**PCR primers of junctions for homologous recombination**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Joint id | Forward Primer | Reverse Primer | Amplicon Size | | Synthetic coordinates on *synII* | |
| AJ-1 | AATGACCTTTGGAGTGCGTTTC | CCAGATGATTTGGATTTATGAAGAA | 1105 | 3329 | | 4433 |
| AJ-2 | CGCTAACATCTAAATCCTCAAACG | CAAATGCCAGCGGTGGTAAG | 1047 | 10134 | | 11180 |
| AJ-3 | AAAAGCCTATTACACTGGGACG | TGTCGCCAGACTCTTCTTCATC | 849 | 16270 | | 17118 |
| AJ-4 | AAAGTGCAGCCAAACAATAACC | TCAGTAGGCGGGATGTAAAGTTC | 964 | 22323 | | 23286 |
| BJ-1 | ATCGTCTACGCCACAATCACTA | GGTTTAACAGAACAAAAGTCCCTAC | 1019 | 38741 | | 39759 |
| BJ-2 | TCAGTGGGCTCATAGAGGAAGA | AAGTACGGTGACAACGGCAAAG | 1040 | 45402 | | 46441 |
| BJ-3 | AAAACCGTGACGACCATAAACA | TTCTGTGCTGGCATCTTATTCG | 993 | 54317 | | 55309 |
| CJ-1 | GTTCAGCCGCAGTTCTCAATC | TGGTAAAGACAATGAAGACGACG | 1190 | 69501 | | 70690 |
| CJ-2 | GGGTAGGCTTTCCATCATCAAC | CGGAAGGCTGAAAAATACATCG | 1017 | 79197 | | 80213 |
| CJ-3 | CGATATAAATATTCTCGGTGATGTG | AGATAGAATTGCTCTCGTAAAGGTC | 935 | 86399 | | 87333 |
| DJ-1 | AGTAGCCAGATCCACGTCCTTG | CATCCATAGCGGAGTCTCAAAG | 959 | 99760 | | 100718 |
| DJ-2 | GATAGGGTTTGGCTGTTGATTG | CCTTCACTTTCTGCCCAACATA | 905 | 107303 | | 108207 |
| DJ-3 | TTGACCTTTCTTGCTTGACCTG | CTCAAATTGCCATCCCCTCA | 1095 | 113967 | | 115061 |
| EJ-1 | TGAAGGATACCAGCGGAAGCAG | GCCTGTAGATGTAGTGAAACTTTGGA | 1046 | 128279 | | 129324 |
| EJ-2 | TTCTGACTTCCGCTGTTCCTTG | CGACCTTGAAACTGGCTCTATAAC | 916 | 134837 | | 135752 |
| EJ-3 | GTATGAAGTTTCAGAGGCTCCG | TGTCAGAAATTAGTCGGACGCTC | 1090 | 143112 | | 144201 |
| EJ-4 | ACGCCTTCGTCATTAGTTTCG | GAAAGGACAACAGAGGGTGATGA | 848 | 150978 | | 151825 |
| FJ-1 | CGGCAATAAACTCCAAGATACGA | CGGGCACTGAAACAATGACTG | 1059 | 163908 | | 164966 |
| FJ-2 | GCTTTTGGAACCCAGAGGAGAG | AAGATGTTGGGAAGCAAGAGGC | 902 | 172282 | | 173183 |
| FJ-3 | CCCATCGGAGCGTCAAACTAC | TCATCTGAGGGCGTATTTGGTG | 990 | 178405 | | 179394 |
| GJ-1 | TACGGTTAATACAAGGAACTAGCG | GCCACCTAAACCAGTAACTTCG | 1040 | 192129 | | 193168 |
| GJ-2 | CATTTTCTTCCAGAACAACAGG | CTATTAACATCGATGAACCCGTG | 1067 | 200922 | | 201988 |
| GJ-3 | GTTTCTTGACCGTTAGCCACC | TACCAAATCCCACTGATGTTCG | 965 | 210806 | | 211770 |
| HJ-1 | TTTGGTGGTGTTAAAGAGTCAGG | CACACATCGGTCAGGCTATCAC | 1013 | 226110 | | 227122 |
| HJ-2 | ACCACTAACCATTATGGGGAGA | CAAGGCCTGGCTTTTTTCGAG | 1064 | 233711 | | 234774 |
| HJ-3 | ATACTTCATTCCACCTTCTGCCA | TGATCCAACTGGTCTTCAAATGC | 943 | 242547 | | 243489 |
| IJ-1 | ACCATCCCAAGTGAAGTAAACATC | AAAGAAGCCGACTGAACAATCC | 971 | 257234 | | 258204 |
| IJ-2 | CCAAAGTACCATGTTCCTTCAAG | GGAAAATAAACGTGTTGCTCTG | 944 | 265803 | | 266746 |
| IJ-3 | AATGTATAGCCGACTGCTTCCA | TGGCAGCATGAAAATAGAAACAG | 980 | 273926 | | 274905 |
| JJ-1 | AGAAGATGGATGAAGCAGAGCA | CAAAGACAAGCAAGAACCTGAGA | 1149 | 286550 | | 287698 |
| JJ-2 | CGCCTCTGTATAAATCCGTTGC | CGAGCACAACGATTATAGTTACGA | 1021 | 293728 | | 294748 |
| JJ-3 | TTTGGGGAAAGTCTGGTAATGC | GGTGTCGATCCGAACGATTTAG | 941 | 300866 | | 301806 |
| KJ-1 | ACTGTCTGCTGGTTGATTGCTG | TGCGTTGTTTTCTACTTAGCCTG | 1066 | 313804 | | 314869 |
| KJ-2 | ATCAGGAACAAAGCGGCATAGC | CAATCAATAGTACGGCATTCAAGA | 1080 | 321616 | | 322695 |
| KJ-3 | CTTGACGATTTATCTTCGGACAG | ACGAGATGAGAAATGAAGTGGAG | 1042 | 328842 | | 329883 |
| LJ-1 | AAACATTTCTTACGGATTGGG | GGTACTGCGTTGCTTCATTCA | 1012 | 341910 | | 342921 |
| LJ-2 | GCCTGCCGCTTGGATGATACA | TACGGCTATTTGGTGTCGTCTCA | 905 | 348076 | | 348980 |
| LJ-3 | ATACCTGCTAAACAAAGGGACTCTA | TGCCGTGATTCTTTAACTTTACC | 1067 | 355405 | | 356471 |
| MJ-1 | GGAAATACCTTTTTTTAGTGACGCT | GGCCAGACGATCTATTTTCCTATGT | 1094 | 370998 | | 372091 |
| MJ-2 | ATGTGCGTGTTTCAGATTGCG | TCAGCGAGTCCTTGATTTTGTTTTG | 1010 | 378582 | | 379591 |
| MJ-3 | TTTCATTGTTTGGTTGCCTTCA | CCAGCTCCAGCAACACTTCTC | 1064 | 385191 | | 386254 |
| NJ-1 | GCTAATGCCAATGTGCAGTAGTAAC | ATTCATTACCGTCTTCGATCTCAGC | 1108 | 400925 | | 402032 |
| NJ-2 | ATCACGCATGTGGAGGTTTGTCAGT | TTGGAAGAACGGCGCAGAAAG | 1019 | 410066 | | 411084 |
| NJ-3 | CCGCCTTTGAGTGACGTTGTG | AAGGAGGAATTTCGTTTCTTGTTAG | 962 | 418812 | | 419773 |
| OJ-1 | GAGGTGGGGCAGGAGAGGCATTCGT | TTGGCAGAAACCCTTGGTGATGGCG | 1138 | 433982 | | 435119 |
| OJ-2 | TTGTCCAATTTGCCACCTTCA | ACAAATACGCCGTTGCCTTATCAGT | 1012 | 442337 | | 443348 |
| OJ-3 | ATTAATCCCAACAACAAGTATGCCA | TAATAAATGCCGTTGACGGTAAGAA | 1072 | 449029 | | 450100 |
| PJ-1 | ATTATCTTGCAGCTTCTGGATCACA | AGCCGCTAACGATCAAGATATGGTG | 884 | 463356 | | 464239 |
| PJ-2 | TCGAAGGAGCTTTCAATCTCATGGT | TTCCGCTCGCCGTTCAAGTAG | 1156 | 469578 | | 470733 |
| PJ-3 | CAGGCCTTGACTGAAGTCTTGTTGG | GATTTCTGATTTACCCGCAGCCTCT | 1080 | 476074 | | 477153 |
| QJ-1 | CTAAATTAAATGCTTCTTGCGTTGC | TATGCAAGAATGTGGTGCTCTAAAC | 847 | 489530 | | 490376 |
| QJ-2 | ACTCGGCTGCGGTGGAACTAC | GAGGCGGGTTTGTGAGGTGAA | 1058 | 497091 | | 498148 |
| QJ-3 | AAGACAGTCTGCGGAGGGATT | CCAAAATAACGACTGAGCCGTGATG | 950 | 506756 | | 507705 |
| RJ-1 | CCCATGTTTGATTATCGAAGCG | AGCGGTAGATTCGGGAGTTTGA | 1097 | 522887 | | 523983 |
| RJ-2 | GCAAGTGACGGTATTGGTAAAG | TGGCGTTTGTTGCCCTAATAAG | 1013 | 529232 | | 530244 |
| RJ-3 | TAAATCTGTTTCTGCTTTCGGAC | GTAGTAAAGGATTGCGTGGTTCA | 1015 | 538080 | | 539094 |
| SJ-1 | GAATCTGTCCCTGCGTGTCTA | ACCATTGAAAAGATTAGATTAGTGC | 968 | 551503 | | 552470 |
| SJ-2 | GCCAGATAAGGGATCACAAGG | GGCAGCAATATTGACTGGTACA | 953 | 560346 | | 561298 |
| SJ-3 | TAGCAGGAAAGATTCAAAGGCA | ACAAGATTGAAGCGGTGGTGA | 873 | 566753 | | 567625 |
| TJ-1 | TTGAAGAATGGGAAGAGGATGC | TTTCCTTGGGCGTTTGTCTTA | 951 | 578813 | | 579763 |
| TJ-2 | TCAGCTTGGCATACTTTAGTCG | GAAGAACAGTAATACCTACAAGCGA | 897 | 586565 | | 587461 |
| TJ-3 | TTGTTGGAACACTGAGCTTACG | CTTTAGGGTGTTTCAGTGTTGC | 1143 | 594352 | | 595494 |
| TJ-4 | AGGATGATGCCAATAGCGGA | CCTGACCTCCAATCCAACTAGA | 993 | 601429 | | 602421 |
| UJ-1 | TTTCGCACCTTCATACACTCCA | CGTTGGATTAGTTTGGGAGTTAG | 943 | 616663 | | 617605 |
| UJ-2 | CTTGCTTTCACCGTAGGATGG | ATGTCACTCGCTAAGCCCAAC | 932 | 626393 | | 627324 |
| UJ-3 | CCCACCAAGACTAATGAACCC | GCTAATCAAGACATGTATGGCGTA | 1004 | 632979 | | 633982 |
| VJ-1 | CCTTCTTATTGTTGTGGTGGTGA | AGAGCCATGACTGCATCTGTTG | 946 | 649062 | | 650007 |
| VJ-2 | CTGTTATGCCGTTGTTGTCTTC | CAAAAAAACCGACAACAGTAATG | 938 | 657079 | | 658016 |
| VJ-3 | CACACGTTGGCTTCAAATTATG | TGATGAAATGCCATACAAGATAGAC | 974 | 664341 | | 665314 |
| WJ-1 | GAAAACAAAACTACCGCCGTG | CGTTGTGGTGAGATTGTTCCTG | 926 | 680960 | | 681885 |
| WJ-2 | ATTGAATGCTGACTATCCGTTG | CCGTCAGCGTAAGTTGGGATG | 918 | 688822 | | 689739 |
| WJ-3 | GTTGTTGCTACTGCCTACCGAC | AAAACAGAGGGCTAACCAGTGC | 1015 | 698421 | | 699435 |
| XJ-1 | CAATCAGGAGACAGGGAAGAACA | ATCAGTATGTAAGGTCTGGCAAGTA | 1121 | 714785 | | 715905 |
| XJ-2 | ATTTGGCTCTTTGACCCTTGC | GAAACGATGGTGGATGTCTTG | 902 | 721592 | | 722493 |
| XJ-3 | TTCTTGCTTATCGCTGACCACA | AAACAGGGTTGATTTGCGGTA | 1019 | 727846 | | 728864 |
| YJ-1 | ATCTTCCGCAATTAAACGACG | CTTCTTCTTCAGCAGCCCACC | 960 | 744840 | | 745799 |
| YJ-2 | GGATTTCTTGATGCCTTGGATG | TATCCCGTCGGAATGAGAAAG | 1087 | 754604 | | 755690 |
| YJ-3 | CATTCCCCATTTTAGCTCCTC | GATGAACCGCTGATACCGACG | 1129 | 762780 | | 763908 |

**PCR primers for breakpoint identification during structure variation repair**

|  |  |  |  |
| --- | --- | --- | --- |
| Primer ID | Sequence | Expected amplicon size (bp) | |
| Before repair | After  repair |
| LBPV-1-F | ACCTTGAGCAGAGTCTTGACCG | 1397 | 0 |
| LBPV-1-R | GAACGAAGTTGGATACAAAGCACA |
| TBPV-1-F | CTTCAACCACGTCTAATACCAGC | 419 | 0 |
| TBPV-1-R | TCCAATAGGTGGTTAGCAATCG |
| TBPV-2-F | ATGGAATCTTTGTTTGCGTTGA | 506 | 0 |
| TBPV-2-R | AAGTAAGACGATTGCTAACCACC |
| TBPV-3-F | CATTTAGGACCACCCACAGCAC | 469 | 0 |
| TBPV-3-R | GACAGCGGGCAACAGTGAAGA |
| TBPV-4-F | GGAGAAAAAGGAGGATAGTAAAGGA | 431 | 0 |
| TBPV-4-R | AAACAATTCGTTCGTCTGCTCC |
| TBPV-5-F | CACATGCCAAAGTCTTCGAGTC | 325 | 0 |
| TBPV-5-R | CGTATTACCGCCTTTGAGTGAG |
| TBPV-6-F | GCAGACAGTTTTATTGTTCATGATG | 516 | 0 |
| TBPV-6-R | GCTGGTTGTTCGATTGAAGTCA |
| TBPV-7-F | CGTTTCCCGTTGAATATGGCTC | 541 | 0 |
| TBPV-7-R | CCTTCTTCTTTCGGATCTTTGG |
| TBPV-8-F | CTGTCAAGAGTTTCCACTGCTG | 0 | 456 |
| TBPV-8-R | TCTTCTTTCGGATCTTTGGTTG |