

**Supplementary table 1. List of methylation studies on HCC from year 2003-2013.**

| Type of study | Validated gene name                                                                                                    | Publication                                                                                                 | Year                 | hyper / hypo | HCC patient (n)                 | Clinicopathological correlation | Validation method                                                                     | Sample                                     |        |
|---------------|------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|----------------------|--------------|---------------------------------|---------------------------------|---------------------------------------------------------------------------------------|--------------------------------------------|--------|
| Gene based    | GLS2                                                                                                                   | Zhang, J. et al.                                                                                            | 2013                 | hyper        | 20                              | No                              | MSP                                                                                   | tissue                                     |        |
| Genome-wide   | HBG, HOXA9                                                                                                             | Han, X. et al.                                                                                              | 2013                 | hyper        | 45                              | Yes                             | Bisulfite sequencing                                                                  | tissue                                     |        |
| Genome-wide   | NR3H1, SMDP3                                                                                                           | Bevilacqua, K. et al.                                                                                       | 2013                 | hyper        | 71                              | Yes                             | Pyrosequencing                                                                        | tissue                                     |        |
| Gene based    | DACH1                                                                                                                  | Zhu, H. et al.                                                                                              | 2013                 | hyper        | 55                              | Yes                             | MSP, qMSP                                                                             | tissue                                     |        |
| Gene based    | RB, P14, and INK4 gene family                                                                                          | Zhang, J.-C. et al.                                                                                         | 2013                 | hyper        | 64                              | Yes                             | MSP                                                                                   | tissue                                     |        |
| Genome-wide   | No specific gene validated                                                                                             | Allen Chan K.C. et al.                                                                                      | 2013                 | hyper        | 26                              | No                              | Bisulfite massively parallel sequencing                                               | tissue                                     |        |
| Gene based    | PMSE                                                                                                                   | Ozer, O. et al.                                                                                             | 2013                 | hyper        | 56                              | Yes                             | Multiplex ligation probe amplification (MLPA)                                         | FFPE                                       |        |
| Gene based    | DNM3                                                                                                                   | Inokawa, Y. et al.                                                                                          | 2013                 | hyper        | 48                              | Yes, based on gene expression.  | MSP                                                                                   | tissue                                     |        |
| Gene based    | JCFBP7                                                                                                                 | Li, F. et al.                                                                                               | 2013                 | hyper        | 136                             | Yes                             | MSP                                                                                   | serum                                      |        |
| Gene based    | DACH1                                                                                                                  | Zhu, H. et al.                                                                                              | 2013                 | hyper        | 35                              | Yes, based on gene expression.  | MSP, Methyloreen                                                                      | tissue                                     |        |
| Gene based    | BTG2                                                                                                                   | Li, Z. et al. et al.                                                                                        | 2013                 | hyper        | 141                             | Yes, based on gene expression.  | MSP                                                                                   | FFPE                                       |        |
| Gene based    | DCDC2                                                                                                                  | Inokawa, Y. et al.                                                                                          | 2013                 | hyper        | 48                              | Yes                             | MSP                                                                                   | tissue                                     |        |
| Gene based    | RASSF1A                                                                                                                | Xu, B. et al. et al.                                                                                        | 2013                 | hyper        | 87                              | Yes                             | Methylight                                                                            | tissue                                     |        |
| Gene based    | SOCS1                                                                                                                  | Zhang, X. et al.                                                                                            | 2013                 | hyper        | 116                             | Yes                             | Methylgreen                                                                           | tissue                                     |        |
| Gene based    | LINE-1                                                                                                                 | Gao, X.-D. et al.                                                                                           | 2013                 | hyper        | 122                             | Yes                             | qMSP                                                                                  | tissue                                     |        |
| Gene based    | GPM6B, MAGEA12, FCRI1                                                                                                  | Stefaniga, B. et al.                                                                                        | 2013                 | hyper        | 16                              | Yes                             | IBM                                                                                   | tissue                                     |        |
| Gene based    | TPDRO                                                                                                                  | Hsu, S.-H. et al.                                                                                           | 2013                 | hyper        | 24                              | No                              | MassARRAY                                                                             | tissue                                     |        |
| Gene based    | NR3H1                                                                                                                  | Zhang, F. et al.                                                                                            | 2013                 | hyper        | 44                              | Yes                             | peripheral blood mononuclear cells (PBMCs)                                            | tissue                                     |        |
| Gene based    | ESR1                                                                                                                   | Hishida, M. et al.                                                                                          | 2013                 | hyper        | 48                              | Yes, based on gene expression.  | MSP                                                                                   | tissue                                     |        |
| Genome-wide   | DBX2, THY1                                                                                                             | Zhang, P. et al.                                                                                            | 2013                 | hyper        | 6 (discovery), 31(validation)   | No                              | Infinium450k, bisulfite sequencing                                                    | peripheral blood mononuclear cells (PBMCs) |        |
| Gene based    | APC                                                                                                                    | Tanemura, R. et al.                                                                                         | 2013                 | hyper        | 25                              | Yes                             | qMSP                                                                                  | tissue                                     |        |
| Gene based    | Klathr                                                                                                                 | Xie, B. et al.                                                                                              | 2013                 | hyper        | 64                              | Yes                             | MSP                                                                                   | tissue                                     |        |
| Gene based    | APC, AXIN2                                                                                                             | Liu, S. et al.                                                                                              | 2013                 | hyper        | 80                              | Yes, based on gene expression.  | Methylgreen                                                                           | tissue                                     |        |
| Gene based    | PCDH10                                                                                                                 | Fang, S. et al.                                                                                             | 2013                 | hyper        | 50                              | Yes                             | MSP                                                                                   | tissue                                     |        |
| Gene based    | ZKSCAN1                                                                                                                | Takagi, K. et al.                                                                                           | 2013                 | hyper        | 38                              | Yes                             | MassARRAY                                                                             | tissue                                     |        |
| Gene based    | TPD2                                                                                                                   | Sun, F.-K. et al.                                                                                           | 2013                 | hyper        | 43                              | Yes                             | MSP                                                                                   | serum                                      |        |
| Gene based    | MAT1A                                                                                                                  | Zhang, J. et al.                                                                                            | 2013                 | hyper        | 78                              | Yes                             | MSP                                                                                   | tissue                                     |        |
| Gene based    | DAC2                                                                                                                   | Gao, S. et al.                                                                                              | 2013                 | hyper        | 30                              | Yes                             | MSP                                                                                   | tissue                                     |        |
| Gene based    | SOX1                                                                                                                   | Shih, Y.-L. et al.                                                                                          | 2013                 | hyper        | 54                              | No                              | MSP                                                                                   | tissue                                     |        |
| Genome-wide   | BMP4, GSTP1, RASSF1A, ARHGAP8, TACSTD2, DLGAP, GPR35                                                                   | Song, M.-A. et al.                                                                                          | 2013                 | hyper        | 27                              | No                              | Infinium450k, pyrosequencing                                                          | tissue                                     |        |
| Gene based    | ASS                                                                                                                    | Wu, L. et al.                                                                                               | 2013                 | hyper        | 30                              | No                              | MSP                                                                                   | tissue                                     |        |
| Gene based    | APC                                                                                                                    | Nishida, N. et al.                                                                                          | 2013                 | hyper        | 23                              | Yes                             | qMSP                                                                                  | serum                                      |        |
| Gene based    | APC, P73, P14, MGMT                                                                                                    | Zeki, A.-H. et al.                                                                                          | 2013                 | hyper        | 31                              | Yes                             | MSP                                                                                   | tissue                                     |        |
| Gene based    | MUC1                                                                                                                   | Ling, Y. et al.                                                                                             | 2013                 | hyper        | 74                              | Yes                             | MSP                                                                                   | tissue                                     |        |
| Gene based    | BLUHEIT                                                                                                                | Zhang, X. et al.                                                                                            | 2013                 | hyper        | 48                              | Yes                             | MSP                                                                                   | tissue                                     |        |
| Genome-wide   | No specific gene validated                                                                                             | Shen, J. et al.                                                                                             | 2013                 | hyper        | 66                              | No                              | Infinium450k, bisulfite sequencing                                                    | tissue                                     |        |
| Gene based    | SOCS1                                                                                                                  | Saetee, P. et al.                                                                                           | 2012                 | hyper        | 29                              | Yes                             | MSP                                                                                   | tissue                                     |        |
| Gene based    | MTJM                                                                                                                   | Mao, J. et al.                                                                                              | 2012                 | hyper        | 8                               | Yes, based on gene expression.  | MSP                                                                                   | tissue                                     |        |
| Gene based    | SOX1                                                                                                                   | Tsao, C.-M. et al.                                                                                          | 2012                 | hyper        | 60                              | No                              | qMSP                                                                                  | tissue                                     |        |
| Gene based    | COX2                                                                                                                   | Fernández-Alvarez, A. et al.                                                                                | 2012                 | hyper        | 23                              | No                              | Pyrosequencing                                                                        | tissue                                     |        |
| Gene based    | TDB1                                                                                                                   | Liu, S. et al.                                                                                              | 2012                 | hyper        | 33                              | No                              | MassARRAY                                                                             | tissue                                     |        |
| Gene based    | FBX3                                                                                                                   | Neumann, O. et al.                                                                                          | 2012                 | hyper        | 63                              | No                              | Infinium7K, pyrosequencing                                                            | tissue                                     |        |
| Gene based    | KHLH35, PAX3, PENK, SPDYA - hypermethylation, LINE-1 - Hypermethylation                                                | Shitani, M. et al.                                                                                          | 2012                 | hyper        | 57                              | Yes                             | MCAM, pyrosequencing                                                                  | tissue                                     |        |
| Gene based    | HIC1, GSTP1, SOCS1, RASSF1, CDKN2A, APC, RUNX3, PRDM2                                                                  | Nishida, N. et al.                                                                                          | 2012                 | hyper        | 177                             | Yes                             | Methylight                                                                            | tissue                                     |        |
| Gene based    | SERP1                                                                                                                  | Wu, Y. et al.                                                                                               | 2012                 | hyper        | 11                              | No                              | MSP                                                                                   | tissue                                     |        |
| Gene based    | LINE-1                                                                                                                 | Wu, H.-C. et al.                                                                                            | 2012                 | hyper        | 305                             | Yes                             | Pyrosequencing                                                                        | white blood cells                          |        |
| Gene based    | MZB1                                                                                                                   | Matsumura, S. et al.                                                                                        | 2012                 | hyper        | 162                             | Yes, based on gene expression.  | MeDIP-Chip                                                                            | tissue                                     |        |
| Gene based    | HIST1H2AE                                                                                                              | Jung, N. et al.                                                                                             | 2012                 | hyper        | 10                              | Yes                             | MSP                                                                                   | tissue                                     |        |
| Gene based    | SALL3                                                                                                                  | Yang, X.-X. et al.                                                                                          | 2012                 | hyper        | 38                              | No                              | MassARRAY                                                                             | tissue                                     |        |
| Genome-wide   | COX2, STEAP4, HIST1H3G, CDKN2A, ZNF154                                                                                 | Shen, J. et al.                                                                                             | 2012                 | hyper        | 62 (discovery), 42 (validation) | No                              | Infinium7K, pyrosequencing                                                            | tissue                                     |        |
| Gene based    | SPARC                                                                                                                  | Zhang, Y. et al.                                                                                            | 2012                 | hyper        | 60                              | Yes                             | MSP                                                                                   | tissue                                     |        |
| Gene based    | RASSF1A, CHFR, GSTP1, MGMT                                                                                             | Li, Z. et al.                                                                                               | 2012                 | hyper        | 70                              | Yes                             | MSP                                                                                   | tissue                                     |        |
| Gene based    | SERP1                                                                                                                  | LOC55908, CELSR1, CRMP1, GNRH2, ALOX12 and ANGPTL7 - hypermethylation, SPRR3 and TNFSF15 - hypermethylation | Ammerpohl, O. et al. | 2012         | hyper, hypo                     | 13                              | No                                                                                    | Pyrosequencing                             | tissue |
| Genome-wide   | LOC55908, CELSR1, CRMP1, GNRH2, ALOX12 and ANGPTL7 - hypermethylation, SPRR3 and TNFSF15 - hypermethylation            | Ammerpohl, O. et al.                                                                                        | 2012                 | hyper, hypo  | 13                              | No                              | Infinium7K                                                                            | tissue                                     |        |
| Gene based    | AKAP12                                                                                                                 | Hayashi, M. et al.                                                                                          | 2012                 | hyper        | 48                              | Yes                             | MSP                                                                                   | tissue                                     |        |
| Gene based    | RECK                                                                                                                   | Zhang, C. et al.                                                                                            | 2012                 | hyper        | 72                              | Yes, based on gene expression.  | MSP                                                                                   | tissue                                     |        |
| Gene based    | P16, CCND2                                                                                                             | Wang, Y. et al.                                                                                             | 2012                 | hyper        | 118                             | Yes                             | Methylgreen                                                                           | tissue                                     |        |
| Gene based    | SLC22A1                                                                                                                | Schaeffeler, E. et al.                                                                                      | 2011                 | hyper        | 22                              | No                              | MassARRAY                                                                             | tissue                                     |        |
| Gene based    | BLMH                                                                                                                   | Okamura, Y. et al.                                                                                          | 2011                 | hyper        | 48                              | No                              | Infinium7K, MSP                                                                       | tissue                                     |        |
| Gene based    | APC, GSTP1, RASSF1A, SERP1                                                                                             | Hiang, Z.-H. et al.                                                                                         | 2011                 | hyper        | 72                              | Yes                             | Methylgreen                                                                           | serum                                      |        |
| Gene based    | APC, WIF1, RUNX3, DLG1, SERP1, DKC1, CDH1                                                                              | Liu, J.-B. et al.                                                                                           | 2011                 | hyper        | 108                             | Yes                             | MSP                                                                                   | tissue and tissue                          |        |
| Gene based    | PRDM5                                                                                                                  | Shi, X.-s et al.                                                                                            | 2011                 | hyper        | 46                              | No                              | MSP                                                                                   | tissue                                     |        |
| Gene based    | APC                                                                                                                    | Jain, S. et al.                                                                                             | 2011                 | hyper        | 58                              | Yes                             | qMSP                                                                                  | tissue                                     |        |
| Genome-wide   | No specific gene validated                                                                                             | Yang, J.D. et al.                                                                                           | 2011                 | hyper        | 62                              | Yes                             | Infinium7K                                                                            | tissue                                     |        |
| Gene based    | FBP1                                                                                                                   | Chen, M. et al.                                                                                             | 2011                 | hyper        | 10                              | No                              | MSP                                                                                   | tissue                                     |        |
| Gene based    | OC75                                                                                                                   | Sun, J.-Z. et al.                                                                                           | 2011                 | hyper        | 38                              | No                              | MassARRAY                                                                             | tissue                                     |        |
| Gene based    | 30 regions                                                                                                             | Nagashio, R. et al.                                                                                         | 2011                 | hyper, hypo  | 34                              | Yes                             | Pyrosequencing                                                                        | tissue                                     |        |
| Genome-wide   | MDD1                                                                                                                   | Stefaniga, B. et al.                                                                                        | 2011                 | hyper        | 11                              | No                              | MeDIP-Chip, pyrosequencing                                                            | tissue                                     |        |
| Gene based    | APC, CDKN2A, GSTP1, RASSF1A, SERP1, RUNX3                                                                              | Hsu, D. et al.                                                                                              | 2011                 | hyper        | 47                              | Yes                             | Methylgreen                                                                           | tissue                                     |        |
| Gene based    | FBXN1                                                                                                                  | Kanda, M. et al.                                                                                            | 2011                 | hyper        | 48                              | Yes                             | MSP                                                                                   | tissue                                     |        |
| Gene based    | SFPI                                                                                                                   | Arun, T. et al.                                                                                             | 2011                 | hyper        | 39                              | No                              | COBRA                                                                                 | tissue                                     |        |
| Gene based    | CD17                                                                                                                   | Kong, L.-M. et al.                                                                                          | 2011                 | hyper        | 54                              | Yes                             | Bisulfite sequencing                                                                  | tissue                                     |        |
| Genome-wide   | WNT5A, EMLH2, TLX3, TM6SF1, TRIM58, HIST1H4F, GRASP                                                                    | Tao, K. et al.                                                                                              | 2011                 | hyper        | 5                               | No                              | Infinium7K, COBRA, bisulfite sequencing                                               | tissue                                     |        |
| Gene based    | APC, RASSF1A, SOCS1                                                                                                    | Uin, T.-H. et al.                                                                                           | 2011                 | hyper        | 46                              | Yes                             | Methylight                                                                            | tissue                                     |        |
| Gene based    | CADM1                                                                                                                  | Zhang, W. et al.                                                                                            | 2011                 | hyper        | 82                              | Yes                             | COBRA                                                                                 | tissue                                     |        |
| Gene based    | RASSF1A, GSTP1, CHRNA3, DOK1                                                                                           | Lambert, M.-P. et al.                                                                                       | 2011                 | hyper        | 166                             | Yes                             | Pyrosequencing                                                                        | tissue                                     |        |
| Gene based    | Substantia nigra                                                                                                       | Oh, B.-K. et al.                                                                                            | 2011                 | hyper        | 42                              | Yes                             | MSP                                                                                   | tissue                                     |        |
| Gene based    | RELN                                                                                                                   | Okamura, Y. et al.                                                                                          | 2011                 | hyper        | 48                              | Yes, based on gene expression.  | MSP                                                                                   | tissue                                     |        |
| Gene based    | RASSF1A                                                                                                                | Saetee, P. et al.                                                                                           | 2010                 | hyper        | 29                              | No                              | MSP                                                                                   | tissue                                     |        |
| Genome-wide   | MYL12L, CDKN1C, TAP7                                                                                                   | Hernandez-Vargas, H. et al.                                                                                 | 2010                 | hyper        | 30                              | Yes                             | Beadarray, pyrosequencing                                                             | tissue                                     |        |
| Gene based    | AKAP12                                                                                                                 | Geopfert, B. et al.                                                                                         | 2010                 | hyper        | 16                              | No                              | MassARRAY                                                                             | tissue                                     |        |
| Gene based    | RIZ1                                                                                                                   | Zhang, C. et al.                                                                                            | 2010                 | hyper        | 48                              | No                              | MSP                                                                                   | tissue                                     |        |
| Gene based    | P16, RASSF1A, APC, GSTP1, RIZ1                                                                                         | Fornestier, E. et al.                                                                                       | 2010                 | hyper        | 43                              | Yes                             | MSP                                                                                   | tissue                                     |        |
| Gene based    | P16, CDH1, GSTP1, DAPK, XAF1, SOCS1, SYK                                                                               | Wu, L.-M. et al.                                                                                            | 2010                 | hyper        | 65                              | Yes                             | MSP                                                                                   | tissue                                     |        |
| Gene based    | TNFRSF10C, HOXA9, NPV, IRF5                                                                                            | Shin, S.H. et al.                                                                                           | 2010                 | hyper        | 50                              | No                              | MSP                                                                                   | tissue                                     |        |
| Gene based    | P14, P15, P16, P73, GSTP1, MGMT, RARβ, SOCS1, OPCML                                                                    | Li, B. et al.                                                                                               | 2010                 | hyper        | 115                             | Yes                             | MSP                                                                                   | tissue                                     |        |
| Gene based    | SOCS1                                                                                                                  | Chen, P.-Y. et al.                                                                                          | 2010                 | hyper        | 46                              | Yes                             | MSP                                                                                   | tissue                                     |        |
| Gene based    | CDKN2A                                                                                                                 | Camerini, A. et al.                                                                                         | 2010                 | hyper        | 85                              | No                              | Methylight                                                                            | tissue                                     |        |
| Genome-wide   | DLX5, NR1, CYP24A1                                                                                                     | Deng, Y.-B. et al.                                                                                          | 2010                 | hyper        | 61                              | Yes                             | MeDIP-Chip, Massarray                                                                 | tissue                                     |        |
| Gene based    | JTP                                                                                                                    | Sohn, B.H. et al.                                                                                           | 2010                 | hyper        | 24                              | No                              | Pyrosequencing                                                                        | tissue                                     |        |
| Gene based    | APC, CCND2, CDKN2A, GSTP1, HOXA9, RASSF1, RUNX, SERP1                                                                  | Feng, J. et al.                                                                                             | 2010                 | hyper        | 65                              | Yes                             | Methylight                                                                            | FFPE                                       |        |
| Gene based    | APC                                                                                                                    | Archer, K.J. et al.                                                                                         | 2010                 | hyper        | 20                              | No                              | Beadarray, methylight                                                                 | tissue                                     |        |
| Gene based    | CCND2                                                                                                                  | Tatsuta, M. et al.                                                                                          | 2010                 | hyper        | 70                              | Yes                             | qMSP                                                                                  | tissue                                     |        |
| Gene based    | LIFR                                                                                                                   | Okamura, Y. et al.                                                                                          | 2010                 | hyper        | 48                              | No                              | MSP                                                                                   | tissue                                     |        |
| Gene based    | CASP8 and Survivin                                                                                                     | Cho, S. et al.                                                                                              | 2010                 | hyper        | 73                              | Yes, based on gene expression.  | MSP                                                                                   | tissue                                     |        |
| Gene based    | RASSF1A                                                                                                                | Hu, L. et al.                                                                                               | 2010                 | hyper        | 35                              | No                              | MSP                                                                                   | tissue and serum                           |        |
| Gene based    | EFEMP1                                                                                                                 | Namato, S. et al.                                                                                           | 2010                 | hyper        | 48                              | Yes                             | MSP                                                                                   | tissue                                     |        |
| Gene based    | PLK2, PLK3, PLK4                                                                                                       | Pellegrino, R. et al.                                                                                       | 2010                 | hyper        | 75                              | No                              | MSP                                                                                   | tissue                                     |        |
| Gene based    | DKK1                                                                                                                   | Yang, B. et al.                                                                                             | 2010                 | hyper        | 50                              | Yes                             | qMSP                                                                                  | tissue                                     |        |
| Gene based    | APC, EMT, P15, P16, CDH1                                                                                               | Iyer, P. et al.                                                                                             | 2010                 | hyper        | 38                              | No                              | MSP                                                                                   | tissue and plasma                          |        |
| Gene based    | P14, P15, P16, P21, SYK, TCF3, WT1, CDH1, RASSF1A, RB1                                                                 | Cheng, Y. et al.                                                                                            | 2010                 | hyper        | 60                              | Yes                             | MSP                                                                                   | tissue                                     |        |
| Genome-wide   | 41 BAC regions                                                                                                         | Arai, E. et al.                                                                                             | 2009                 | hyper        | 126                             | Yes                             | Bacterial artificial chromosome (BAC) array-based methylated CpG island amplification | tissue                                     |        |
| Gene based    | KLK10 and OXGR1                                                                                                        | Lu, C.-Y. et al.                                                                                            | 2009                 | hyper        | 21 (discovery), 49 (validation) | Yes                             | Differential methylation hybridization and a CpG microarray platform, MSP             | tissue                                     |        |
| Gene based    | MT1G                                                                                                                   | Kanda, M. et al.                                                                                            | 2009                 | hyper        | 48                              | No                              | MSP                                                                                   | tissue                                     |        |
| Gene based    | RASSF1A, CCND2, SPINT2, RUNX3, GSTP1, APC, CTR                                                                         | Marble, T. et al.                                                                                           | 2009                 | hyper        | 20                              | No                              | qMSP, pyrosequencing                                                                  | tissue                                     |        |
| Gene based    | APC, RASSF1A, DAPK, SOCS1, GSTP1, RIZ1, P16, MGMT                                                                      | Loi, G. et al.                                                                                              | 2009                 | hyper        | 60                              | Yes                             | MSP                                                                                   | tissue                                     |        |
| Gene based    | SPINT2                                                                                                                 | Tung, E.K.-K. et al.                                                                                        | 2009                 | hyper        | 50                              | No                              | MSP                                                                                   | tissue                                     |        |
| Gene based    | HINT1                                                                                                                  | Zhang, Y. et al.                                                                                            | 2009                 | hyper        | 40                              | No                              | MSP                                                                                   | tissue                                     |        |
| Gene based    | CRABP1, SYK                                                                                                            | Lee, H.S. et al.                                                                                            | 2009                 | hyper        | 20                              | Yes                             | Methylight                                                                            | tissue                                     |        |
| Gene based    | SLIT2                                                                                                                  | Jin, J. et al.                                                                                              | 2009                 | hyper        | 54                              | Yes                             | MSP                                                                                   | tissue                                     |        |
| Gene based    | LINE-1                                                                                                                 | Kim, M.-J. et al.                                                                                           | 2009                 | hyper        | 57                              | Yes                             | pyrosequencing                                                                        | tissue                                     |        |
| Gene based    | RIZ1                                                                                                                   | Piao, G.H. et al.                                                                                           | 2008                 | hyper        | 39                              | No                              | MSP                                                                                   | tissue                                     |        |
| Gene based    | BASP1, SRD5A2                                                                                                          | Marble, T. et al.                                                                                           | 2008                 | hyper        | 40                              | No                              | MSP, pyrosequencing                                                                   | tissue                                     |        |
| Gene based    | CDH1                                                                                                                   | Liu, S.-O. et al.                                                                                           | 2008                 | hyper        | 42                              | No                              | MSP                                                                                   | tissue                                     |        |
| Gene based    | XAF1                                                                                                                   | Zhang, F. et al.                                                                                            | 2008                 | hyper        | 65                              | Yes                             | MSP                                                                                   | tissue                                     |        |
| Gene based    | SOCS1                                                                                                                  | Ko, E. et al.                                                                                               | 2008                 | hyper        | 284                             | Yes                             | MSP                                                                                   | tissue                                     |        |
| Gene based    | Tp30                                                                                                                   | Li, B. et al.                                                                                               | 2008                 | hyper        | 59                              | Yes                             | MSP                                                                                   | tissue                                     |        |
| Gene based    | P14                                                                                                                    | Zhang, C. et al.                                                                                            | 2008                 | hyper        | 30                              | Yes                             | MSP                                                                                   | tissue                                     |        |
| Genome-wide   | RASSF1A, P16, TRX4, MMP14, GNA14, SLC16A5, CCNA1                                                                       | Gao, W. et al.                                                                                              | 2008                 | hyper hypo   | 10 (MCAM), 38 (validation)      | No                              | MCAM, pyrosequencing                                                                  | tissue                                     |        |
| Gene based    | GSTP1, RASSF1A                                                                                                         | Kuo, H. et al.                                                                                              | 2008                 | hyper        | 37 (tissue), 26 (plasma)        | No                              | MSP                                                                                   | tissue and serum                           |        |
| Gene based    | P16                                                                                                                    | Ko, E. et al.                                                                                               | 2008                 | hyper        | 265                             | Yes                             | MSP                                                                                   | tissue                                     |        |
| Gene based    | P21, P15, P16, WT1, E2F1                                                                                               | Zhang, C. et al.                                                                                            | 2008                 | hyper        | 120                             | Yes                             | MSP                                                                                   | tissue                                     |        |
| Gene based    | RASSF1A                                                                                                                | Chan, K.C.A. et al.                                                                                         | 2008                 | hyper        | 85                              | Yes                             | Methylgreen                                                                           | tissue and serum                           |        |
| Gene based    | UCHL1                                                                                                                  | Yu, J. et al.                                                                                               | 2008                 | hyper        | 27                              | No                              | MSP                                                                                   | tissue                                     |        |
| Gene based    | GSTP1, P16                                                                                                             | Harber, J. et al.                                                                                           | 2008                 | hyper        | 34                              | No                              | MSP                                                                                   | tissue                                     |        |
| Gene based    | HBP                                                                                                                    | Tada, M. et al.                                                                                             | 2008                 | hyper        | 36                              | No                              | Methylight                                                                            | tissue                                     |        |
| Gene based    | NDRG2                                                                                                                  | Dong, C.L. et al.                                                                                           | 2008                 | hyper        | 9                               | Yes, based on gene expression.  | MSP                                                                                   | tissue                                     |        |
| Gene based    | SFRP                                                                                                                   | Takagi, H. et al.                                                                                           | 2008                 | hyper        | 19                              | No                              | MSP                                                                                   | tissue                                     |        |
| Gene based    | DLG1                                                                                                                   | Qiu, G.-H. et al.                                                                                           | 2008                 | hyper        | 68                              | Yes                             | MSP                                                                                   | tissue                                     |        |
| Gene based    | HIC1, CASP8, GSTP1, SOCS1, RASSF1A, P16, APC, RUNX3, RIZ1, SFRP2, CDH1, COX2, CACNA1G, RASSF2, Reptin, DCC, and 3 MINT | Nishida, N. et al.                                                                                          | 2008                 | hyper        | 77                              | Yes                             | COBRA                                                                                 | tissue                                     |        |
| Gene based    | P16, GSTP1, APC, RIZ1, SFRP2, SFRP5, RUNX3, SOCS1                                                                      | Namato, S. et al.                                                                                           | 2007                 | hyper        | 19                              | No                              | MSP                                                                                   | tissue                                     |        |
| Gene based    | RUNX3, P16, RASSF1A and CDH1                                                                                           | Tan, S.-H. et al.                                                                                           | 2007                 | hyper        | 8                               | No                              | MSP                                                                                   | serum                                      |        |
| Gene based    | P16                                                                                                                    | Kondo, Y. et al.                                                                                            | 2007                 | hyper        | 23                              | No                              | MSP                                                                                   | tissue                                     |        |
| Genome-wide   | P16, GSTP1                                                                                                             | Su, P.-F. et al.                                                                                            | 2007                 | hyper        | 58                              | Yes                             | MSP                                                                                   | tissue                                     |        |
| Gene based    | genome-wide hypomethylation, BNP3, BNP13, IGF2BP3, and E2F1                                                            | Calvisi, D.F. et al.                                                                                        | 2007                 | hyper        | 60                              | Yes                             | MSP, COBRA                                                                            | tissue                                     |        |
| Gene based    | P16, GSTP1, IGF2                                                                                                       | Dejeux, E. et al.                                                                                           | 2007                 | hyper        | 27                              | No                              | Pyrosequencing                                                                        | tissue                                     |        |
| Gene based    | SFRP1, SFRP2, SFRP5                                                                                                    | Shih, Y.-L. et al.                                                                                          | 2007                 | hyper        | 54                              | No                              | MSP                                                                                   | tissue                                     |        |
| Gene based    | SFRP2                                                                                                                  | Huang, J. et al.                                                                                            | 2007                 | hyper        | 2                               | No                              | Bisulfite sequencing                                                                  | tissue                                     |        |
| Gene based    | P16, CDH1, RASSF1A                                                                                                     | Oh, B.-K. et al.                                                                                            | 2007                 | hyper        | 25                              | No                              | MSP                                                                                   | tissue                                     |        |
| Gene based    | RASSF1A, CCND2, P16, GSTP1, SOCS1, APC                                                                                 | Lehmann, U. et al.                                                                                          | 2007                 | hyper        | 17                              | No                              | qMSP                                                                                  | tissue                                     |        |
| Gene based    | P16                                                                                                                    | Zhu, R. et al.                                                                                              | 2007                 | hyper        | 23                              | Yes                             | MSP                                                                                   | tissue                                     |        |
| Gene based    | SOCS1, CASP8, RUNX3, HIC-1, GSTP1, P16, RASSF1A, RASSF2, APC, RIZ1, COX2, CACNA1G, Reptin, SFRP2                       | Nishida, N. et al.                                                                                          | 2007                 | hyper        | 81                              | Yes                             | COBRA                                                                                 | tissue                                     |        |
| Gene based    | TPF2                                                                                                                   | Wong, C.-M. et al.                                                                                          | 2007                 | hyper        | 34                              | No                              | MSP                                                                                   | tissue                                     |        |
| Gene based    | RASSF1A, P16, P15                                                                                                      | Zhang, Y.-J. et al.                                                                                         | 2007                 | hyper        | 50                              | No                              | MSP                                                                                   | blood                                      |        |
| Gene based    | MDAR2P4                                                                                                                | Qiu, G.-H. et al.                                                                                           | 2007                 | hyper        | 53                              | No                              | MSP                                                                                   | tissue                                     |        |
| Gene based    | LINE-1                                                                                                                 | Tangilavitch, P. et al.                                                                                     | 2007                 | hyper        | 85                              | Yes                             | COBRA                                                                                 | serum                                      |        |
| Gene based    | P14, P15, P16, ER, RASSF1A, WT1, and c-Myc                                                                             | Zhang, C. et al.                                                                                            | 2007                 | hyper        | 50                              | Yes                             | MSP                                                                                   | tissue                                     |        |
| Gene based    | SYK                                                                                                                    | Yuan, Y. et al.                                                                                             | 2006                 | hyper        | 124                             | Yes                             | MSP                                                                                   | tissue                                     |        |
| Gene based    | P16                                                                                                                    | Zhang, Y.-J. et al.                                                                                         | 2006                 | hyper        | 40                              | No                              | MSP                                                                                   | tissue                                     |        |
| Gene based    | SFRP1                                                                                                                  | Shih, Y.-L. et al.                                                                                          | 2006                 | hyper        | 54                              | No                              | MSP                                                                                   | tissue                                     |        |
| Gene based    | JCF-1                                                                                                                  | Tang, S.H. et al.                                                                                           | 2006                 | hyper        | 34                              | No                              | MSP                                                                                   | tissue                                     |        |
| Gene based    | P16                                                                                                                    | Jicali,                                                                                                     |                      |              |                                 |                                 |                                                                                       |                                            |        |

|            |                                                                                                                                  |                            |      |       |                         |                                |                      |                      |
|------------|----------------------------------------------------------------------------------------------------------------------------------|----------------------------|------|-------|-------------------------|--------------------------------|----------------------|----------------------|
| Gene based | NORE1B, RASSF1A                                                                                                                  | Machetiner, D. et al.      | 2006 | hyper | 40                      | No                             | MSP                  | tissue               |
| Gene based | ZHX2                                                                                                                             | Lu, Z. et al.              | 2006 | hyper | 32                      | Yes                            | MSP                  | tissue               |
| Gene based | RASSF1A                                                                                                                          | Di Gioia et al.            | 2006 | hyper | 26                      | Yes                            | MSP                  | tissue               |
| Gene based | GSTP1                                                                                                                            | Wang, J. et al.            | 2006 | hyper | 26 (tissue), 32 (serum) | No                             | MSP                  | tissue and serum     |
| Gene based | MINT31, P16, conc2,GSTP1,RASSF1A,CDH1,APC                                                                                        | Katoh, H. et al.           | 2006 | hyper | 60                      | Yes                            | MSP                  | tissue               |
| Gene based | MAGEA1, MAGEA3                                                                                                                   | Qiu, G. et al.             | 2006 | hyper | 34                      | No                             | MSP                  | FFPE                 |
| Gene based | P16, RASSF1A                                                                                                                     | Park, H.-I. et al.         | 2006 | hyper | 27                      | No                             | MSP                  | tissue               |
| Gene based | P16                                                                                                                              | Yang, B. et al.            | 2005 | hyper | 20                      | No                             | MSP                  | tissue               |
| Gene based | P16                                                                                                                              | Fukui, K. et al.           | 2005 | hyper | 30                      | No                             | MSP                  | tissue               |
| Gene based | P16, DAPK                                                                                                                        | Liu, Q. et al.             | 2005 | hyper | 64                      | Yes                            | MSP                  | serum                |
| Gene based | SOCS-3                                                                                                                           | Niwa, Y. et al.            | 2005 | hyper | 18                      | No                             | MSP                  | tissue               |
| Gene based | RUNX3                                                                                                                            | Park, W.S. et al.          | 2005 | hyper | 73                      | No                             | MSP                  | tissue               |
| Gene based | RASSF1A, SEMA3B                                                                                                                  | Tischhoff, I. et al.       | 2005 | hyper | 35                      | No                             | MSP                  | tissue               |
| Gene based | RASSF1A, cdc42d2, P16, GSTP1, APC, RIZ1, SOCS1                                                                                   | Lehmann, U. et al.         | 2005 | hyper | 41                      | No                             | eMSP                 | FFPE                 |
| Gene based | GSTP1                                                                                                                            | Zhang, Y.-J. et al.        | 2005 | hyper | 83                      | Yes                            | MSP                  | tissue               |
| Gene based | CDH1                                                                                                                             | Ghee, Y.K. et al.          | 2005 | hyper | 32                      | Yes                            | MSP                  | tissue               |
| Gene based | GSTP1, NOO1                                                                                                                      | Tada, M. et al.            | 2005 | hyper | 44                      | No                             | MSP                  | tissue               |
| Gene based | RASSF1A                                                                                                                          | Yao, W. et al.             | 2005 | hyper | 40                      | Yes                            | MSP                  | tissue and plasma    |
| Gene based | HEBP1                                                                                                                            | Yao, T.-O. et al.          | 2005 | hyper | 43                      | No                             | MSP                  | tissue               |
| Gene based | P16                                                                                                                              | Li, X. et al.              | 2004 | hyper | 50                      | Yes                            | MSP                  | tissue               |
| Gene based | GADD45B                                                                                                                          | Qiu, W. et al.             | 2004 | hyper | 8                       | No                             | MSP                  | tissue               |
| Gene based | ASC                                                                                                                              | Kubo, T. et al.            | 2004 | hyper | 17                      | No                             | MSP                  | tissue               |
| Gene based | P16, P15                                                                                                                         | Qin, Y. et al.             | 2004 | hyper | 20                      | Yes                            | MSP                  | tissue               |
| Gene based | P16                                                                                                                              | Narimatsu, T. et al.       | 2004 | hyper | 51                      | No                             | MSP                  | tissue               |
| Gene based | P16,P14, GSTP1                                                                                                                   | Anzola, M. et al.          | 2004 | hyper | 30                      | No                             | MSP                  | tissue               |
| Gene based | P16                                                                                                                              | Chen, H.J. et al.          | 2004 | hyper | 46                      | No                             | MSP                  | serum                |
| Gene based | SPINT2                                                                                                                           | Fukui, K. et al.           | 2003 | hyper | 26                      | No                             | MSP                  | tissue               |
| Gene based | DLC-1                                                                                                                            | Wong, C.-M. et al.         | 2003 | hyper | 25                      | No                             | MSP                  | tissue               |
| Gene based | SOCS-1                                                                                                                           | Okochi, O. et al.          | 2003 | hyper | 50                      | Yes                            | MSP                  | tissue               |
| Gene based | ABO, AR, CSPG2, cyclin a1, DBCCR1, GALR2, IRE7, MGMT, MT1A, MYOD1, OCT6, p57KIP2, P73, WT1, P16, and demethylation of the MAGEA1 | Yu, J. et al.              | 2003 | hyper | 28                      | Yes                            | MSP                  | tissue               |
| Gene based | APC, GSTP1, RASSF1A, P16, COX-2, CDH1                                                                                            | Lee, S. et al.             | 2003 | hyper | 60                      | Yes                            | MSP                  | tissue               |
| Gene based | SOCS-1, GSTP, APC, CDH1, P15                                                                                                     | Yang, B. et al.            | 2003 | hyper | 51                      | Yes                            | MSP                  | tissue               |
| Gene based | RASSF1A                                                                                                                          | Zhong, S. et al.           | 2003 | hyper | 43                      | No                             | COBRA                | tissue               |
| Gene based | P16                                                                                                                              | Matsuda, Y. et al.         | 2003 | hyper | 12                      | Yes, based on gene expression. | MSP                  | tissue               |
| Gene based | RASSF1A, P16                                                                                                                     | Schagglarengin, U., et al. | 2003 | hyper | 15                      | No                             | MSP                  | tissue               |
| Gene based | P16                                                                                                                              | Wong, J.H.N. et al.        | 2003 | hyper | 29                      | Yes                            | eMSP                 | serum and buffy coat |
| Gene based | MGMT                                                                                                                             | Matsukura, S. et al.       | 2003 | hyper | 46                      | No                             | Bisulfite sequencing | tissue               |
| Gene based | P16                                                                                                                              | Shim, Y.-H. et al.         | 2003 | hyper | 18                      | Yes                            | MSP                  | FFPE                 |
| Gene based | MGMT                                                                                                                             | Zhang, Y.-J. et al.        | 2003 | hyper | 83                      | No                             | MSP                  | tissue               |