Supplementary data:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | pCR | RCB-I | RCB-II | RCB-III |
| BL1 | 2 | 0 | 1 | 0 |
| BL2 | 2 | 0 | 2 | 0 |
| M | 1 | 0 | 1 | 1 |

Supplementary table 1. Response among mutation carriers among mutation carriers (number of patients.)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| ID | Gene Symbol | GB\_ACC | Targ Region | SEQUENCE |
| 1 | ACTB | [NM\_001101.2](http://www.ncbi.nlm.nih.gov/nuccore/?term=NM_001101.2) | 1010-1110 | TGCAGAAGGAGATCACTGCCCTGGCACCCAGCACAATGAAGATCAAGATCATTGCTCCTCCTGAGCGCAAGTACTCCGTGTGGATCGGCGGCTCCATCCT |
| 2 | ACTR3B | [NM\_001040135.1](http://www.ncbi.nlm.nih.gov/nuccore/?term=NM_001040135.1) | 275-375 | GGGAGTTGATGACCTTGACTTTTTCATAGGAGATGAAGCCATCGATAAACCTACATATGCTACAAAGTGGCCGATACGACATGGAATCATTGAAGACTGG |
| 3 | ADM | [NM\_001124.1](http://www.ncbi.nlm.nih.gov/nuccore/?term=NM_001124.1) | 1300-1400 | GCGAGGTGTAAAGTTGTTCGCCGCGTGGAATGTGAGTGTGTTTGTGTGCATGAAAGAGAAAGACTGATTACCTCCTGTGTGGAAGAAGGAAACACCGAGT |
| 4 | ANGPTL4 | [NM\_001039667.1](http://www.ncbi.nlm.nih.gov/nuccore/?term=NM_001039667.1) | 1136-1236 | CACCTGCAGCCATTCCAACCTCAACGGCCAGTACTTCCGCTCCATCCCACAGCAGCGGCAGAAGCTTAAGAAGGGAATCTTCTGGAAGACCTGGCGGGGC |
| 5 | ANLN | [NM\_018685.2](http://www.ncbi.nlm.nih.gov/nuccore/?term=NM_018685.2) | 1900-2000 | ATGACCTCTTCAGTGATGTCCTAGAGGAAGGTGAACTAGATATGGAGAAGAGCCAAGAGGAGATGGATCAAGCATTAGCAGAAAGCAGCGAAGAACAGGA |
| 6 | AXL | [NM\_001699.4](http://www.ncbi.nlm.nih.gov/nuccore/?term=NM_001699.4) | 1897-1997 | CTGGAGGATTTCCTGAGTGAAGCGGTCTGCATGAAGGAATTTGACCATCCCAACGTCATGAGGCTCATCGGTGTCTGTTTCCAGGGTTCTGAACGAGAGA |
| 7 | BAG1 | [NM\_004323.3](http://www.ncbi.nlm.nih.gov/nuccore/?term=NM_004323.3) | 1490-1590 | CTCTTGTGATCGTGTAGTCCCATAGCTGTAAAACCAGAATCACCAGGAGGTTGCACCTAGTCAGGAATATTGGGAATGGCCTAGAACAAGGTGTTTGGCA |
| 8 | BCL2 | [NM\_000633.2](http://www.ncbi.nlm.nih.gov/nuccore/?term=NM_000633.2) | 1525-1625 | CCAAGCACCGCTTCGTGTGGCTCCACCTGGATGTTCTGTGCCTGTAAACATAGATTCGCTTTCCATGTTGTTGGCCGGATCACCATCTGAAGAGCAGACG |
| 9 | BIRC5 | [NM\_001012270.1](http://www.ncbi.nlm.nih.gov/nuccore/?term=NM_001012270.1) | 1095-1195 | AGCCATTCTAAGTCATTGGGGAAACGGGGTGAACTTCAGGTGGATGAGGAGACAGAATAGAGTGATAGGAAGCGTCTGGCAGATACTCCTTTTGCCACTG |
| 10 | BLVRA | [NM\_000712.3](http://www.ncbi.nlm.nih.gov/nuccore/?term=NM_000712.3) | 925-1025 | CCTGGGGCTTGCAGAAGAAATCCAGAAATATTGCTGTTCAAGGAAGTAAGAGGAGGAGGTGATGTAGCACTTCCAAGATGGCACCAGCATTTGGTTCTTC |
| 11 | CAV1 | [NM\_001753.3](http://www.ncbi.nlm.nih.gov/nuccore/?term=NM_001753.3) | 434-534 | AACCGCGACCCTAAACACCTCAACGATGACGTGGTCAAGATTGACTTTGAAGATGTGATTGCAGAACCAGAAGGGACACACAGTTTTGACGGCATTTGGA |
| 12 | CCNB1 | [NM\_031966.2](http://www.ncbi.nlm.nih.gov/nuccore/?term=NM_031966.2) | 715-815 | AACTTGAGGAAGAGCAAGCAGTCAGACCAAAATACCTACTGGGTCGGGAAGTCACTGGAAACATGAGAGCCATCCTAATTGACTGGCTAGTACAGGTTCA |
| 13 | CCNE1 | [NM\_001238.1](http://www.ncbi.nlm.nih.gov/nuccore/?term=NM_001238.1) | 1635-1735 | CCTCCAGACACCAGTGCGTGCTCCCGATGCTGCTATGGAAGGTGCTACTTGACCTAAGGGACTCCCACAACAACAAAAGCTTGAAGCTGTGGAGGGCCAC |
| 14 | CD24 | [NM\_013230.2](http://www.ncbi.nlm.nih.gov/nuccore/?term=NM_013230.2) | 95-195 | ACCGACGGAGGGGACATGGGCAGAGCAATGGTGGCCAGGCTCGGGCTGGGGCTGCTGCTGCTGGCACTGCTCCTACCCACGCAGATTTATTCCAGTGAAA |
| 15 | CDC6 | [NM\_001254.3](http://www.ncbi.nlm.nih.gov/nuccore/?term=NM_001254.3) | 430-530 | GGAACATCAGAAAGCCTGGGCTTTGAACCTGAACGGTTTTGATGTAGAGGAAGCCAAGATCCTTCGGCTCAGTGGAAAACCACAAAATGCGCCAGAGGGT |
| 16 | CDC20 | [NM\_001255.2](http://www.ncbi.nlm.nih.gov/nuccore/?term=NM_001255.2) | 1300-1400 | GAGATCAGGTTCTGGACAATGCTGCAGTTCAATTCTGTGCCCGCAAAGTCTCTGCTGTTTCAGGAGATGTTCGCAAAGCACTGGATGTTTGCAGGAGAGC |
| 17 | CDH3 | [NM\_001793.4](http://www.ncbi.nlm.nih.gov/nuccore/?term=NM_001793.4) | 3745-3845 | GACAGGCTATGAGTCTGACGTTAGAGTGGTGGCTTCCTTAGCCTTTCAGGATGGAGGAATGTGGGCAGTTTGACTTCAGCACTGAAAACCTCTCCACCTG |
| 18 | CENPF | [NM\_016343.3](http://www.ncbi.nlm.nih.gov/nuccore/?term=NM_016343.3) | 5822-5922 | AGATAATGTGGCCAAGGTGAATGACAGCTGGAAGGAGAGATTTCTTGATGTGGAAAATGAGCTGAGTAGGATCAGATCGGAGAAAGCTAGCATTGAGCAT |
| 19 | CEP55 | [NM\_001127182.1](http://www.ncbi.nlm.nih.gov/nuccore/?term=NM_001127182.1) | 558-658 | ACGTATTGAAACAACAGTTGTCTGCTGCAACCTCACGAATTGCTGAACTTGAAAGCAAAACCAATACACTCCGTTTATCACAGACTGTGGCTCCAAACTG |
| 20 | CLDN3 | [NM\_001306.3](http://www.ncbi.nlm.nih.gov/nuccore/?term=NM_001306.3) | 606-706 | TGCTCACCCTCGTGCCGGTGTCCTGGTCGGCCAACACCATTATCCGGGACTTCTACAACCCCGTGGTGCCCGAGGCGCAGAAGCGCGAGATGGGCGCGGG |
| 21 | CLDN4 | [NM\_001305.3](http://www.ncbi.nlm.nih.gov/nuccore/?term=NM_001305.3) | 1242-1342 | GGGAGCTGGCTTCTGCTGGCCAGGATAGCTTAACCCTGACTTTGGGATCTGCCTGCATCGGCGTTGGCCACTGTCCCCATTTACATTTTCCCCACTCTGT |
| 22 | CLDN7 | [NM\_001307.3](http://www.ncbi.nlm.nih.gov/nuccore/?term=NM_001307.3) | 175-275 | AATTTTGTCTGGAACCACCCTCCCGGCGTATCCTACTCCCTGTGCCGCGAGGCCATCGCTTCACTGGAGGGGTCGATTTGTGTGTAGTTTGGTGACAAGA |
| 23 | CRYAB | [NM\_001885.1](http://www.ncbi.nlm.nih.gov/nuccore/?term=NM_001885.1) | 578-678 | TAAAACAAGAAAGTTTCCCCACCAGTGAATGAAAGTCTTGTGACTAGTGCTGAAGCTTATTAATGCTAAGGGCAGGCCCAAATTATCAAGCTAATAAAAT |
| 24 | CXXC5 | [NM\_016463.7](http://www.ncbi.nlm.nih.gov/nuccore/?term=NM_016463.7) | 1265-1365 | CGGAACCCAAAGCTGCCCTCTCCGTGCAATGTCACTGCTCGTGTGGTCTCCAGCAAGGGATTCGGGCGAAGACAAACGGATGCACCCGTCTTTAGAACCA |
| 25 | DDIT4 | [NM\_019058.2](http://www.ncbi.nlm.nih.gov/nuccore/?term=NM_019058.2) | 85-185 | CCCATTCAAGCGGCAGGACGCACTTGTCTTAGCAGTTCTCGCTGACCGCGCTAGCTGCGGCTTCTACGCTCCGGCACTCTGAGTTCATCAGCAAACGCCC |
| 26 | DDR1 | [NM\_001954.4](http://www.ncbi.nlm.nih.gov/nuccore/?term=NM_001954.4) | 1342-1442 | CCCTTGGCGGCCGTGTGGCTCGCTTTCTGCAGTGCCGCTTCCTCTTTGCGGGGCCCTGGTTACTCTTCAGCGAAATCTCCTTCATCTCTGATGTGGTGAA |
| 27 | DSP | [NM\_001008844.1](http://www.ncbi.nlm.nih.gov/nuccore/?term=NM_001008844.1) | 6025-6125 | CCAGGGTGGTCCTGGTAGATAGAAAGACAGGCAGTCAGTATGATATTCAAGATGCTATTGACAAGGGCCTTGTTGACAGGAAGTTCTTTGATCAGTACCG |
| 28 | EGFR | [NM\_005228.3](http://www.ncbi.nlm.nih.gov/nuccore/?term=NM_005228.3) | 2760-2860 | GCAGCCAGGAACGTACTGGTGAAAACACCGCAGCATGTCAAGATCACAGATTTTGGGCTGGCCAAACTGCTGGGTGCGGAAGAGAAAGAATACCATGCAG |
| 29 | EMP3 | [NM\_001425.2](http://www.ncbi.nlm.nih.gov/nuccore/?term=NM_001425.2) | 350-450 | GGGAAAGAGTCCCTGAATCTCTGGTACGACTGCACGTGGAACAACGACACCAAAACATGGGCCTGCAGTAATGTCAGCGAGAATGGCTGGCTGAAGGCGG |
| 30 | EPCAM | [NM\_002354.1](http://www.ncbi.nlm.nih.gov/nuccore/?term=NM_002354.1) | 415-515 | AGAAGAGCAAAACCTGAAGGGGCCCTCCAGAACAATGATGGGCTTTATGATCCTGACTGCGATGAGAGCGGGCTCTTTAAGGCCAAGCAGTGCAACGGCA |
| 31 | ERBB2 | [NM\_001005862.1](http://www.ncbi.nlm.nih.gov/nuccore/?term=NM_001005862.1) | 1255-1355 | ACAGACACGTTTGAGTCCATGCCCAATCCCGAGGGCCGGTATACATTCGGCGCCAGCTGTGTGACTGCCTGTCCCTACAACTACCTTTCTACGGACGTGG |
| 32 | ERBB3 | [NM\_001005915.1](http://www.ncbi.nlm.nih.gov/nuccore/?term=NM_001005915.1) | 420-520 | CCTGCAGTGGATTCGAGAAGTGACAGGCTATGTCCTCGTGGCCATGAATGAATTCTCTACTCTACCATTGCCCAACCTCCGCGTGGTGCGAGGGACCCAG |
| 33 | ERBB4 | [NM\_001042599.1](http://www.ncbi.nlm.nih.gov/nuccore/?term=NM_001042599.1) | 7300-7400 | CTAGGATAGATCCAGAACCACAAAGCATCTGCACCACAAAAGGTGTTAGACTACCAAGCAGCTCCTGGTTTTCTGCATAGTATTAGTAGCACAGCTTAGG |
| 34 | ESR1 | [NM\_000125.2](http://www.ncbi.nlm.nih.gov/nuccore/?term=NM_000125.2) | 2390-2490 | TGCTATGTTACTAAGCGTGAGGATTCCCGTAGCTCTTCACAGCTGAACTCAGTCTATGGGTTGGGGCTCAGATAACTCTGTGCATTTAAGCTACTTGTAG |
| 35 | ESRP1 | [NM\_001034915.2](http://www.ncbi.nlm.nih.gov/nuccore/?term=NM_001034915.2) | 1515-1615 | GACTGTATACGCCTTCGAGGTCTTCCCTATGCAGCCACAATTGAGGACATCCTGGATTTCCTGGGGGAGTTCGCCACAGATATTCGTACTCATGGGGTTC |
| 36 | EVI2A | [NM\_001003927.1](http://www.ncbi.nlm.nih.gov/nuccore/?term=NM_001003927.1) | 245-345 | ATAAAACCTTGATGTTCAAAAGCCTGACTAGCAGTGGCATCCATGTTGCTTAGGAGTTGGTTTGGAAACAAAGACTTTCAGGCCCTACCTATACTAGCTA |
| 37 | EXO1 | [NM\_003686.3](http://www.ncbi.nlm.nih.gov/nuccore/?term=NM_003686.3) | 2715-2815 | GCCAGAGCCAGTGGGCTGAGCAAGAAGCCGGCAAGCATCCAGAAGAGAAAGCATCATAATGCCGAGAACAAGCCGGGGTTACAGATCAAACTCAATGAGC |
| 38 | F11R | [NM\_016946.4](http://www.ncbi.nlm.nih.gov/nuccore/?term=NM_016946.4) | 2105-2205 | CATCACCCTTCCCTTGGCTGGAACTACTGGACAGACCCTTTTGAGATGTGCCTGTGGTGCTGTGGAGATGTGTGTAGTGGTCTTAGCTCTTTGTTGAGCT |
| 39 | FABP5 | [NM\_001444.1](http://www.ncbi.nlm.nih.gov/nuccore/?term=NM_001444.1) | 100-200 | GCTTTGATGAATACATGAAGGAGCTAGGAGTGGGAATAGCTTTGCGAAAAATGGGCGCAATGGCCAAGCCAGATTGTATCATCACTTGTGATGGTAAAAA |
| 40 | FBN1 | [NM\_000138.3](http://www.ncbi.nlm.nih.gov/nuccore/?term=NM_000138.3) | 6420-6520 | CACTGAAGGCAGCTTCAAATGTCTGTGTCCAGAAGGGTTTTCCTTGTCCTCCAGTGGAAGAAGGTGCCAAGATTTGCGAATGAGCTACTGTTATGCGAAG |
| 41 | FGFR4 | [NM\_002011.3](http://www.ncbi.nlm.nih.gov/nuccore/?term=NM_002011.3) | 1585-1685 | AGGCGAGGGCTGCTTTGGCCAGGTAGTACGTGCAGAGGCCTTTGGCATGGACCCTGCCCGGCCTGACCAAGCCAGCACTGTGGCCGTCAAGATGCTCAAA |
| 42 | FLVCR2 | [NM\_017791.2](http://www.ncbi.nlm.nih.gov/nuccore/?term=NM_017791.2) | 1255-1355 | GATGCCTCATACTTAGGTTCCATCGCCCGGCTCTTCAAAAATCTCAACTTTGTGCTGCTTGTCATCACCTATGGTCTGAATGCTGGTGCTTTTTATGCCT |
| 43 | FOXA1 | [NM\_004496.2](http://www.ncbi.nlm.nih.gov/nuccore/?term=NM_004496.2) | 2465-2565 | TGATACATTCTCAAGAGTTGCTTGACCGAAAGTTACAAGGACCCCAACCCCTTTGTCCTCTCTACCCACAGATGGCCCTGGGAATCAATTCCTCAGGAAT |
| 44 | FOXC1 | [NM\_001453.1](http://www.ncbi.nlm.nih.gov/nuccore/?term=NM_001453.1) | 1515-1615 | TCGGTGCGGGAGATGTTCGAGTCACAGAGGATCGGCTTGAACAACTCTCCAGTGAACGGGAATAGTAGCTGTCAAATGGCCTTCCCTTCCAGCCAGTCTC |
| 45 | GAL | [NM\_015973.3](http://www.ncbi.nlm.nih.gov/nuccore/?term=NM_015973.3) | 444-544 | GCTTTGACAGGTCCATACCTGAAAACAATATCATGCGCACAATCATTGAGTTTCTGTCTTTCTTGCATCTCAAAGAGGCCGGTGCCCTCGACCGCCTCCT |
| 46 | GATA3 | [NM\_001002295.1](http://www.ncbi.nlm.nih.gov/nuccore/?term=NM_001002295.1) | 2835-2935 | AAGAGTCCGGCGGCATCTGTCTTGTCCCTATTCCTGCAGCCTGTGCTGAGGGTAGCAGTGTATGAGCTACCAGCGTGCATGTCAGCGACCCTGGCCCGAC |
| 47 | GNG11 | [NM\_004126.3](http://www.ncbi.nlm.nih.gov/nuccore/?term=NM_004126.3) | 430-530 | GAAAATGCCTGCCCTTCACATCGAAGATTTGCCAGAGAAGGAAAAACTGAAAATGGAAGTTGAGCAGCTTCGCAAAGAAGTGAAGTTGCAGAGACAACAA |
| 48 | GPR160 | [NM\_014373.1](http://www.ncbi.nlm.nih.gov/nuccore/?term=NM_014373.1) | 760-860 | GGATTTCAGTCCTTGCTTATGTTTTGGGAGACCCAGCCATCTACCAAAGCCTGAAGGCACAGAATGCTTATTCTCGTCACTGTCCTTTCTATGTCAGCAT |
| 49 | GRB7 | [NM\_001030002.1](http://www.ncbi.nlm.nih.gov/nuccore/?term=NM_001030002.1) | 970-1070 | GGCCGCAAGCTCTACGGGATGCCCACTGACTTCGGTTTCTGTGTCAAGCCCAACAAGCTTCGAAATGGCCACAAGGGGCTTCGGATCTTCTGCAGTGAAG |
| 50 | GRHL2 | [NM\_024915.3](http://www.ncbi.nlm.nih.gov/nuccore/?term=NM_024915.3) | 3690-3790 | GTTCTCTTTGAGGGGACAGGTTTAGGGGTTTGCGTTCGCCCTTGTGGGCTGAAGCACTAGCTTTTTGGTAGCTAGACACATCCTGCACCCAAAGGTTCTC |
| 51 | JUP | [NM\_002230.2](http://www.ncbi.nlm.nih.gov/nuccore/?term=NM_002230.2) | 1075-1175 | CTCGTGCAGATCATGCGTAACTACAGTTATGAAAAGCTGCTCTGGACCACCAGTCGTGTGCTCAAGGTGCTATCCGTGTGTCCCAGCAATAAGCCTGCCA |
| 52 | KIF2C | [NM\_006845.3](http://www.ncbi.nlm.nih.gov/nuccore/?term=NM_006845.3) | 1940-2040 | CCTGCTCTAACGGGGCGCTGATTCCAGGCAATTTATCCAAGGAAGAGGAGGAACTGTCTTCCCAGATGTCCAGCTTTAACGAAGCCATGACTCAGATCAG |
| 53 | KRT5 | [NM\_000424.2](http://www.ncbi.nlm.nih.gov/nuccore/?term=NM_000424.2) | 523-623 | CGGCCTGCTGAGATCAAAGACTACAGTCCCTACTTCAAGACCATTGAGGACCTGAGGAACAAGATTCTCACAGCCACAGTGGACAATGCCAATGTCCTTC |
| 54 | KRT8 | [NM\_002273.3](http://www.ncbi.nlm.nih.gov/nuccore/?term=NM_002273.3) | 514-614 | AGCCAGTACTACAGGACAATTGAGGAGCTGCAGAACAAGATCCTCACAGCCACCGTGGACAATGCCAACATCCTGCTACAGATTGACAATGCCCGTCTGG |
| 55 | KRT14 | [NM\_000526.4](http://www.ncbi.nlm.nih.gov/nuccore/?term=NM_000526.4) | 96-196 | CGCAGCTTCTGAGACCAGGGTTGCTCCGTCCGTGCTCCGCCTCGCCATGACTTCCTACAGCTATCGCCAGTCGTCGGCCACGTCGTCCTTCGGAGGCCTG |
| 56 | KRT17 | [NM\_000422.2](http://www.ncbi.nlm.nih.gov/nuccore/?term=NM_000422.2) | 130-230 | CTGGTTCTCTTGCTCCACCAGGAACAAGCCACCATGTCTCGCCAGTCAAGTGTGTCCTTCCGGAGCGGGGGCAGTCGTAGCTTCAGCACCGCCTCTGCCA |
| 57 | KRT19 | [NM\_002276.4](http://www.ncbi.nlm.nih.gov/nuccore/?term=NM_002276.4) | 359-459 | CCGTGCGCACCCAGGAGAAGGAGCAGATCAAGACCCTCAACAACAAGTTTGCCTCCTTCATAGACAAGGTACGGTTCCTGGAGCAGCAGAACAAGATGCT |
| 58 | LEPRE1 | [NM\_001146289.1](http://www.ncbi.nlm.nih.gov/nuccore/?term=NM_001146289.1) | 860-960 | TATGACTACGATGGCTACAACTACCTTGAGTACAACGCTGACCTCTTCCAGGCCATCACAGATCATTACATCCAGGTCCTCAACTGTAAGCAGAACTGTG |
| 59 | LHFP | [NM\_005780.2](http://www.ncbi.nlm.nih.gov/nuccore/?term=NM_005780.2) | 460-560 | TGCAGTCCCTGAACACTTACTTGGGGTCCTCATTGCCCTATCTGGTGAAAGATGGCATCCAGCCTGACTTGTACTGGAGTAATCTGGGCTTTGCTGTCTT |
| 60 | MAPT | [NM\_001123066.2](http://www.ncbi.nlm.nih.gov/nuccore/?term=NM_001123066.2) | 5605-5705 | ACTGCCAACAGTTTCGGCTGCATTTCTTCACGCACCTCGGTTCCTCTTCCTGAAGTTCTTGTGCCCTGCTCTTCAGCACCATGGGCCTTCTTATACGGAA |
| 61 | MDM2 | [NM\_001145337.1](http://www.ncbi.nlm.nih.gov/nuccore/?term=NM_001145337.1) | 5870-5970 | TGCCCACTTTAGAAATACAAATATCACTGGGCAGCTTGAAGCAGTTGGGAGCCTCCAATGAGAGCAACTTGAGAGAATGATGTTGCAAGTTAGTAGGAGT |
| 62 | MELK | [NM\_014791.2](http://www.ncbi.nlm.nih.gov/nuccore/?term=NM_014791.2) | 365-465 | AGAGACAGCCAACAAAATATTCATGGTTCTTGAGTACTGCCCTGGAGGAGAGCTGTTTGACTATATAATTTCCCAGGATCGCCTGTCAGAAGAGGAGACC |
| 63 | MET | [NM\_000245.2](http://www.ncbi.nlm.nih.gov/nuccore/?term=NM_000245.2) | 405-505 | AAATGAGGAAGACCTTCAGAAGGTTGCTGAGTACAAGACTGGGCCTGTGCTGGAACACCCAGATTGTTTCCCATGTCAGGACTGCAGCAGCAAAGCCAAT |
| 64 | MIA | [NM\_006533.2](http://www.ncbi.nlm.nih.gov/nuccore/?term=NM_006533.2) | 116-216 | CCCCTTGCTCACTCTCTTGCTCACAGTCCACGATGGCCCGGTCCCTGGTGTGCCTTGGTGTCATCATCTTGCTGTCTGCCTTCTCCGGACCTGGTGTCAG |
| 65 | MKI67 | [NM\_001145966.1](http://www.ncbi.nlm.nih.gov/nuccore/?term=NM_001145966.1) | 9170-9270 | CACAGCCACCCTACAGCAGCCTTAACTGTGACACTTGCCACACTGTGTCGTCGTTTGTTTGCCTATGTCCTCCAGGGCACGGTGGCAGGAACAACTATCC |
| 66 | MLPH | [NM\_001042467.1](http://www.ncbi.nlm.nih.gov/nuccore/?term=NM_001042467.1) | 3155-3255 | TAAAACTAAGGTTTGAATCTCAAAGTGTTGCTGGGAGGCTGATACTCCTGCAACTTCAGGAGACCTGTGAGCACACATTAGCAGCTGTTTCTCTGACTCC |
| 67 | MMP11 | [NM\_005940.3](http://www.ncbi.nlm.nih.gov/nuccore/?term=NM_005940.3) | 260-360 | GTGGCGTGCCCGACCCATCTGATGGGCTGAGTGCCCGCAACCGACAGAAGAGGTTCGTGCTTTCTGGCGGGCGCTGGGAGAAGACGGACCTCACCTACAG |
| 68 | MPP1 | [NM\_001166460.1](http://www.ncbi.nlm.nih.gov/nuccore/?term=NM_001166460.1) | 1595-1695 | AGTTTTGTGTCAGCTTCCAGCTCTCTGCAGCTATCCTAATTCAGCCAGTAAGGTTCAGTCTTCTTGCTCAGGCTCCTGAAGGGTTGATTCTCCTGATAGA |
| 69 | MRPL19 | [NM\_014763.3](http://www.ncbi.nlm.nih.gov/nuccore/?term=NM_014763.3) | 364-464 | GGAAGTATTCTTCGTGTTACTACAGCTGACCCATATGCCAGTGGAAAAATCAGCCAGTTTCTGGGGATTTGCATTCAGAGATCAGGAAGAGGACTTGGAG |
| 70 | MYBL2 | [NM\_002466.2](http://www.ncbi.nlm.nih.gov/nuccore/?term=NM_002466.2) | 445-545 | GAATCCAGACCTTGTCAAGGGGCCATGGACCAAAGAGGAAGACCAAAAAGTCATCGAGCTGGTTAAGAAGTATGGCACAAAGCAGTGGACACTGATTGCC |
| 71 | MYC | [NM\_002467.3](http://www.ncbi.nlm.nih.gov/nuccore/?term=NM_002467.3) | 1610-1710 | TCGGACACCGAGGAGAATGTCAAGAGGCGAACACACAACGTCTTGGAGCGCCAGAGGAGGAACGAGCTAAAACGGAGCTTTTTTGCCCTGCGTGACCAGA |
| 72 | NAT1 | [NM\_000662.4](http://www.ncbi.nlm.nih.gov/nuccore/?term=NM_000662.4) | 0-100 | AGCACTTCCTCATAGACCTTGGATGTGGGAGGATTGCATTCAGTCTAGTTCCTGGTTGCCGGCTGAAATAACCTGAATTCAAGCCAGGAAGAAGCAGCAA |
| 73 | NDC80 | [NM\_006101.2](http://www.ncbi.nlm.nih.gov/nuccore/?term=NM_006101.2) | 96-196 | CGCTGTCCTGTCTAGCAGATACTTGCACGGTTTACAGAAATTCGGTCCCTGGGTCGTGTCAGGAAACTGGAAAAAAGGTCATAAGCATGAAGCGCAGTTC |
| 74 | NDRG1 | [NM\_001135242.1](http://www.ncbi.nlm.nih.gov/nuccore/?term=NM_001135242.1) | 2720-2820 | TGGGGGTGGAATTGGGGTTACTCGATGTAAGGGATTCCTTGTTGTTGTGTTGAGATCCAGTGCAGTTGTGATTTCTGTGGATCCCAGCTTGGTTCCAGGA |
| 75 | NT5E | [NM\_002526.2](http://www.ncbi.nlm.nih.gov/nuccore/?term=NM_002526.2) | 1214-1314 | ATTCGGGTTTTGAAATGGATAAACTCATCGCTCAGAAAGTGAGGGGTGTGGACGTCGTGGTGGGAGGACACTCCAACACATTTCTTTACACAGGCAATCC |
| 76 | NUF2 | [NM\_031423.3](http://www.ncbi.nlm.nih.gov/nuccore/?term=NM_031423.3) | 930-1030 | AGATACGGTCCAGAAGCTTAAAAATGCCAGACAAGAAGTGGTGGAGAAATATGAAATCTATGGAGACTCAGTTGACTGCCTGCCTTCATGTCAGTTGGAA |
| 77 | ORC6L | [NM\_014321.2](http://www.ncbi.nlm.nih.gov/nuccore/?term=NM_014321.2) | 582-682 | CTGTGTAAACAACTAGAGAAGATTGGACAGCAGGTCGACAGAGAACCTGGAGATGTAGCTACTCCACCACGGAAGAGAAAGAAGATAGTGGTTGAAGCCC |
| 78 | PGR | [NM\_000926.4](http://www.ncbi.nlm.nih.gov/nuccore/?term=NM_000926.4) | 2720-2820 | GTGGGCGTTCCAAATGAAAGCCAAGCCCTAAGCCAGAGATTCACTTTTTCACCAGGTCAAGACATACAGTTGATTCCACCACTGATCAACCTGTTAATGA |
| 79 | PHGDH | [NM\_006623.3](http://www.ncbi.nlm.nih.gov/nuccore/?term=NM_006623.3) | 1900-2000 | GAAAATCCACATTCTTGGGCTGAACGCGGGCCTCTGACACTGCTTACACTGCACTCTGACCCTGTAGTACAGCAATAACCGTCTAATAAAGAGCCTACCC |
| 80 | PIK3CA | [NM\_006218.2](http://www.ncbi.nlm.nih.gov/nuccore/?term=NM_006218.2) | 2445-2545 | CCTCAGGCTTGAAGAGTGTCGAATTATGTCCTCTGCAAAAAGGCCACTGTGGTTGAATTGGGAGAACCCAGACATCATGTCAGAGTTACTGTTTCAGAAC |
| 81 | PLOD1 | [NM\_000302.2](http://www.ncbi.nlm.nih.gov/nuccore/?term=NM_000302.2) | 965-1065 | TGTTCATCGAACAGCCCACGCCGTTTGTGTCCCTGTTCTTCCAGCGGCTCCTGCGGCTCCACTACCCCCAGAAACACATGCGACTTTTCATCCACAACCA |
| 82 | PNP | [NM\_000270.2](http://www.ncbi.nlm.nih.gov/nuccore/?term=NM_000270.2) | 1150-1250 | TTTCTTCTACCAGACCCTTCTGGTGCCAGATCCTCTTCTCAAAGCTGGGATTACAGGTGTGAGCATAGTGAGACCTTGGCGCTACAAAATAAAGCTGTTC |
| 83 | PSMC4 | [NM\_006503.2](http://www.ncbi.nlm.nih.gov/nuccore/?term=NM_006503.2) | 250-350 | TTTCTCCATGCCCAGGAGGAGGTGAAGCGAATCCAAAGCATCCCGCTGGTCATCGGACAATTTCTGGAGGCTGTGGATCAGAATACAGCCATCGTGGGCT |
| 84 | PTEN | [NM\_000314.3](http://www.ncbi.nlm.nih.gov/nuccore/?term=NM_000314.3) | 1675-1775 | TGTGGTCTGCCAGCTAAAGGTGAAGATATATTCCTCCAATTCAGGACCCACACGACGGGAAGACAAGTTCATGTACTTTGAGTTCCCTCAGCCGTTACCT |
| 85 | PTTG1 | [NM\_004219.2](http://www.ncbi.nlm.nih.gov/nuccore/?term=NM_004219.2) | 542-642 | TGTGAAGATGCCCTCTCCACCATGGGAATCCAATCTGTTGCAGTCTCCTTCAAGCATTCTGTCGACCCTGGATGTTGAATTGCCACCTGTTTGCTGTGAC |
| 86 | PVRL3 | [NM\_015480.1](http://www.ncbi.nlm.nih.gov/nuccore/?term=NM_015480.1) | 1110-1210 | CATCCCTCAACTGCTGACATCGAGGATCTAGCAACAGAACCTAAAAAATTGCCCTTCCCATTGTCAACTTTGGCAACAATTAAGGATGACACAATTGCCA |
| 87 | RAB25 | [NM\_020387.2](http://www.ncbi.nlm.nih.gov/nuccore/?term=NM_020387.2) | 245-345 | AAGATTATAACTTTGTCTTCAAGGTGGTGCTGATCGGCGAATCAGGTGTGGGGAAGACCAATCTACTCTCCCGATTCACGCGCAATGAGTTCAGCCACGA |
| 88 | RAD17 | [NM\_002873.1](http://www.ncbi.nlm.nih.gov/nuccore/?term=NM_002873.1) | 25-125 | AGTCTCTAATCGTGAACGATTTGGGGCGGAGGGCTGAACAATGTGTTTTCTAGTGTGTCGAGGTGTTTATAGGCTATGTGTGCCTCCAAACTGTAAAGTA |
| 89 | RAD50 | [NM\_005732.2](http://www.ncbi.nlm.nih.gov/nuccore/?term=NM_005732.2) | 5397-5497 | GCCAGGACCATACCGGGTCTTGATTCAGTCACATGGCATGGTTTTGTGCCATCTGTAGCTATAATGAGCATGTTTGCCTAGACAGCTTTTCTCAACTGGG |
| 90 | RB1 | [NM\_000321.1](http://www.ncbi.nlm.nih.gov/nuccore/?term=NM_000321.1) | 2110-2210 | CCTATCTCCGGCTAAATACACTTTGTGAACGCCTTCTGTCTGAGCACCCAGAATTAGAACATATCATCTGGACCCTTTTCCAGCACACCCTGCAGAATGA |
| 91 | RPLP0 | [NM\_001002.3](http://www.ncbi.nlm.nih.gov/nuccore/?term=NM_001002.3) | 250-350 | CGAAATGTTTCATTGTGGGAGCAGACAATGTGGGCTCCAAGCAGATGCAGCAGATCCGCATGTCCCTTCGCGGGAAGGCTGTGGTGCTGATGGGCAAGAA |
| 92 | RRAGD | [NM\_021244.4](http://www.ncbi.nlm.nih.gov/nuccore/?term=NM_021244.4) | 2280-2380 | TAAGAATGTCACTGAATTGTAGGGTTTCTGGAGGCTTTTCTGTACCTACCACCCAGGGCTAAAGTAACATCAGAGGCCTAAAGTTGTTCCAAAAGTATGT |
| 93 | RRM2 | [NM\_001034.1](http://www.ncbi.nlm.nih.gov/nuccore/?term=NM_001034.1) | 1615-1715 | AGGGGTGACCCTTTAGTGAGCTTAGCACAGCGGGATTAAACAGTCCTTTAACCAGCACAGCCAGTTAAAAGATGCAGCCTCACTGCTTCAACGCAGATTT |
| 94 | SF3A1 | [NM\_001005409.1](http://www.ncbi.nlm.nih.gov/nuccore/?term=NM_001005409.1) | 235-335 | CTTCTAAGCCAGTTGTGGGGATTATTTACCCTCCTCCAGAGGTCAGAAATATTGTTGACAAGACTGCCAGCTTTGTGGCCAGAAACGGGCCTGAATTTGA |
| 95 | SFRP1 | [NM\_003012.3](http://www.ncbi.nlm.nih.gov/nuccore/?term=NM_003012.3) | 3320-3420 | CAGAGTCCTTAGTGGAGGGGTTTACCTGGAACATTAGTAGTTACCACAGAATACGGAAGAGCAGGTGACTGTGCTGTGCAGCTCTCTAAATGGGAATTCT |
| 96 | SH2B3 | [NM\_005475.2](http://www.ncbi.nlm.nih.gov/nuccore/?term=NM_005475.2) | 4285-4385 | CCTCCAGCCAGAAGTTAAACATCTGGGATATGACGTCTTCATGCCAGGGGCACTCATTTCTTAGCAGCCTCTCTACATACATCTCTCAGGTGGTGCCAAG |
| 97 | SLC16A3 | [NM\_001042422.1](http://www.ncbi.nlm.nih.gov/nuccore/?term=NM_001042422.1) | 389-489 | GCTTTGGCTGCCGGCCCGTCATGCTTGTGGGGGGTCTCTTTGCGTCGCTGGGCATGGTGGCTGCGTCCTTTTGCCGGAGCATCATCCAGGTCTACCTCAC |
| 98 | SLC39A6 | [NM\_001099406.1](http://www.ncbi.nlm.nih.gov/nuccore/?term=NM_001099406.1) | 1040-1140 | GTCATGATAGCTCATGCTCATCCACAGGAAGTCTACAATGAATATGTACCCAGAGGGTGCAAGAATAAATGCCATTCACATTTCCACGATACACTCGGCC |
| 99 | SPINT1 | [NM\_001032367.1](http://www.ncbi.nlm.nih.gov/nuccore/?term=NM_001032367.1) | 1315-1415 | CTTTACCTATGGTGGTTGTTACGGCAACAAGAACAACTTTGAGGAAGAGCAGCAGTGCCTCGAGTCTTGTCGCGGCATCTCCAAGAAGGATGTGTTTGGC |
| 100 | SPINT2 | [NM\_001166103.1](http://www.ncbi.nlm.nih.gov/nuccore/?term=NM_001166103.1) | 625-725 | ACCACTCCAGCGATATGTTCAACTATGAAGAATACTGCACCGCCAACGCAGTCACTGGGCCTTGCCGTGCATCCTTCCCACGCTGGTACTTTGACGTGGA |
| 101 | TMEM45B | [NM\_138788.3](http://www.ncbi.nlm.nih.gov/nuccore/?term=NM_138788.3) | 1270-1370 | GTGTGCTTCGTGCTGTAGTTATCGTTAGTTCCTCTTCCCGAGATGGGGCCGCCGAGAGACCCCAGCGCCTTTGAAAAGCAAGGTTTGTGCTGCGCTTCCA |
| 102 | TMEM158 | [NM\_015444.2](http://www.ncbi.nlm.nih.gov/nuccore/?term=NM_015444.2) | 2075-2175 | CAACAGCACTGAAATGGCTGTAAGGACTCCTGAGATATGTGTCCAGCAAGGAGTTTACAGTCAAACAGGAGAGACATGCCTGTAGTTACATCCAGTGTGA |
| 103 | TYMS | [NM\_001071.1](http://www.ncbi.nlm.nih.gov/nuccore/?term=NM_001071.1) | 555-655 | TCAGATTATTCAGGACAGGGAGTTGACCAACTGCAAAGAGTGATTGACACCATCAAAACCAACCCTGACGACAGAAGAATCATCATGTGCGCTTGGAATC |
| 104 | UBE2C | [NM\_007019.2](http://www.ncbi.nlm.nih.gov/nuccore/?term=NM_007019.2) | 561-661 | CTTTTAAGAAGTACCTGCAAGAAACCTACTCAAAGCAGGTCACCAGCCAGGAGCCCTGACCCAGGCTGCCCAGCCTGTCCTTGTGTCGTCTTTTTAATTT |
| 105 | UBE2T | [NM\_014176.3](http://www.ncbi.nlm.nih.gov/nuccore/?term=NM_014176.3) | 595-695 | AAACAAAAGGCTGATGAGGAAGAGATGCTTGATAATCTACCAGAGGCTGGTGACTCCAGAGTACACAACTCAACACAGAAAAGGAAGGCCAGTCAGCTAG |
| 106 | UCHL1 | [NM\_004181.3](http://www.ncbi.nlm.nih.gov/nuccore/?term=NM_004181.3) | 450-550 | GAGCAAAATGCTTTGAAAAGAATGAGGCCATACAGGCAGCCCATGATGCCGTGGCACAGGAAGGCCAATGTCGGGTAGATGACAAGGTGAATTTCCATTT |
| 107 | VAMP8 | [NM\_003761.3](http://www.ncbi.nlm.nih.gov/nuccore/?term=NM_003761.3) | 260-360 | AAGACAGAGGATCTGGAAGCCACATCTGAGCACTTCAAGACGACATCGCAGAAGGTGGCTCGAAAATTCTGGTGGAAGAACGTGAAGATGATTGTCCTTA |
| 108 | VEGFA | [NM\_001025366.1](http://www.ncbi.nlm.nih.gov/nuccore/?term=NM_001025366.1) | 1325-1425 | GAGTCCAACATCACCATGCAGATTATGCGGATCAAACCTCACCAAGGCCAGCACATAGGAGAGATGAGCTTCCTACAGCACAACAAATGTGAATGCAGAC |
| 109 | VIM | [NM\_003380.2](http://www.ncbi.nlm.nih.gov/nuccore/?term=NM_003380.2) | 694-794 | GAGGAGATGCTTCAGAGAGAGGAAGCCGAAAACACCCTGCAATCTTTCAGACAGGATGTTGACAATGCGTCTCTGGCACGTCTTGACCTTGAACGCAAAG |
| 110 | ZEB1 | [NM\_001128128.1](http://www.ncbi.nlm.nih.gov/nuccore/?term=NM_001128128.1) | 1450-1550 | TTACAAAATGGGGTTTTCACTGGTGGTGGCCCATTACAGGCAACCAGTTCTCCTCAGGGCATGGTGCAAGCTGTTGTTCTGCCAACAGTTGGTTTGGTGT |