 8 | ETO | 1..1000 | 64 | 8.809129 | 67.18466 | -8.07928 | -21.416 | -7.30107 | -1.03238 |
| 1..100 | 73 | 9.218687 | 64.00394 | -7.90101 | -21.0939 | -6.92232 | -0.95364 |
| Chr 21 | AML | 1..1000 | 55.4 | 8.276977 | 70.85068 | -8.4022 | -22.1248 | -7.69057 | -1.11922 |
| 1..100 | 64 | 8.684243 | 66.86222 | -8.03434 | -21.2778 | -7.25475 | -1.03152 |
| 5 | Chr 8 | ETO | 1..1000 | 62.1 | 8.557538 | 67.9244 | -8.12933 | -21.5061 | -7.38121 | -1.05299 |
| 1..100 | 61 | 8.536263 | 68.15586 | -8.25152 | -21.8303 | -7.31222 | -1.06283 |
| Chr 21 | AML | 1..1000 | 55.1 | 8.433594 | 70.1816 | -8.33704 | -21.9713 | -7.61529 | -1.10341 |
| 1..100 | 53 | 8.080606 | 72.30525 | -8.53434 | -22.4404 | -7.87212 | -1.15 |
| 6 | Chr 8 | ETO | 1..1000 | 61.9 | 8.386697 | 70.16025 | -8.33494 | -21.9544 | -7.59265 | -1.10584 |
| 1..100 | 64 | 8.259192 | 67.33445 | -8.01414 | -21.2626 | -7.42273 | -1.04313 |
| Chr 21 | AML | 1..1000 | 57 | 8.268619 | 70.94093 | -8.39399 | -22.0846 | -7.6963 | -1.12232 |
| 1..100 | 60 | 8.90697 | 69.05455 | -8.38081 | -22.1434 | -7.44323 | -1.08293 |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Sr. No. | Chr. Partner | Partner Gene | Base Pair Location | AT (%) | Flexibility  (kJ/mol A-2) | Melting Temperature  (oC) | Stacking Energy  (kcal/mol) | Enthalpy (kcal/mol) | Entropy (cal/mol/K) | Free energy (kcal/mol) |
| 7 | Chr 8 | ETO | 1..1000 | 65.8 | 8.788048 | 66.5209 | -8.002 | -21.231 | -7.24199 | -1.01956 |
| 1..100 | 69 | 9.288283 | 65.32667 | -7.96465 | -21.2232 | -7.11414 | -0.98444 |
| Chr 21 | AML | 1..1000 | 55.9 | 8.300721 | 70.79954 | -8.39299 | -22.0906 | -7.67529 | -1.11908 |
| 1..100 | 65 | 9.088889 | 66.14374 | -8.03636 | -21.3364 | -7.18667 | -1.01141 |
| 8 | Chr 8 | ETO | 1..1000 | 69.9 | 9.261061 | 64.81171 | -7.92222 | -21.0946 | -7.03024 | -0.97321 |
| 1..100 | 76 | 9.737879 | 61.58747 | -7.76768 | -20.8283 | -6.60748 | -0.90566 |
| Chr 21 | AML | 1..1000 | 63.1 | 8.277568 | 70.78689 | -8.34204 | -21.9372 | -7.68366 | -1.12113 |
| 1..100 | 74 | 9.97495 | 63.00788 | -7.90909 | -21.1727 | -6.75828 | -0.92758 |
| 9 | Chr 8 | ETO | 1..1000 | 69.4 | 9.194635 | 65.04241 | -7.93143 | -21.1036 | -7.06056 | -0.97901 |
| 1..100 | 75 | 9.443132 | 62.15333 | -7.67071 | -20.4869 | -6.75253 | -0.91768 |
| Chr 21 | AML | 1..1000 | 62.6 | 8.335406 | 70.48297 | -8.33373 | -21.9434 | -7.64305 | -1.11368 |
| 1..100 | 69 | 9.396667 | 64.55434 | -7.91818 | -21.104 | -6.95939 | -0.98253 |
| 10 | Chr 8 | ETO | 1..1000 | 67.3 | 9.261061 | 64.81171 | -7.92222 | -21.0946 | -7.03024 | -0.97321 |
| 1..100 | 63 | 8.844243 | 67.37101 | -8.07374 | -21.3909 | -7.31121 | -1.03444 |
| Chr 21 | AML | 1..1000 | 49.4 | 7.976367 | 72.45279 | -8.46827 | -22.2082 | -7.86307 | -1.16021 |
| 1..100 | 47 | 7.611717 | 74.18384 | -8.60101 | -22.4646 | -8.00899 | -1.20152 |
| 11 | Chr 8 | ETO | 1..1000 | 56.6 | 8.542543 | 67.99296 | -8.14224 | -21.5364 | -7.38533 | -1.05518 |
| 1..100 | 64 | 8.744243 | 66.80475 | -7.96162 | -21.0606 | -7.23232 | -1.03515 |
| Chr 21 | AML | 1..1000 | 45.1 | 7.612293 | 74.56171 | -8.66637 | -22.6338 | -8.0514 | -1.21592 |
| 1..100 | 48 | 7.424344 | 74.04252 | -8.50101 | -22.2131 | -8.08313 | -1.1998 |
| 12 | Chr 8 | ETO | 1..1000 | 66.5 | 8.881392 | 66.65885 | -8.05796 | -21.3831 | -7.24241 | -1.02038 |
| 1..100 | 62 | 8.448384 | 68.1498 | -8.20101 | -21.6697 | -7.36919 | -1.05444 |
| Chr 21 | AML | 1..1000 | 54.8 | 8.344174 | 71.45279 | -8.41802 | -22.123 | -7.73389 | -1.13373 |
| 1..100 | 71 | 8.689899 | 63.54869 | -7.63232 | -20.3394 | -7.02313 | -0.96384 |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Sr. No. | Chr. Partner | Partner Gene | Base Pair Location | AT (%) | Flexibility  (kJ/mol A2) | Melting Temperature  (oC) | Stacking Energy  (kcal/mol) | Enthalpy | Entropy | Free energy |
| 13 | Chr 8 | ETO | 1..1000 | 60 | 8.537117 | 68.99972 | -8.22803 | -21.7361 | -7.49087 | -1.07444 |
| 1..100 | 71 | 9.73596 | 63.20414 | -7.90808 | -21.1434 | -6.74697 | -0.95081 |
| Chr 21 | AML | 1..1000 | 74.3 | 8.36993 | 71.80684 | -8.42903 | -22.1233 | -7.79849 | -1.13858 |
| 1..100 | 39 | 6.991717 | 78.04758 | -8.74849 | -22.6697 | -8.56657 | -1.2895 |
| 14 | Chr 8 | ETO | 1..1000 | 65.3 | 8.790751 | 66.50406 | -7.9989 | -21.2206 | -7.24045 | -1.0196 |
| 1..100 | 56 | 8.581919 | 69.69849 | -8.41919 | -22.2495 | -7.52 | -1.0998 |
| Chr 21 | AML | 1..1000 | 51.1 | 8.318259 | 71.91922 | -8.41271 | -22.0713 | -7.82147 | -1.14199 |
| 1..100 | 57 | 8.38798 | 70.27636 | -8.19394 | -21.5556 | -7.68687 | -1.10283 |
| 15 | Chr 8 | ETO | 1..1000 | 65.8 | 8.863253 | 65.87761 | -7.95275 | -21.1284 | -7.16708 | -1.00734 |
| 1..100 | 66 | 9.40596 | 65.20394 | -7.96869 | -21.197 | -7.01677 | -0.99222 |
| Chr 21 | AML | 1..1000 | 52.9 | 8.058158 | 72.58027 | -8.50741 | -22.2961 | -7.88577 | -1.16404 |
| 1..100 | 42 | 8.689899 | 63.54869 | -7.63232 | -20.3394 | -7.02313 | -0.96384 |
| 16 | Chr 8 | ETO | 1..1000 | 67.1 | 8.983994 | 66.30449 | -8.02402 | -21.2922 | -7.19415 | -1.00868 |
| 1..100 | 63 | 8.756869 | 67.37303 | -8.05455 | -21.3212 | -7.31748 | -1.04222 |
| Chr 21 | AML | 1..1000 | 52.6 | 9.172523 | 61.83488 | -7.63013 | -20.4122 | -6.69871 | -0.92984 |
| 1..100 | 71 | 6.991717 | 78.04758 | -8.74849 | -22.6697 | -8.56657 | -1.2895 |
| 17 | Chr 8 | ETO | 1..1000 | 72.5 | 9.454345 | 63.47333 | -7.86697 | -21.0132 | -6.84932 | -0.94613 |
| 1..100 | 66 | 8.845051 | 66.92909 | -8.04242 | -21.3616 | -7.31101 | -1.01626 |
| Chr 21 | AML | 1..1000 | 53.4 | 8.281682 | 70.94313 | -8.37297 | -22.0256 | -7.69272 | -1.12466 |
| 1..100 | 39 | 6.991717 | 78.04758 | -8.74849 | -22.6697 | -8.56657 | -1.2895 |
| 18 | Chr 8 | ETO | 1..1000 | 61.7 | 8.574585 | 68.26485 | -8.13604 | -21.5061 | -7.42605 | -1.05973 |
| 1..100 | 55 | 8.13202 | 71.11192 | -8.3697 | -22.0263 | -7.74455 | -1.12778 |
| Chr 21 | AML | 1..1000 | 56.8 | 8.397067 | 70.07877 | -8.32452 | -21.9445 | -7.60018 | -1.10336 |
| 1..100 | 48 | 7.566869 | 74.23626 | -8.70303 | -22.8182 | -8.12636 | -1.2004 |

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|  |  |  |  |  |  |  |  |  |  |  |
| Sr. No. | Chr. Partner | Partner Gene | Base Pair Location | AT (%) | Flexibility  (kJ/mol A-2) | Melting Temperature  (oC) | Stacking Energy  (kcal/mol) | Enthalpy (kcal/mol) | Entropy (cal/mol/K) | Free energy (kcal/mol) |
| 19 | Chr 8 | ETO | 1..1000 | 63.5 | 8.697227 | 67.47539 | -8.0969 | -21.4396 | -7.33056 | -1.04151 |
| 1..100 | 51 | 7.93899 | 72.87849 | -8.55758 | -22.4788 | -7.92323 | -1.17293 |
| Chr 21 | AML | 1..1000 | 57.3 | 8.436447 | 69.85796 | -8.30561 | -21.9034 | -7.57811 | -1.09785 |
| 1..100 | 49 | 7.84899 | 74.31162 | -8.71717 | -22.8636 | -8.11283 | -1.19354 |
| 20 | Chr 8 | ETO | 1..1000 | 54.8 | 8.260651 | 71.14389 | -8.37307 | -22.012 | -7.73607 | -1.12464 |
| 1..100 | 66 | 9.02293 | 66.7501 | -8.0596 | -21.3455 | -7.24616 | -1.02131 |
| Chr 21 | AML | 1..1000 | 55.1 | 8.307268 | 70.98385 | -8.40761 | -22.1227 | -7.69887 | -1.12218 |
| 1..100 | 59 | 8.478485 | 69.03131 | -8.23333 | -21.7404 | -7.53707 | -1.08253 |
| 21 | Chr 8 | ETO | 1..1000 | 69.1 | 9.187568 | 65.13967 | -7.93514 | -21.108 | -7.06944 | -0.98107 |
| 1..100 | 77 | 9.582525 | 61.48121 | -7.60303 | -20.3515 | -6.68647 | -0.89929 |
| Chr 21 | AML | 1..1000 | 43.6 | 7.485466 | 75.23968 | -8.73604 | -22.8004 | -8.12143 | -1.23156 |
| 1..100 | 45 | 7.584748 | 74.38929 | -8.57677 | -22.4061 | -8.03111 | -1.21909 |
| 22 | Chr 8 | ETO | 1..1000 | 66.8 | 9.015466 | 66.11151 | -8.01241 | -21.2695 | -7.17302 | -1.00452 |
| 1..100 | 74 | 9.500909 | 62.30737 | -7.71717 | -20.6172 | -6.74485 | -0.92515 |
| Chr 21 | AML | 1..1000 | 44.1 | 7.536727 | 75.05794 | -8.72002 | -22.7619 | -8.10298 | -1.22732 |
| 1..100 | 39 | 7.148485 | 76.41212 | -8.76162 | -22.804 | -8.21404 | -1.27071 |
| 23 | Chr 8 | ETO | 1..1000 | 69.8 | 9.078649 | 64.72724 | -7.90831 | -21.0737 | -7.0181 | -0.98013 |
| 1..100 | 73 | 9.188586 | 63.08515 | -7.80808 | -20.8626 | -6.85798 | -0.94444 |
| Chr 21 | AML | 1..1000 | 52.2 | 7.895235 | 72.50186 | -8.46276 | -22.1895 | -7.90165 | -1.15508 |
| 1..100 | 54 | 8.449596 | 71.19778 | -8.21414 | -21.5212 | -7.76939 | -1.1195 |
| 24 | Chr 8 | ETO | 1..1000 | 67.8 | 8.928609 | 65.55847 | -7.94525 | -21.1274 | -7.12066 | -1.00007 |
| 1..100 | 73 | 9.40596 | 63.51111 | -7.73232 | -20.6273 | -6.95475 | -0.94222 |
| Chr 21 | AML | 1..1000 | 53.8 | 8.009189 | 71.78882 | -8.40831 | -22.0776 | -7.82612 | -1.13987 |
| 1..100 | 53 | 8.042829 | 71.6896 | -8.33636 | -21.8778 | -7.80495 | -1.14141 |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Sr. No. | Chr. Partner | Partner Gene | Base Pair Location | AT (%) | Flexibility  (kJ/mol A-2) | Melting Temperature  (oC) | Stacking Energy  (kcal/mol) | Enthalpy (kcal/mol) | Entropy (cal/mol/K) | Free energy (kcal/mol) |
| 25 | Chr 8 | ETO | 1..1000 | 67.8 | 9.06935 | 65.59343 | -7.99019 | -21.2488 | -7.10507 | -0.99606 |
| 1..100 | 74 | 9.583637 | 61.52566 | -7.77374 | -20.8323 | -6.57323 | -0.92152 |
| Chr 21 | AML | 1..1000 | 58.6 | 8.515576 | 69.46089 | -8.26757 | -21.8073 | -7.53513 | -1.08661 |
| 1..100 | 61 | 8.83697 | 68.25909 | -8.23737 | -21.797 | -7.36677 | -1.06131 |
| 26 | Chr 8 | ETO | 1..1000 | 69.9 | 9.288899 | 64.77962 | -7.95706 | -21.2041 | -7.00404 | -0.97383 |
| 1..100 | 76 | 9.384344 | 62.16 | -7.72929 | -20.6879 | -6.71101 | -0.92071 |
| Chr 21 | AML | 1..1000 | 64.8 | 8.852863 | 66.84462 | -8.07237 | -21.3975 | -7.25895 | -1.02548 |
| 1..100 | 64 | 8.340707 | 67.67444 | -8.06061 | -21.3263 | -7.42293 | -1.0502 |
| 27 | Chr 8 | ETO | 1..1000 | 64 | 8.780371 | 67.20107 | -8.08418 | -21.4281 | -7.30498 | -1.03387 |
| 1..100 | 71 | 8.95798 | 65.03061 | -7.89596 | -21.0404 | -7.10535 | -0.96748 |
| Chr 21 | AML | 1..1000 | 57.5 | 8.034845 | 70.00411 | -8.27267 | -21.8322 | -7.65537 | -1.10517 |
| 1..100 | 53 | 8.16596 | 71.95071 | -8.51111 | -22.404 | -7.78717 | -1.14283 |
| 28 | Chr 8 | ETO | 1..1000 | 64.9 | 8.853093 | 66.84536 | -8.07518 | -21.4245 | -7.26045 | -1.02483 |
| 1..100 | 77 | 9.711111 | 60.63465 | -7.6202 | -20.4303 | -6.55778 | -0.88899 |
| Chr 21 | AML | 1..1000 | 56.9 | 8.007147 | 70.19271 | -8.29109 | -21.871 | -7.66933 | -1.11085 |
| 1..100 | 49 | 7.447879 | 74.57596 | -8.72424 | -22.9121 | -8.18748 | -1.20293 |
| 29 | Chr 8 | ETO | 1..1000 | 66.2 | 8.92011 | 66.34928 | -8.02302 | -21.2911 | -7.21042 | -1.01228 |
| 1..100 | 73 | 9.425354 | 63.57687 | -7.90909 | -21.1626 | -6.87909 | -0.9397 |
| Chr 21 | AML | 1..1000 | 66.2 | 8.795295 | 65.8833 | -7.96336 | -21.1503 | -7.16372 | -1.01183 |
| 1..100 | 69 | 9.04495 | 65.03343 | -7.9596 | -21.2101 | -7.06505 | -0.98061 |
| 30 | Chr 8 | ETO | 1..1000 | 65.5 | 8.891482 | 66.68847 | -8.03343 | -21.2965 | -7.24647 | -1.01828 |
| 1..100 | 67 | 8.91697 | 65.83081 | -7.90404 | -20.9384 | -7.15798 | -1.00444 |
| Chr 21 | AML | 1..1000 | 55.6 | 7.372683 | 71.2626 | -8.30731 | -21.8776 | -7.86595 | -1.13462 |
| 1..100 | 56 | 7.881515 | 71.78172 | -8.29899 | -21.7768 | -7.93384 | -1.12667 |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Sr. No. | Chr. Partner | Partner Gene | Base Pair Location | AT (%) | Flexibility  (kJ/mol A-2) | Melting Temperature  (oC) | Stacking Energy  (kcal/mol) | Enthalpy (kcal/mol) | Entropy (cal/mol/K) | Free energy (kcal/mol) |
| 31 | Chr 8 | ETO | 1..1000 | 63.8 | 8.793504 | 67.22803 | -8.10651 | -21.4906 | -7.29105 | -1.03522 |
| 1..100 | 63 | 8.920707 | 68.08162 | -8.22323 | -21.802 | -7.34859 | -1.04424 |
| Chr 21 | AML | 1..1000 | 53.8 | 7.250491 | 71.97792 | -8.38068 | -22.0433 | -7.92546 | -1.15175 |
| 1..100 | 59 | 7.085253 | 70.10283 | -8.26869 | -21.901 | -7.73636 | -1.1103 |
| 32 | Chr 8 | ETO | 1..1000 | 63.8 | 8.788028 | 67.26252 | -8.10491 | -21.4855 | -7.2967 | -1.03562 |
| 1..100 | 64 | 8.719495 | 67.43091 | -8.17475 | -21.6677 | -7.28445 | -1.03889 |
| Chr 21 | AML | 1..1000 | 53.9 | 7.256857 | 71.94642 | -8.37778 | -22.0368 | -7.92256 | -1.15087 |
| 1..100 | 57 | 6.983131 | 70.57687 | -8.33838 | -22.0606 | -7.78121 | -1.12465 |
| 33 | Chr 8 | ETO | 1..1000 | 57.8 | 8.296727 | 69.67008 | -8.28138 | -21.8346 | -7.55516 | -1.09575 |
| 1..100 | 44 | 7.213031 | 76.33202 | -8.66869 | -22.5424 | -8.39455 | -1.24465 |
| Chr 21 | AML | 1..1000 | 49.7 | 7.596447 | 73.2424 | -8.51572 | -22.3151 | -7.99063 | -1.18165 |
| 1..100 | 50 | 8.008889 | 72.91646 | -8.44748 | -22.098 | -7.96384 | -1.17343 |
| 34 | Chr 8 | ETO | 1..1000 | 69 | 9.198759 | 64.87947 | -7.93874 | -21.1339 | -7.01831 | -0.98294 |
| 1..100 | 68 | 9.675859 | 65.66879 | -8.08586 | -21.5364 | -7.07657 | -0.98343 |
| Chr 21 | AML | 1..1000 | 47.6 | 7.671352 | 73.88715 | -8.55355 | -22.3689 | -8.0415 | -1.1947 |
| 1..100 | 43 | 7.264849 | 76.72434 | -8.61616 | -22.3808 | -8.4397 | -1.25111 |

*Table 8: Analysis of physico-chemical parameters/AT% of fusion sequences (100 &1000 bp upstream and downstream FS) for CBFB/MYH11*

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Sr. No. | | Chr. Partner | | Partner Gene | | Base Pair Location | | AT (%) | | Flexibility  (kJ/mol A-2) | | Melting Temperature  () | | | Stacking Energy  (kcal/mol) | | Enthalpy (kcal/mol) | | Entropy (cal/mol/K) | | Free energy (kcal/mol) | |
| 1 | | Chr16 | | CBFB | | 1..1000 | | 64.9 | | 9.070511 | | 67.17449 | | | -7.26974 | | -8.15195 | | -21.6112 | | -1.02733 | |
| 1..100 | | 51 | | 8.18798 | | 72.92414 | | | -7.96485 | | -8.54242 | | -22.4263 | | -1.16455 | |
| Chr16 | | MYH11 | | 1..1000 | | 47.5 | | 7.837147 | | 74.13235 | | | -8.07938 | | -8.65185 | | -22.6374 | | -1.19797 | |
| 1..100 | | 39 | | 7.748384 | | 76.80384 | | | -8.2799 | | -8.84849 | | -22.9768 | | -1.26707 | |
| 2 | | Chr16 | | CBFB | | 1..1000 | | 65.2 | | 9.072002 | | 67.02294 | | | -7.25387 | | -8.14134 | | -21.5871 | | -1.0255 | |
| 1..100 | | 50 | | 7.881515 | | 73.36394 | | | -8.00707 | | -8.51212 | | -22.3162 | | -1.1797 | |
| Chr16 | | MYH11 | | 1..1000 | | 44.9 | | 7.789149 | | 75.10093 | | | -8.16213 | | -8.72953 | | -22.8063 | | -1.22114 | |
| 1..100 | | 42 | | 7.824849 | | 76.45879 | | | -8.28576 | | -8.8697 | | -23.103 | | -1.24939 | |
| 3 | | Chr16 | | CBFB | | 1..1000 | | 64.9 | | 9.070511 | | 67.17449 | | | -7.26974 | | -8.15195 | | -21.6112 | | -1.02733 | |
| 1..100 | | 51 | | 8.18798 | | 72.92414 | | | -7.96485 | | -8.54242 | | -22.4263 | | -1.16455 | |
| Chr16 | | MYH11 | | 1..1000 | | 45.2 | | 7.770321 | | 74.92574 | | | -8.13902 | | -8.71081 | | -22.7614 | | -1.21792 | |
| 1..100 | | 47 | | 8.165758 | | 74.02162 | | | -8.07465 | | -8.61919 | | -22.5293 | | -1.20101 | |
| 4 | | Chr16 | | CBFB | | 1..1000 | | 65.1 | | 9.077097 | | 67.11542 | | -7.26537 | | | -8.14475 | | -21.5927 | | -1.02607 | |
| 1..100 | | 51 | | 8.183031 | | 72.7599 | | -7.95697 | | | -8.50505 | | -22.3253 | | -1.16232 | |
| Chr16 | | MYH11 | | 1..1000 | | 43.7 | | 7.679189 | | 75.9177 | | -8.26477 | | | -8.78579 | | -22.9 | | -1.23652 | |
| 1..100 | | 39 | | 7.265253 | | 77.04454 | | -8.42687 | | | -8.80707 | | -22.8394 | | -1.27455 | |
| 5 | | Chr16 | | CBFB | | 1..1000 | | 64.9 | | 9.070511 | | 67.17449 | | -7.26974 | | | -8.15195 | | -21.6112 | | -1.02733 | |
| 1..100 | | 52 | | 8.18798 | | 72.92414 | | -7.96485 | | | -8.54242 | | -22.4263 | | -1.16455 | |
| Chr16 | | MYH11 | | 1..1000 | | 44.8 | | 7.646196 | | 75.30911 | | -8.17086 | | | -8.73944 | | -22.8053 | | -1.22668 | |
| 1..100 | | 42 | | 7.838384 | | 76.15232 | | -8.28818 | | | -8.80909 | | -22.9121 | | -1.25273 | |
| 6 | | Chr16 | | CBFB | | 1..1000 | | 52.9 | | 8.117448 | | 71.92899 | | -7.80995 | | | -8.497 | | -22.3215 | | -1.14895 | |
| 1..100 | | 56 | | 8.441313 | | 70.84505 | | -7.69202 | | | -8.43838 | | -22.2263 | | -1.1103 | |
| Chr16 | | MYH11 | | 1..1000 | | 47.8 | | 7.851862 | | 74.02975 | | -8.04704 | | | -8.64625 | | -22.6304 | | -1.19571 | |
| 1..100 | | 49 | | 8.152627 | | 73.40879 | | -8.03929 | | | -8.6202 | | -22.6061 | | -1.18192 | |
| 7 | | Chr16 | | CBFB | | 1..1000 | | 56 | | 8.370971 | | 70.52548 | | -7.64538 | | | -8.35205 | | -21.9949 | | -1.11106 | |
| 1..100 | | 59 | | 8.384243 | | 68.92798 | | -7.53869 | | | -8.08081 | | -21.2929 | | -1.08212 | |
| Chr16 | | MYH11 | | 1..1000 | | 44.7 | | 7.655135 | | 75.34087 | | -8.1741 | | | -8.74004 | | -22.8078 | | -1.22661 | |
| 1..100 | | 41 | | 7.778384 | | 76.65414 | | -8.33647 | | | -8.82626 | | -22.9414 | | -1.2601 | |

*Table 9: Analysis of physico-chemical parameters/AT% of BCR control sequence (100 &1000 bp upstream and downstream sequence)*

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Sr. No. | Base Pair Location | AT (%) | Flexibility  (kJ/mol A2) | Melting Temperature  (oC) | Stacking Energy  (kcal/mol) | Enthalpy (kcal/mol) | Entropy (kcal/mol-K) | Free energy |
| 1 | 1..1000 | 43.6 | 7.312913 | 75.688317 | -8.244195 | -8.732833 | -22.776376 | -1.238879 |
| 1..100 | 32 | 8.279798 | 73.537677 | -8.011313 | -8.69899 | -22.823232 | -1.175758 |
| 2 | 1..1000 | 42.8 | 7.402773 | 75.892812 | -8.235436 | -8.740741 | -22.779179 | -1.243023 |
| 1..100 | 43 | 7.700909 | 75.937575 | -8.256263 | -8.676768 | -22.59899 | -1.233838 |
| 3 | 1..1000 | 48 | 7.763424 | 73.965365 | -8.033854 | -8.608709 | -22.516416 | -1.196426 |
| 1..100 | 46 | 7.511111 | 75.684242 | -8.419192 | -8.573737 | -22.291919 | -1.227879 |
| 4 | 1..1000 | 40.7 | 7.224805 | 77.227366 | -8.42925 | -8.847147 | -23.011311 | -1.271001 |
| 1..100 | 45 | 7.331212 | 76.043635 | -8.31101 | -8.726262 | -22.765656 | -1.231111 |
| 5 | 1..1000 | 47.9 | 7.64967 | 74.1508 | -8.073494 | -8.583884 | -22.441241 | -1.196567 |
| 1..100 | 50 | 7.845152 | 73.81111 | -8.148081 | -8.422222 | -21.953535 | -1.179495 |
| 6 | 1..1000 | 42.5 | 7.208138 | 76.306666 | -8.318469 | -8.727828 | -22.72973 | -1.252212 |
| 1..100 | 39 | 7.066162 | 78.176767 | -8.612425 | -8.831313 | -22.944444 | -1.292828 |
| 7 | 1..1000 | 41.7 | 7.371442 | 76.339859 | -8.273734 | -8.837738 | -23.051051 | -1.252432 |
| 1..100 | 39 | 7.10596 | 78.322221 | -8.575152 | -8.873737 | -22.99697 | -1.291111 |
| 8 | 1..1000 | 44.1 | 7.432843 | 75.51117 | -8.226277 | -8.717417 | -22.755756 | -1.232122 |
| 1..100 | 43 | 7.455859 | 76.076464 | -8.36798 | -8.725252 | -22.70505 | -1.239495 |
| 9 | 1..1000 | 41.6 | 7.367518 | 76.033473 | -8.210161 | -8.809609 | -22.97007 | -1.251481 |
| 1..100 | 46 | 7.61596 | 74.876969 | -8.261617 | -8.537374 | -22.288889 | -1.215556 |
| 10 | 1..1000 | 49.1 | 7.963754 | 73.403082 | -7.930951 | -8.654654 | -22.701101 | -1.181852 |
| 1..100 | 49 | 7.871717 | 73.826565 | -8.063031 | -8.645454 | -22.653535 | -1.188889 |

*Table 10: Analysis of physico-chemical parameters/AT% of ABL control sequence (100 &1000 bp upstream and downstream sequence)*

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Sr. No. | | Base Pair Location | | AT (%) | | Flexibility  (kJ/mol A2) | | Melting Temperature  (oC) | | Stacking Energy  (kcal/mol) | | Enthalpy (kcal/mol) | | Entropy (kcal/mol-K) | | Free energy | |
| 1 | | 1..1000 | | 60.6 | | 8.764435 | | 68.664774 | | -7.420331 | | -8.25996 | | -21.836136 | | -1.067628 | |
| 1..100 | | 50 | | 8.279798 | | 73.537677 | | -8.011313 | | -8.69899 | | -22.823232 | | -1.175758 | |
| 2 | | 1..1000 | | 58.9 | | 8.56943 | | 69.274574 | | -7.514385 | | -8.278879 | | -21.852853 | | -1.083534 | |
| 1..100 | | 43 | | 7.046566 | | 75.917575 | | -8.33394 | | -8.684848 | | -22.586869 | | -1.247071 | |
| 3 | | 1..1000 | | 47.5 | | 7.793454 | | 74.497847 | | -8.132883 | | -8.680781 | | -22.704905 | | -1.204535 | |
| 1..100 | | 45 | | 7.381414 | | 75.292626 | | -8.218283 | | -8.79899 | | -23.022222 | | -1.225556 | |
| 4 | | 1..1000 | | 50.2 | | 7.847748 | | 73.396956 | | -7.987298 | | -8.596797 | | -22.531832 | | -1.177698 | |
| 1..100 | | 51 | | 7.836162 | | 72.909999 | | -7.968485 | | -8.429293 | | -22.080808 | | -1.166364 | |
| 5 | | 1..1000 | | 47.9 | | 7.793934 | | 74.043793 | | -8.043494 | | -8.624024 | | -22.559059 | | -1.196036 | |
| 1..100 | | 41 | | 7.221616 | | 77.431414 | | -8.498788 | | -8.885858 | | -23.167677 | | -1.274646 | |
| 6 | | 1..1000 | | 50 | | 7.848198 | | 73.082722 | | -7.931392 | | -8.534735 | | -22.361061 | | -1.174354 | |
| 1..100 | | 45 | | 7.321414 | | 75.215151 | | -8.171415 | | -8.687879 | | -22.69697 | | -1.221717 | |
| 7 | | 1..1000 | | 52.4 | | 8.033153 | | 72.139469 | | -7.843544 | | -8.465365 | | -22.214014 | | -1.151822 | |
| 1..100 | | 42 | | 7.25394 | | 75.549999 | | -8.198081 | | -8.730303 | | -22.740404 | | -1.252525 | |
| 8 | | 1..1000 | | 52.7 | | 8.021292 | | 72.079339 | | -7.856026 | | -8.435035 | | -22.144945 | | -1.149079 | |
| 1..100 | | 50 | | 8.174041 | | 72.968484 | | -7.891515 | | -8.650505 | | -22.709091 | | -1.168081 | |
| 9 | | 1..1000 | | 46 | | 7.545986 | | 74.708518 | | -8.142163 | | -8.608108 | | -22.46977 | | -1.214735 | |
| 1..100 | | 37 | | 6.619798 | | 79.078282 | | -8.668687 | | -8.845454 | | -22.913131 | | -1.315151 | |
| 10 | | 1..1000 | | 35.3 | | 7.151422 | | 79.323192 | | -8.597758 | | -9.104104 | | -23.604204 | | -1.321992 | |
| 1..100 | | 37 | | 6.841616 | | 77.925049 | | -8.368687 | | -8.9 | | -23.076767 | | -1.301212 | |

*Table 11: Analysis of physico-chemical parameters/AT% of PML control sequence (100 &1000 bp upstream and downstream sequence)*

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Sr. No. | | Base Pair Location | | AT (%) | | Flexibility  (kJ/mol A2) | | Melting Temperature  (oC) | | Stacking Energy  (kcal/mol) | | Enthalpy (kcal/mol) | | Entropy (kcal/mol-K) | | Free energy | |
| 1 | | | 1..1000 | | 43.1 | | 7.255225 | | 76.279609 | | -8.322393 | | -8.773874 | | -22.846847 | | -1.251522 | |
| 1..100 | | 39 | | 6.959596 | | 79.72111 | | -8.860101 | | -9.061616 | | -23.457576 | | -1.320707 | |
| 2 | | | 1..1000 | | 41.4 | | 7.162383 | | 77.722992 | | -8.541582 | | -8.88028 | | -23.049349 | | -1.28041 | |
| 1..100 | | 30 | | 6.308788 | | 83.448584 | | -9.303031 | | -9.30505 | | -23.912121 | | -1.416162 | |
| 3 | | | 1..1000 | | 48.3 | | 7.688439 | | 73.308348 | | -7.965946 | | -8.484284 | | -22.193794 | | -1.185546 | |
| 1..100 | | 47 | | 7.404748 | | 74.451514 | | -8.101617 | | -8.609091 | | -22.495959 | | -1.209596 | |
| 4 | | | 1..1000 | | 42.9 | | 7.442192 | | 75.766315 | | -8.20957 | | -8.730731 | | -22.765465 | | -1.240601 | |
| 1..100 | | 34 | | 6.552424 | | 79.696261 | | -8.569899 | | -9.127272 | | -23.666666 | | -1.344343 | |
| 5 | | | 1..1000 | | 41.8 | | 7.308048 | | 76.173683 | | -8.248529 | | -8.772172 | | -22.861561 | | -1.251532 | |
| 1..100 | | 32 | | 7.014748 | | 80.022019 | | -8.599495 | | -9.174747 | | -23.763636 | | -1.346465 | |
| 6 | | 1..1000 | | 48.9 | | 7.723774 | | 73.3007 | | -7.963424 | | -8.54064 | | -22.364264 | | -1.180891 | |
| 1..100 | | 42 | | 7.780202 | | 77.322929 | | -8.484849 | | -8.90404 | | -23.19899 | | -1.254343 | |
| 7 | | 1..1000 | | 44.7 | | 7.514985 | | 74.801681 | | -8.114335 | | -8.628028 | | -22.525025 | | -1.220931 | |
| 1..100 | | 48 | | 7.659596 | | 73.444545 | | -7.973031 | | -8.626262 | | -22.657576 | | -1.183636 | |

*Table 12: Analysis of physico-chemical parameters/AT% of RARA control sequence (100 &1000 bp upstream and downstream sequence)*

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Sr. No. | | Base Pair Location | | AT (%) | | Flexibility  (kJ/mol A2) | | Melting Temperature  (oC) | | Stacking Energy  (kcal/mol) | | Enthalpy (kcal/mol) | | Entropy (kcal/mol-K) | | Free energy | |
| 1 | | 1..1000 | | 40.5 | | 7.248118 | | 76.617817 | | -8.266707 | | -8.846747 | | -23.048849 | | -1.263323 | |
| 1..100 | | 34 | | 7.202728 | | 79.13505 | | -8.51495 | | -9.121212 | | -23.70707 | | -1.322626 | |
| 2 | | 1..1000 | | 40.8 | | 7.401252 | | 76.326626 | | -8.242383 | | -8.7999 | | -22.921822 | | -1.258268 | |
| 1..100 | | 42 | | 7.353536 | | 75.510302 | | -8.17798 | | -8.723232 | | -22.735353 | | -1.25 | |
| 3 | | 1..1000 | | 42.6 | | 7.25935 | | 76.227757 | | -8.290531 | | -8.798298 | | -22.943443 | | -1.25019 | |
| 1..100 | | 46 | | 7.255354 | | 75.500909 | | -8.326465 | | -8.780808 | | -22.954545 | | -1.230808 | |
| 4 | | 1..1000 | | 37.5 | | 7.117298 | | 78.093612 | | -8.464114 | | -8.939539 | | -23.208408 | | -1.296697 | |
| 1..100 | | 37 | | 7.212526 | | 79.412928 | | -8.671616 | | -9.030303 | | -23.393939 | | -1.316263 | |
| 5 | | 1..1000 | | 40.6 | | 7.282873 | | 76.671641 | | -8.316457 | | -8.806907 | | -22.918819 | | -1.263243 | |
| 1..100 | | 51 | | 7.873233 | | 73.232121 | | -8.052122 | | -8.493939 | | -22.30202 | | -1.168586 | |
| 6 | | 1..1000 | | 43.2 | | 7.406457 | | 75.872502 | | -8.256697 | | -8.765966 | | -22.862863 | | -1.243714 | |
| 1..100 | | 51 | | 7.873233 | | 73.232121 | | -8.052122 | | -8.493939 | | -22.30202 | | -1.168586 | |
| 7 | | 1..1000 | | 38.4 | | 7.143223 | | 77.689759 | | -8.398649 | | -8.982182 | | -23.371972 | | -1.289489 | |
| 1..100 | | 39 | | 6.974041 | | 78.412221 | | -8.566263 | | -8.935353 | | -23.134343 | | -1.301919 | |

*Table 13: Analysis of physico-chemical parameters/AT% of AML control sequence (100 &1000 bp upstream and downstream sequence)*

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Sr. No. | Base Pair Location | AT (%) | Flexibility  (kJ/mol A2) | Melting Temperature  (oC) | Stacking Energy  (kcal/mol) | Enthalpy (kcal/mol) | Entropy (kcal/mol-K) | Free energy |
| 1 | 1..1000 | 62.3 | 8.594595 | 68.04151 | -7.40275 | -8.11632 | -21.4648 | -1.05411 |
| 1..100 | 47 | 7.509697 | 74.22242 | -8.1096 | -8.57374 | -22.4242 | -1.20303 |
| 2 | 1..1000 | 57.9 | 8.205055 | 69.83829 | -7.59709 | -8.27828 | -21.8368 | -1.09929 |
| 1..100 | 43 | 7.663031 | 75.59141 | -8.1297 | -8.65758 | -22.5566 | -1.23253 |
| 3 | 1..1000 | 66.5 | 8.952433 | 66.34271 | -7.21094 | -8.03634 | -21.357 | -1.01192 |
| 1..100 | 63 | 8.958586 | 67.62172 | -7.3403 | -8.14545 | -21.5768 | -1.03737 |
| 4 | 1..1000 | 55.9 | 8.1599 | 70.76831 | -7.71633 | -8.33403 | -21.9259 | -1.11653 |
| 1..100 | 43 | 7.020606 | 76.75293 | -8.38313 | -8.6697 | -22.5253 | -1.25778 |
| 5 | 1..1000 | 60.2 | 8.616166 | 68.90042 | -7.48469 | -8.22312 | -21.7256 | -1.07181 |
| 1..100 | 44 | 7.297071 | 74.57273 | -8 | -8.75253 | -22.9081 | -1.22818 |
| 6 | 1..1000 | 65.1 | 8.616166 | 68.90042 | -7.48469 | -8.22312 | -21.7256 | -1.07181 |
| 1..100 | 57 | 8.096768 | 70.85303 | -7.80727 | -8.29091 | -21.8515 | -1.10717 |
| 7 | 1..1000 | 60.4 | 8.626657 | 68.8113 | -7.49366 | -8.2037 | -21.6628 | -1.07028 |
| 1..100 | 48 | 8.027677 | 74.75859 | -8.15313 | -8.80707 | -23.0616 | -1.21131 |
| 8 | 1..1000 | 62.6 | 8.712403 | 68.19463 | -7.41241 | -8.16697 | -21.5993 | -1.05102 |
| 1..100 | 52 | 8.263839 | 72.43152 | -7.94535 | -8.52323 | -22.3303 | -1.15606 |
| 9 | 1..1000 | 57.8 | 8.452122 | 70.15259 | -7.64231 | -8.32382 | -21.9215 | -1.09871 |
| 1..100 | 34 | 7.055051 | 81.14657 | -8.95303 | -9.27677 | -23.9818 | -1.35283 |

*Table 14: Analysis of physico-chemical parameters/AT% of ETO control sequence (100 &1000 bp upstream and downstream sequence)*

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Sr. No. | Base Pair Location | AT (%) | Flexibility  (kJ/mol A2) | Melting Temperature  (oC) | Enthalpy (kcal/mol) | Entropy (kcal/mol-K) | Stacking Energy  (kcal/mol) | Free energy |
| 1 | 1..1000 | 58 | 8.366066 | 69.61357 | -8.26857 | -21.8219 | -7.57788 | -1.09048 |
| 1..100 | 43 | 7.292525 | 76.35838 | -8.83131 | -23.0667 | -8.33566 | -1.24455 |
| 2 | 1..1000 | 43.8 | 7.50989 | 75.29376 | -8.75766 | -22.873 | -8.14405 | -1.23073 |
| 1..100 | 32 | 6.585758 | 80.72636 | -9.22121 | -23.8303 | -8.78758 | -1.36253 |
| 3 | 1..1000 | 56.4 | 8.363233 | 70.22415 | -8.32913 | -21.9485 | -7.62136 | -1.10659 |
| 1..100 | 46 | 7.613435 | 75.22505 | -8.77172 | -22.9424 | -8.23899 | -1.2198 |
| 4 | 1..1000 | 65.2 | 8.765285 | 66.91137 | -8.05976 | -21.374 | -7.28554 | -1.02759 |
| 1..100 | 52 | 7.608687 | 72.8401 | -8.37576 | -21.9111 | -8.03202 | -1.1596 |

*Table 15: Analysis of physico-chemical parameters/AT% of MYH11 control sequence (100 &1000 bp upstream and downstream sequence)*

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Sr. No. | Base Pair Location | AT (%) | Flexibility  (kJ/mol A2) | Melting Temperature  (oC) | Stacking Energy  (kcal/mol) | Enthalpy (kcal/mol) | Entropy (kcal/mol-K) | Free energy |
| 1 | 1..1000 | 41.6 | 7.43 | 76.63 | -8.34494 | -8.79 | -22.86 | -1.25783 |
| 1..100 | 34 | 6.734 | 80.75 | -8.86869 | -9.02323 | -23.2394 | -1.35172 |
| 2 | 1..1000 | 50.8 | 7.755145 | 75.09478 | -8.15462 | -8.72933 | -22.8108 | -1.22092 |
| 1..100 | 60 | 7.490808 | 77.60121 | -8.44253 | -8.95758 | -23.3121 | -1.27768 |
| 3 | 1..1000 | 44.8 | 7.976727 | 72.76776 | -7.89566 | -8.52272 | -22.3407 | -1.16441 |
| 1..100 | 40 | 8.897071 | 70.02081 | -7.51748 | -8.46667 | -22.3152 | -1.08838 |
| 4 | 1..1000 | 50.7 | 7.92002 | 72.43479 | -7.8535 | -8.46456 | -22.1904 | -1.16148 |
| 1..100 | 46 | 7.632627 | 74.2599 | -8.02889 | -8.53232 | -22.2707 | -1.20606 |
| 5 | 1..1000 | 47.6 | 7.668118 | 74.41188 | -8.11101 | -8.63383 | -22.5652 | -1.20293 |
| 1..100 | 45 | 7.776768 | 75.85061 | -8.29606 | -8.80808 | -23.0141 | -1.22929 |
| 6 | 1..1000 | 47.5 | 7.832012 | 73.97136 | -8.04042 | -8.63794 | -22.6103 | -1.1938 |
| 1..100 | 45 | 7.907374 | 75.49838 | -8.17061 | -8.89293 | -23.2889 | -1.22495 |
| 7 | 1..1000 | 55.8 | 8.264305 | 70.49661 | -7.6542 | -8.32062 | -21.8957 | -1.11238 |
| 1..100 | 63 | 9.203637 | 68.56626 | -7.43586 | -8.27172 | -21.8707 | -1.04919 |

*Table 16: Analysis of physico-chemical parameters/AT% of CBFB control sequence (100 &1000 bp upstream and downstream sequence)*

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Sr. No. | Base Pair Location | AT (%) | Flexibility  (kJ/mol A2) | Melting Temperature  (°C) | Stacking Energy  (kcal/mol) | Enthalpy (kcal/mol) | Entropy (kcal/mol-K) | Free energy |
| 1 | 1..1000 | 32.5 | 7.223514 | 81.78439 | -8.95398 | -9.44024 | -24.3954 | -1.37303 |
| 1..100 | 37 | 7.420101 | 80.1205 | -8.79586 | -9.2899 | -24.102 | -1.33162 |
| 2 | 1..1000 | 64 | 8.614975 | 68.7293 | -7.46557 | -8.22813 | -21.7358 | -1.06759 |
| 1..100 | 49 | 8.053132 | 74.24606 | -8.13566 | -8.60606 | -22.5 | -1.19606 |
| 3 | 1..1000 | 60.9 | 8.954915 | 67.52109 | -7.31563 | -8.16296 | -21.6191 | -1.03721 |
| 1..100 | 48 | 8.124142 | 73.93293 | -8.15657 | -8.53737 | -22.3071 | -1.18475 |