

REFERENCES

1. Zavoral M, Suchanek S, Zavada F, Dusek L, Muzik J, Seifert B, Fric P: Colorectal cancer screening in Europe. *World J Gastroenterol* 2009, 15(47):5907-5915.
2. Boyle P, Langman JS: ABC of colorectal cancer: Epidemiology. *BMJ* 2000, 321(7264):805-808.
3. Jemal A, Siegel R, Ward E, Hao Y, Xu J, Murray T, Thun MJ: Cancer statistics, 2008. *CA: a cancer journal for clinicians* 2008, 58(2):71-96.
4. AIHW: Cancer in Australia: an overview, 2008. Canberra : AIHW; 2008.
5. Worthley DL, Leggett BA: Colorectal cancer: molecular features and clinical opportunities. *Clin Biochem Rev* 2010, 31(2):31-38.
6. Suzuki H, Tokino T, Shinomura Y, Imai K, Toyota M: DNA methylation and cancer pathways in gastrointestinal tumors. *Pharmacogenomics* 2008, 9(12):1917-1928.
7. Neklason DW, Kerber RA, Nilson DB, Anton-Culver H, Schwartz AG, Griffin CA *et al*: Common familial colorectal cancer linked to chromosome 7q31: a genome-wide analysis. *Cancer Res* 2008, 68(21):8993-8997.
8. Shlien A, Malkin D: Copy number variations and cancer. *Genome Med* 2009, 1(6):62.
9. Frank B, Bermejo JL, Hemminki K, Sutter C, Wappenschmidt B, Meindl A *et al*: Copy number variant in the candidate tumor suppressor gene MTUS1 and familial breast cancer risk. *Carcinogenesis* 2007, 28(7):1442-1445.
10. Jovanovic M, Hengartner MO: miRNAs and apoptosis: RNAs to die for. *Oncogene* 2006, 25(46):6176-6187.
11. Calin GA, Sevignani C, Dumitru CD, Hyslop T, Noch E, Yendamuri S *et al*: Human microRNA genes are frequently located at fragile sites and genomic regions involved in cancers. *Proc Natl Acad Sci U S A* 2004, 101(9):2999-3004.
12. Venkatachalam R, Ligtenberg MJ, Hoogerbrugge N, Geurts van Kessel A, Kuiper RP: Novel gene identification in familial colorectal cancer. *Ongoing research* 2010.

13. Cunningham D, Atkin W, Lenz HJ, Lynch HT, Minsky B, Nordlinger B, Starling N: Colorectal cancer. *Lancet* 2010, 375(9719):1030-1047.
14. Bodmer WF: Cancer genetics: colorectal cancer as a model. *J Hum Genet* 2006, 51(5):391-396.
15. Parker SL, Tong T, Bolden S, Wingo PA: Cancer statistics, 1996. *CA Cancer J Clin* 1996, 46(1):5-27.
16. Cannon-Albright LA, Skolnick MH, Bishop DT, Lee RG, Burt RW: Common inheritance of susceptibility to colonic adenomatous polyps and associated colorectal cancers. *N Engl J Med* 1988, 319(9):533-537.
17. Houlston RS, Collins A, Slack J, Morton NE: Dominant genes for colorectal cancer are not rare. *Ann Hum Genet* 1992, 56(Pt 2):99-103.
18. Jasperson KW, Tuohy TM, Neklason DW, Burt RW: Hereditary and familial colon cancer. *Gastroenterology* 2010, 138(6):2044-2058.
19. Campbell WJ, Spence RA, Parks TG: Familial adenomatous polyposis. *Br J Surg* 1994, 81(12):1722-1733.
20. Chen S, Wang W, Lee S, Nafa K, Lee J, Romans K *et al*: Prediction of germline mutations and cancer risk in the Lynch syndrome. *JAMA* 2006, 296(12):1479-1487.
21. Fearnhead NS, Wilding JL, Bodmer WF: Genetics of colorectal cancer: hereditary aspects and overview of colorectal tumorigenesis. *Br Med Bull* 2002, 64:27-43.
22. Weissenbach J, Gyapay G, Dib C, Vignal A, Morissette J, Millasseau P, Vaysseix G, Lathrop M: A second-generation linkage map of the human genome. *Nature* 1992, 359(6398):794-801.
23. Oda S, Maehara Y, Ikeda Y, Oki E, Egashira A, Okamura Y *et al*: Two modes of microsatellite instability in human cancer: differential connection of defective DNA mismatch repair to dinucleotide repeat instability. *Nucleic Acids Res* 2005, 33(5):1628-1636.
24. Bisgaard ML, Fenger K, Bulow S, Niebuhr E, Mohr J: Familial adenomatous polyposis (FAP): frequency, penetrance, and mutation rate. *Hum Mutat* 1994, 3(2):121-125.
25. Chompook P, Samosornsuk S, von Seidlein L, Jitsanguansuk S, Sirima N, Sudjai S *et al*: Estimating the burden of shigellosis in Thailand: 36-month population-based surveillance study. *Bull World Health Organ* 2005, 83(10):739-746.

26. Logan CY, Nusse R: The Wnt signaling pathway in development and disease. *Annu Rev Cell Dev Biol* 2004, 20:781-810.
27. Fearnhead NS, Britton MP, Bodmer WF: The ABC of APC. *Hum Mol Genet* 2001, 10(7):721-733.
28. Thean LF, Loi C, Ho KS, Koh PK, Eu KW, Cheah PY: Genome-wide scan identifies a copy number variable region at 3q26 that regulates PPM1L in APC mutation-negative familial colorectal cancer patients. *Genes Chromosomes Cancer* 2010, 49(2):99-106.
29. Maher B: Personal genomes: The case of the missing heritability. *Nature* 2008, 456(7218):18-21.
30. Albertson DG, Collins C, McCormick F, Gray JW: Chromosome aberrations in solid tumors. *Nat Genet* 2003, 34(4):369-376.
31. Feuk L, Carson AR, Scherer SW: Structural variation in the human genome. *Nat Rev Genet* 2006, 7(2):85-97.
32. Lewis BP, Burge CB, Bartel DP: Conserved seed pairing, often flanked by adenosines, indicates that thousands of human genes are microRNA targets. *Cell* 2005, 120(1):15-20.
33. Lee RC, Feinbaum RL, Ambros V: The *C. elegans* heterochronic gene *lin-4* encodes small RNAs with antisense complementarity to *lin-14*. *Cell* 1993, 75(5):843-854.
34. Wightman B, Ha I, Ruvkun G: Posttranscriptional regulation of the heterochronic gene *lin-14* by *lin-4* mediates temporal pattern formation in *C. elegans*. *Cell* 1993, 75(5):855-862.
35. Zeng Y: Principles of micro-RNA production and maturation. *Oncogene* 2006, 25(46):6156-6162.
36. Yang L, Belaguli N, Berger DH: MicroRNA and colorectal cancer. *World J Surg* 2009, 33(4):638-646.
37. Lagos-Quintana M, Rauhut R, Lendeckel W, Tuschl T: Identification of novel genes coding for small expressed RNAs. *Science* 2001, 294(5543):853-858.
38. Lee Y, Jeon K, Lee JT, Kim S, Kim VN: MicroRNA maturation: stepwise processing and subcellular localization. *EMBO J* 2002, 21(17):4663-4670.
39. Lee Y, Ahn C, Han J, Choi H, Kim J, Yim J *et al*: The nuclear RNase III Drosha initiates microRNA processing. *Nature* 2003, 425(6956):415-419.

40. Basyuk E, Suavet F, Doglio A, Bordonne R, Bertrand E: Human let-7 stem-loop precursors harbor features of RNase III cleavage products. *Nucleic Acids Res* 2003, 31(22):6593-6597.
41. Hammond SM: Dicing and slicing: the core machinery of the RNA interference pathway. *FEBS Lett* 2005, 579(26):5822-5829.
42. He L, Hannon GJ: MicroRNAs: small RNAs with a big role in gene regulation. *Nat Rev Genet* 2004, 5(7):522-531.
43. Pasquinelli AE, Hunter S, Bracht J: MicroRNAs: a developing story. *Curr Opin Genet Dev* 2005, 15(2):200-205.
44. Carthew RW: Gene regulation by microRNAs. *Curr Opin Genet Dev* 2006, 16(2):203-208.
45. Olsen PH, Ambros V: The lin-4 regulatory RNA controls developmental timing in *Caenorhabditis elegans* by blocking LIN-14 protein synthesis after the initiation of translation. *Dev Biol* 1999, 216(2):671-680.
46. Esquela-Kerscher A, Slack FJ: Oncomirs - microRNAs with a role in cancer. *Nat Rev Cancer* 2006, 6(4):259-269.
47. Croce CM, Calin GA: miRNAs, cancer, and stem cell division. *Cell* 2005, 122(1):6-7.
48. Metzler M, Wilda M, Busch K, Viehmann S, Borkhardt A: High expression of precursor microRNA-155/BIC RNA in children with Burkitt lymphoma. *Genes Chromosomes Cancer* 2004, 39(2):167-169.
49. Takamizawa J, Konishi H, Yanagisawa K, Tomida S, Osada H, Endoh H *et al*: Reduced expression of the let-7 microRNAs in human lung cancers in association with shortened postoperative survival. *Cancer Res* 2004, 64(11):3753-3756.
50. Michael MZ, SM OC, van Holst Pellekaan NG, Young GP, James RJ: Reduced accumulation of specific microRNAs in colorectal neoplasia. *Mol Cancer Res* 2003, 1(12):882-891.
51. Akao Y, Nakagawa Y, Naoe T: let-7 microRNA functions as a potential growth suppressor in human colon cancer cells. *Biol Pharm Bull* 2006, 29(5):903-906.
52. Bandres E, Cubedo E, Agirre X, Malumbres R, Zarate R, Ramirez N *et al*: Identification by Real-time PCR of 13 mature microRNAs differentially expressed in colorectal cancer and non-tumoral tissues. *Mol Cancer* 2006, 5:29.

53. Calin GA, Croce CM: MicroRNA signatures in human cancers. *Nat Rev Cancer* 2006, 6(11):857-866.
54. Calin GA, Ferracin M, Cimmino A, Di Leva G, Shimizu M, Wojcik SE *et al*: A MicroRNA signature associated with prognosis and progression in chronic lymphocytic leukemia. *N Engl J Med* 2005, 353(17):1793-1801.
55. Raveche ES, Salerno E, Scaglione BJ, Manohar V, Abbasi F, Lin YC *et al*: Abnormal microRNA-16 locus with synteny to human 13q14 linked to CLL in NZB mice. *Blood* 2007, 109(12):5079-5086.
56. Calin GA, Dumitru CD, Shimizu M, Bichi R, Zupo S, Noch E *et al*: Frequent deletions and down-regulation of micro- RNA genes miR15 and miR16 at 13q14 in chronic lymphocytic leukemia. *Proc Natl Acad Sci U S A* 2002, 99(24):15524-15529.
57. Cimmino A, Calin GA, Fabbri M, Iorio MV, Ferracin M, Shimizu M *et al*: miR-15 and miR-16 induce apoptosis by targeting BCL2. *Proc Natl Acad Sci U S A* 2005, 102(39):13944-13949.
58. Bottoni A, Piccin D, Tagliati F, Luchin A, Zatelli MC, degli Uberti EC: miR-15a and miR-16-1 down-regulation in pituitary adenomas. *J Cell Physiol* 2005, 204(1):280-285.
59. Zhang L, Huang J, Yang N, Greshock J, Megraw MS, Giannakakis A *et al*: microRNAs exhibit high frequency genomic alterations in human cancer. *Proc Natl Acad Sci U S A* 2006, 103(24):9136-9141.
60. Ota A, Tagawa H, Karnan S, Tsuzuki S, Karpas A, Kira S, Yoshida Y, Seto M: Identification and characterization of a novel gene, C13orf25, as a target for 13q31-q32 amplification in malignant lymphoma. *Cancer Res* 2004, 64(9):3087-3095.
61. He L, Thomson JM, Hemann MT, Hernando-Monge E, Mu D, Goodson S *et al*: A microRNA polycistron as a potential human oncogene. *Nature* 2005, 435:828-833.
62. O'Donnell KA, Wentzel EA, Zeller KI, Dang CV, Mendell JT: c-Myc-regulated microRNAs modulate E2F1 expression. *Nature* 2005, 435(7043):839-843.
63. Dews M, Homayouni A, Yu D, Murphy D, Sevignani C, Wentzel E *et al*: Augmentation of tumor angiogenesis by a Myc-activated microRNA cluster. *Nat Genet* 2006, 38(9):1060-1065.
64. Glover TW: Common fragile sites. *Cancer Lett* 2006, 232(1):4-12.

65. Tunca B, Egeli U, Zorluoglu A, Yilmazlar T, Yerci O, Kizil A: The expression frequency of common fragile sites and genetic predisposition to colon cancer. *Cancer Genet Cytogenet* 2000, 119(2):139-145.
66. Vernole P, Muzi A, Volpi A, Terrinoni A, Dorio AS, Tentori L, Shah GM, Graziani G: Common fragile sites in colon cancer cell lines: Role of mismatch repair, RAD51 and poly(ADP-ribose) polymerase-1. *Mutat Res* 2011.
67. Cicek MS, Slager SL, Achenbach SJ, French AJ, Blair HE, Fink SR *et al*: Functional and clinical significance of variants localized to 8q24 in colon cancer. *Cancer Epidemiol Biomarkers Prev* 2009, 18(9):2492-2500.
68. Mourra N, Zeitoun G, Portier G, Blanche H, Tubacher E, Gressin L *et al*: High-resolution genotyping of chromosome 8 in colon adenocarcinomas reveals recurrent break point but no gene mutation in the 8p21 region. *Diagn Mol Pathol* 2008, 17(2):90-93.
69. Katoh M: Molecular cloning and characterization of WRCH2 on human chromosome 15q15. *Int J Oncol* 2002, 20(5):977-982.
70. Thiagalingam S, Lisitsyn NA, Hamaguchi M, Wigler MH, Willson JK, Markowitz SD, Leach FS, Kinzler KW, Vogelstein B: Evaluation of the FHIT gene in colorectal cancers. *Cancer Res* 1996, 56(13):2936-2939.
71. Sokova OI, Kirichenko OP, Kulagina OE, Konstantinova LN, Chebotarev AN, Fleishman EV: [Karyotypic anomalies and chromosomal sites of increased fragility in colorectal cancer]. *Genetika* 1997, 33(9):1297-1302.
72. Morelli C, Karayianni E, Magnanini C, Mungall AJ, Thorland E, Negrini M, Smith DI, Barbanti-Brodano G: Cloning and characterization of the common fragile site FRA6F harboring a replicative senescence gene and frequently deleted in human tumors. *Oncogene* 2002, 21(47):7266-7276.
73. Albertson DG, Pinkel D: Genomic microarrays in human genetic disease and cancer. *Hum Mol Genet* 2003, 12 Spec No 2:R145-152.
74. Selzer RR, Richmond TA, Pofahl NJ, Green RD, Eis PS, Nair P, Brothman AR, Stallings RL: Analysis of chromosome breakpoints in neuroblastoma at sub-kilobase resolution using fine-tiling oligonucleotide array CGH. *Genes Chromosomes Cancer* 2005, 44(3):305-319.
75. Cavenee WK, Dryja TP, Phillips RA, Benedict WF, Godbout R, Gallie BL, Murphree AL, Strong LC, White RL: Expression of recessive alleles by chromosomal mechanisms in retinoblastoma. *Nature* 1983, 305(5937):779-784.

76. Brown KW, Malik KT: The molecular biology of Wilms tumour. *Expert Rev Mol Med* 2001, 2001:1-16.
77. Kinzler KW, Nilbert MC, Su LK, Vogelstein B, Bryan TM, Levy DB *et al*: Identification of FAP locus genes from chromosome 5q21. *Science* 1991, 253(5020):661-665.
78. Nelen MR, Padberg GW, Peeters EA, Lin AY, van den Helm B, Frants RR *et al*: Localization of the gene for Cowden disease to chromosome 10q22-23. *Nat Genet* 1996, 13(1):114-116.
79. Ligtenberg MJ, Kuiper RP, Chan TL, Goossens M, Hebeda KM, Voorendt M *et al*: Heritable somatic methylation and inactivation of MSH2 in families with Lynch syndrome due to deletion of the 3' exons of TACSTD1. *Nat Genet* 2009, 41(1):112-117.