Supplementary Table 1. Sequence of primers

**Primers for Pyrosequencing analysis**

|  |  |  |
| --- | --- | --- |
| Gene name | Sequence | Condition (°C) |
| HOXA1-F | TTTTATGGAGGAAGTGAGAAAGT | 52.5 |
| HOXA1-R | GGGACACCGCTGATCGTTTATCCAAAAAAAAATTCATTCTTACA |
| HOXA1-Sequencing | AAGTGAGAAAGTTGGTATAG |
| Universal primer | Biotin-GGGACACCGCTGATCGTTTA |

**Primers for quantitative methylation specific PCR**

|  |  |  |
| --- | --- | --- |
| Gene name | Sequence | Condition (°C) |
| ADAMTS2-F | TTTCGGGGTGTTTTTGTTTC | 60 |
| ADAMTS2-R | TAACCCGACGCATCTTAACG |
| ADAMTS2-probe | FAM/CG AGT TCG G/ZEN/T ATC GCG GCG AC/3IABkFQ |
| PCDH10-F | TTGGGGATTGGGAATTTTTC | 60 |
| PCDH10-R | ACAACCGAACGAAACGAAAC |
| SEMA5A-F | GGTTTCGTAGTTTTAGGTTAGTCGC | 62 |
| SEMA5A-R | GAAATAAACGACACTAACCGAACCG |
| SPSB4-F | GGCGTTTGAGCGTTAATTTC | 60 |
| SPSB4-R | CGCAAATACCGACTCTCTCC |
| LINE1-F | TTTTAAAGTTGTTAGATAGGGATATTTAAGTTTGTA | 56 |
| LINE1-R | AAAAACCTACCTACCTCTATAAACTCCACC |

**Primers for MBD-droplet digital PCR**

|  |  |  |
| --- | --- | --- |
| Gene name | Sequence | Condition (°C) |
| ADAMTS2-F | GCTCCTCGGAGGTTGTGC | 55 |
| ADAMTS2-R | TCGCAGCGAAGCAGAGAC |
| ADAMTS2-probe | VIC-AGGCGGCGGCAGA |
| PCDH10-F | GATTGGTTGGCAGAATGAGG | 60 |
| PCDH10-R | GGCTGGCAGTTTCTGAGC |
| PCDH10-probe | FAM-AAAACGGAGAAGCCGAGC |
| SEMA5A-F | GGCCAGTGTCGCTCATCC | 55 |
| SEMA5A-R | AGGTGGCAAAGTTGGGTGT |
| SEMA5A-probe | FAM-AAGCCAGCTCCGCG |
| SPSB4-F | CCAGGATCGCTTCAGTAAGG | 60 |
| SPSB4-R | AGGATGGCCTGGAGTTAGGA |
| SPSB4-probe | VIC-GCGCCAACTTCGCCAA |
| HOXA1-F | CCCATGGAGGAAGTGAGAAA | 55 |
| HOXA1-R | GGGGTATTCCAGGAAGGAGT |
| HOXA1-probe | FAM-GCACAGTCACGCCGG |

**Primers for enrichment of methylated DNA**

NameSequence

|  |  |
| --- | --- |
| Adaptor | ACACTCTTTCCCTACACGACGCTCTTCCGATC\*T |
|  | /5Phos/GATCGGAAGAGCACACGTCTGAACTCCAGTCACCTACCAGGATCTCGTATGCCGTCTTCTGCTTG |
| Amplification-F | CAAGCAGAAGACGGCATACGAGAT |
| Amplification-R | ACACTCTTTCCCTACACGAC |

**Control oligos for MBD**

Name**/** Sequence

|  |
| --- |
| YLR255C-M-sense/ GAGGAAGAGAGAGAGAGAGAA‍AGGGCACACmGAAATTCAGGATACmGGCmGGAGGAGTTATCTTTATTTTATACmGGTCTTGCCTTGTAAGGCCCTACTCAAGCmGGGAACAAGAAAAACAGTTGYLR255C-M-antisense/CAACTGTTTTTCTTGTTCCCmGCTTGAGTAGGGCCTTACAAGGCAAGACCmGTATAAAATAAAGATAACTCCTCCmGCCmGTATCCTGAATTTCmGTGTGCCCTTTCTCTCTCTCTCTCTTCCTCYPR071W-UM-sense/GCGATCGTTTCTATTTGGGGGTTTGCTGTGTGGATGGAAAGAGGATATAGACATAAGATTAATCTACTGCCTCCAAGATGTACGAAGATAAGATGCTCTCGCTGCAATACAAGAATAAGAYPR071W-UM-antisense/TCTTATTCTTGTATTGCAGCGAGAGCATCTTATCTTCGTACATCTTGGAGGCAGTAGATTAATCTTATGTCTATATCCTCTTTCCATCCACACAGCAAACCCCCAAATAGAAACGATCGC |

MBD, methyl-CpG binding domain; Cm, 5-methyl cytosine; M, methylated oligo; UM, unmethylated oligo

\* indicates phosphorothioate