

8 Literaturverzeichnis

A

Aaoki M, Hecht A, Kruse U, Kemler R, Vogt PK (1999): Nuclear endpoint of Wnt signaling: neoplastic transformation induced by transactivating lymphoid enhancer factor 1. *Proc Natl Acad Sci USA* 96: 139-144.

Aberle H, Bauer A, Stappert J, Kispert A, Kemler R (1997): Beta-catenin is a target of the ubiquitin-proteasome pathway. *EMBO J* 16: 3797-3804.

Aberle H, Schwartz H, Kemler R (1996): Cadherin-catenin complex: protein interactions and their implications for cadherin function. *J Cell Biochem* 61: 514-23.

B

Barnes LD, Garrison PN, Siplashvili Z, Guranowski A, Robinson AK, Ingram SW, Croce CM, Ohta M, Huebner K (1996): Fhit, a putative tumor suppressor in humans, is a dinucleoside 5',5''-P1,P3-triphosphate hydrolase. *Biochemistry* 35: 11529-11535.

Bauer A, Chauvet S, Huber O, Usseglio F, Rothbacher U, Aragnol D, Kemler R, Pradel J (2000): Pontin52 and reptin52 function as antagonistic regulators of beta-catenin signalling activity. *EMBO J* 19: 6121-30.

Bauer A, Huber O, Kemler R (1998): Pontin52, an interaction partner of beta-catenin, binds to the TATA box binding protein. *Proc Natl Acad Sci USA* 95: 14787-14792.

Behrens J, Lustig B (2004): The Wnt connection to tumorigenesis. *Int J Dev Biol* 48: 477-87.

Behrens J, von Kries JP, Kühl M, Bruhn L, Wedlich D, Grosschedl R, Birchmeier W (1996): Functional interaction of beta-catenin with the transcription factor LEF-1. *Nature* 382: 638-642.

Bieganowski P, Garrison PN, Hodawadekar SC, Faye G, Barnes LD, Brenner C (2002): Adenosine monophosphoramidase activity of Hint and Hnt1 supports function of Kin28, Ccl1, and Tfb3. *J Biol Chem* 277: 10852-60.

Bienz, M. (2001): Spindles cotton on to junctions, APC and EB1. *Nat Cell Biol* 3: E67-E68.

Bochner BR, Lee PC, Wilson SW, Cutler CW, Ames BN (1984). AppppA and related adenylylated nucleotides are synthesized as a consequence of oxidation stress. *Cell* 37: 225-232.

Brannon M, Gomperts M, Sumoy L, Moon RT, Kimelman D (1997): A beta-catenin/XTcf-3 complex binds to the siamois promotor to regulate dorsal axis specification in *Xenopus*. *Genes Dev* 11: 2359-2370.

Brenner C, Garrison P, Gilmour J, Peisach D, Ringe D, Petsko GA, Lowenstein JM (1997): Crystal structures of HINT demonstrate that histidine triad proteins are GalT-related nucleotide-binding proteins. *Nat Struct Biol* 4: 231-238.

Brenner C, Bieganowski P, Pace HC, Huebner K (1999): The histidine triad superfamily of nucleotide-binding proteins. *J Cell Physiol* 181: 179-187.

Brenner C (2002): Hint, Fhit, and GalT: function, structure, evolution, and mechanism of three branches of the histidine triad superfamily of nucleotide hydrolases and transferases. *Biochemistry* 41: 9003-9014.

Brzoska PM, Chen H, Zhu Y, Levin NA, Disatnik MH, Mochly-Rosen D, Murnane JP, Christman MF (1995): The product of the ataxia-telangiectasia group D complementing gene, ATDC, interacts with a protein kinase C substrate and inhibitor. *Proc Natl Acad Sci U S A* 92: 7824-7828.

Bruser T, Selmer T, Dahl C (2000): "ADP sulfurylase" from *Thiobacillus denitrificans* is an adenylylsulfate:phosphate adenylyltransferase and belongs to a new family of nucleotidyltransferases. *J Biol Chem* 275: 1691-1698.

C

Cadigan KM, Nusse R (1997): Wnt signaling: a common theme in animal development. *Genes Dev* 11: 3286-3305.

Cavallo RA, Cox RT, Moline MM, Roose J, Polevoy GA, Clevers H, Peifer M, Bejsovec A (1998): *Drosophila* Tcf and Groucho interact to repress Wingless signalling activity. *Nature* 395: 604-608.

Chen J, Brevet A, Blanquet S, Plateau P (1998): Control of 5',5'-dinucleoside triphosphate catabolism by APH1, a *Saccharomyces cerevisiae* analog of human FHIT. *J Bacteriol* 180: 2345-2349.

Choi EK, Rhee YH, Park HJ, Ahn SD, Shin KH, Park KK (2001): Effect of protein kinase C inhibitor (PKCI) on radiation sensitivity and c-fos transcription. *Int J Radiat Oncol Biol Phys* 49: 397-405.

Chou TF, Bieganski P, Shilinski K, Cheng J, Brenner C, Wagner CR (2005): 31P NMR and genetic analysis establish hinT as the only *Escherichia coli* purine nucleoside phosphoramidase and as essential for growth under high salt conditions. *J Biol Chem* 280: 15356-15361.

Christofori G (2003): Changing neighbours, changing behaviour: cell adhesion molecule-mediated signalling during tumour progression. *Embo J* 22: 2318-23.

Clements PM, Breslin C, Deeks ED, Byrd PJ, Ju L, Bieganski P, Brenner C, Moreira MC, Taylor AM, Caldecott KW (2004): The ataxia-oculomotor apraxia 1 gene product has a role distinct from ATM and interacts with the DNA strand break repair proteins XRCC1 and XRCC4. *DNA Repair (Amst)* 3: 493-502.

D

Date H, Onodera O, Tanaka H, Iwabuchi K, Uekawa K, Igarashi S, Koike R, Hiroi T, Yuasa T, Awaya Y, Sakai T, Takahashi T, Nagatomo H, Sekijima Y, Kawachi I, Takiyama Y, Nishizawa M, Fukuhara N, Saito K, Sugano S, Tsuji S (2001): Early-onset ataxia with ocular motor apraxia and hypoalbuminemia is caused by mutations in a new HIT superfamily gene. *Nat Genet* 29: 184-188.

Djiane A, Riou JF, Umbhauer M, Boucaut JC, Shi DL (2000): Role of frizzled-7 in the regulation of convergent extension movements during gastrulation in *Xenopus laevis*. *Development* 127: 3091-3100.

Dugan KA, Wood MA, Cole MD (2002): Tip49, but not TRRAP, modulates c-Myc and E2F1 dependent apoptosis. *Oncogene* 21: 5835-5843.

E

Ellegren H (2001): Hens, cocks and avian sex determination. A quest for genes on Z or W? *EMBO Rep* 2: 192-196.

Elsas LJ, Lai K (1998): The molecular biology of galactosemia. *Genet Med* 1: 40-48.

F

Fankhauser H, Schiff JA, Garber LJ (1981): Purification and properties of adenylyl sulphate:ammonia adenylyltransferase from *Chlorella* catalysing the formation of adenosine 5' -phosphoramidate from adenosine 5' -phosphosulphate and ammonia. *Biochem J* 3: 545-560.

Feng Y, Lee N, Fearon ER (2003): TIP49 regulates beta-catenin-mediated neoplastic transformation and T-cell factor target gene induction via effects on chromatin remodeling. *Cancer Res* 63: 8726-8734.

Frey PA (1996): The Leloir pathway: a mechanistic imperative for three enzymes to change the stereochemical configuration of a single carbon in galactose. *Faseb J* 10: 461-470.

G

Giles RH, van Es JH, Clevers H (2003): Caught up in a Wnt storm: Wnt signaling in cancer. *Biochem Biophys Acta* 1653: 1-24.

Gilmour J, Liang N, Lowenstein JM (1997): Isolation, cloning and characterization of a low-molecular-mass purine nucleoside- and nucleotide-binding protein. *Biochem J* 326: 471-477.

Graham TA, Weaver C, Mao F, Kimelman D (2000): Crystal structure of a beta-catenin/Tcf complex. *Cell* 103: 885-896.

Grosschedl R, Giese K, Pagel J (1994): HMG domain proteins: architectural elements in the assembly of nucleoprotein structures. *Trends Genet* 10: 94-100.

Gueven N, Becherel OJ, Kijas AW, Chen P, Howe O, Rudolph JH, Gatti R, Date H, Onodera O, Taucher-Scholz G, Lavin MF (2004): Aprataxin, a novel protein that protects against genotoxic stress. *Hum Mol Genet* 13: 1081-1093.

H

Han GW, Schwarzenbacher R, McMullan D, Abdubek P, Ambing E, Axelrod H, Biorac T, Canaves JM, Chiu HJ, Dai X, Deacon AM, DiDonato M, Elsliger MA, Godzik A, Grittini C, Grzechnik SK, Hale J, Hampton E, Haugen J, Hornsby M, Jaroszewski L, Klock HE, Koesema E, Kreusch A, Kuhn P, Lesley SA, McPhillips TM, Miller MD, Moy K, Nigoghossian E, Paulsen J, Quijano K, Reyes R, Spraggon G, Stevens RC, van den Bedem H, Velasquez J, Vincent J, White A, Wolf G, Xu Q, Hodgson KO, Wooley J, Wilson IA (2005): Crystal structure of an Apo mRNA decapping enzyme (DcpS) from Mouse at 1.83 Å resolution. *Proteins* 60: 797-802.

Hannahan D (1983): Studies on transformation of *Escherichia coli* with plasmids. *J Mol Biol* 166: 557-580.

He TC, Sparks AB, Rago C, Hermeking H, Zawel L, da Costa LT, Morin PJ, Vogelstein B, Kinzler KW (1998): Identification of c-MYC as a target of the APC pathway. *Science* 281: 1509-1512.

Hecht A, Litterst CM, Huber O, Kemler R (1999): Functional characterization of multiple transactivating elements in β -catenin, some of which interact with the TATA-binding protein in vitro. *J Biol Chem* 274: 18017-18025.

Heisenberg CP, Tada M, Rauch GJ, Saude L, Concha ML, Geisler R, Stemple DL, Smith DL, Smith JC, Wilson SW (2000): Silberblick/Wnt11 mediates convergent extension movements during zebrafish gastrulation. *Nature* 405: 76-81.

Hori T, Asakawa S, Itoh Y, Shimizu N, Mizuno S (2000): Wpkci, encoding an altered form of PKCI, is conserved widely on the avian W chromosome and expressed in early female embryos: implication of its role in female sex determination. *Mol Biol Cell* 11: 3645-60.

Hsu SC, Galceran J, Grosschedl R (1998): Modulation of transcriptional regulation by LEF-1 in response to Wnt-1 signaling and association with beta-catenin. *Mol Cell Biol* 18: 4807-4818.

Huang Y, Garrison PN, Barnes LD (1995): Cloning of the *Schizosaccharomyces pombe* gene encoding diadenosine 5', 5'''-P₁P₄-tetrphosphate (Ap₄A) asymmetrical hydrolase: sequence similarity with the histidine triad (HIT) protein family. *Biochem J* 312: 925-932.

Huber AH, Nelson WJ, Weis WI (1997): Three-dimensional structure of the armadillo repeat region of beta-catenin. *Cell* 90: 871-882.

Huber AH, Weis WI (2001): The structure of the beta-catenin/E-cadherin complex and the molecular basis of the diverse ligand recognition by beta-catenin. *Cell* 105: 391-402.

Huber O, Korn R, McLaughlin J, Ohsugi M, Hermann BG, Kemler R (1996): Nuclear localization of beta-catenin by interaction with transcription factor LEF-1. *Mech Dev* 59: 3-10.

Huebner K, Croce CM (2003): Cancer and the FRA3B/FHIT fragile locus: it's a HIT. *Br J Cancer* 88: 1501-1506.

Huebner K, Croce CM (2001): FRA3B and other common fragile sites: the weakest links. *Nat Rev Cancer* 1: 214-221.

Huebner K, Garrison PN, Barnes LD, Croce CM (1998): The role of the FHIT/FRA3B locus in cancer. *Annu Rev Genet* 32: 7-31.

Hülsken J, Birchmeier W (2001): New aspects of Wnt signaling pathways in higher vertebrates. *Curr Opin Gen Dev* 11: 547-553.

I

Ikeda S, Kishida M, Matsuura Y, Usui H, Kikuchi A (2000): GSK-3 beta-dependent phosphorylation of adenomatous polyposis coli gene product can be modulated by beta-catenin and protein phosphatase 2A complexed with Axin. *Oncogene* 19: 537-545.

Ikura T, Ogryzko VV, Grigoriev M, Groisman R, Wang J, Horikoshi M, Scully R, Qin J, Nakatani Y (2000): Involvement of the TIP60 histone acetylase complex in DNA repair and apoptosis. *Cell* 102: 463-473.

Ishii H, Dumon KR, Vecchione A, Trapasso F, Mimori K, Alder H, Mori M, Sozzi G, Baffa R, Huebner K, Croce CM (2001): Effect of adenoviral transduction of the fragile histidine triad gene into esophageal cancer cells. *Cancer Res* 61: 1578-1584.

K

Kaldis P (1999): The cdk-activating kinase (CAK): from yeast to mammals. *Cell Mol Life Sci.* 55: 284-296.

Kanemaki M, Kurokawa Y, Matsu-ura T, Makino Y, Masani A, Okazaki K, Morishita T, Tamura TA (1999): TIP49b, a new RuvB-like DNA helicase, is included in a complex together with another RuvB-like DNA helicase, TIP49a. *J Biol Chem* 274: 22437-22444.

Kijas AW, Harris JL, Harris JM, Lavin MF (2006): Aprataxin forms a discrete branch in the HIT superfamily of proteins with both DNA/RNA binding and nucleotide hydrolase activities. *J Biol Chem* 281: 13939-13948.

Kim JH, Kim B, Cai L, Choi HJ, Ohgi KA, Tran C, Chen C, Chung CH, Huber O, Rose DW, Swayers CL, Rosenfeld MG, Baek SH (2005): Transcriptional regulation of a metastasis suppressor gene by Tip60 and beta-catenin complexes. *Nature* 434: 921-926.

Kisselev LL, Justesen J, Wolfson AD, Frolova LY (1998): Diadenosine oligophosphates (Ap(n)A), a novel class of signalling molecules? *FEBS Lett* 427: 157-163.

Klein MG, Yao Y, Slosberg ED, Lima CD, Doki Y, Weinstein IB (1998): Characterization of PKCI and comparative studies with FHIT, related members of the HIT protein family. *Exp Cell Res* 244: 26-32.

Korsisaari N, Mäkelä TP (2000): Interactions of Cdk7 and Kin28 with Hint/PKCI-1 and Hnt1 histidine triad proteins. *J Bio Chem* 275: 34837-34840.

Korsisaari N, Rossi DJ, Luukko K, Huebner K, Henkemeyer M, Makela TP (2003): The histidine triad protein Hint is not required for murine development or Cdk7 function. *Mol Cell Biol* 23: 3929-3935.

Krakowiak A, Pace HC, Blackburn GM, Adams M, Mekhalifa A, Kaczmarek R, Baraniak J, Stec WJ, Brenner C (2004): Biochemical, crystallographic, and mutagenic characterization of hint, the AMP-lysine hydrolase, with novel substrates and inhibitors. *J Biol Chem* 279: 18711-18716.

Kühl M, Sheldahl LC, Park M, Miller JR, Moon RT (2000): The Wnt/Ca²⁺ pathway: a new vertebrate Wnt signaling pathway takes shape. *Trends Genet* 16: 279-283.

L

Laemmli UK (1970): Cleavage of structural proteins during the assembly of the head of the bacteriophage T4. *Nature* 227: 660-685.

Lee YN, Nechushtan H, Figov N, Razin E (2004): The function of lysyl-tRNA synthetase and Ap4A as signaling regulators of MITF activity in FcεRI-activated mast cells. *Immunity* 20: 145-151.

Li H, Zhang Y, Su T, Santella RM, Weinstein IB (2005): Hint1 is a haplo-insufficient tumor suppressor in mice. *Oncogene* 25: 713-721.

Lima CD, Klein MG, Weinstein IB, Hendrickson WA (1996): Three-dimensional structure of human protein kinase C interacting protein 1, a member of the HIT family of proteins. *Proc Natl Acad Sci U S A* 93: 5357-5362.

Lima CD, Klein MG, Hendrickson WA (1997): Structure-based analysis of catalysis and substrate definition in the HIT protein family. *Science* 278: 286-290.

Liu H, Rodgers ND, Jiao X, Kiledjian M (2002): The scavenger mRNA decapping enzyme DcpS is a member of the HIT family of pyrophosphatases. *EMBO J* 21: 4699-4708.

Lu B, Roegiers F, Jan LY, Jan YN (2001): Adherens junctions inhibit asymmetric division in the *Drosophila* epithelium. *Nature* 409: 522-525.

M

Martin J, Magnino F, Schmidt K, Piguet AC, Lee JS, Semela D, St-Pierre MV, Ziemięcki A, Cassio D, Mochly-Rosen D, Brenner C, Thorgeirsson SS, Dufour JF (2006): Hint2, a mitochondrial apoptotic sensitizer downregulated in hepatocellular carcinoma. *Gastroenterology* 130: 2179-2188.

McKinnon PJ (2004): ATM and ataxia telangiectasia. *EMBO rep* 5: 772-776.

McCrea PD, Gumbiner BM (1991): Purification of a 92 kDa cytoplasmic protein tightly associated with the cell-cell adhesion molecule E-cadherin (uvomorulin). Characterization and extractability of protein complex from the cell cytostructure. *J Biol Chem* 266: 4514-4520.

Mezhybovska M, Wikstrom K, Ohd JF, Sjolander A (2006): The inflammatory mediator leukotriene D4 induces beta-catenin signaling and its association with antiapoptotic Bcl-2 in intestinal epithelial cells. *J Biol Chem* 281: 6776-6784.

Mezhybovska M, Wikstrom K, Ohd JF, Sjolander A (2005): Pro-inflammatory mediator leukotriene D4 induces transcriptional activity of potentially oncogenic genes. *Biochem Soc Trans* 33: 698-700.

Mlodzik M (2000): Spiny legs and prickled bodies: new insights and complexities in planar polarity establishment. *Bioessays* 22: 311-315.

Moreira MC, Barbot C, Tachi N, Kozuka N, Uchida E, Gibson T, Mendonca P, Costa M, Barros J, Yanagisawa T, Watanabe M, Ikeda Y, Aoki M, Nagata T, Coutinho P, Sequeiros J, Koenig M (2001): The gene mutated in ataxia-ocular apraxia 1 encodes the new HIT/Zn-finger protein aprataxin. *Nat Genet* 29: 189-193.

Mosesso P, Piane M, Palitti F, Pepe G, Penna S, Chessa L (2005): The novel human gene aprataxin is directly involved in DNA single-strand-break repair. *Cell Mol Life Sci* 62: 485-491.

Mozier NM, Walsh MP, Pearson JD (1991): Characterization of a novel zinc binding site of protein kinase C inhibitor-1. *FEBS Lett* 279: 14-18.

N

Nelson WJ, Nusse R (2004): Convergence of Wnt, beta-catenin, and cadherin pathways. *Science* 303: 1483-1487.

O

Ohta M, Inoue H, Cotticelli MG, Kastury K, Baffa R, Palazzo J, Siprashvili Z, Mori M, McCue P, Druck T, Croce CM, Huebner K (1996): The FHIT gene, spanning the chromosome 3p14.2 fragile site and renal carcinoma-associated t(3;8) breakpoint, is abnormal in digestive tract cancers. *Cell* 84: 587-597.

Oyama T, Kanai Y, Ochiai A, Akimoto S, Oda T, Yanagihara K, Nagafuchi A, Tsukita S, Shibamoto S, Ito F (1994): A truncated beta-catenin disrupts the interaction between E-cadherin and alpha-catenin: a cause of loss of intracellular adhesiveness in human cancer cell lines. *Cancer Res* 54: 6282-6287.

Ozawa M, Baribault H, Kemler R (1989): The cytoplasmic domain of the cell adhesion molecule uvomorulin associates with three independent proteins structurally related in different species. *EMBO J* 8: 1711-1717.

Ozawa M, Kemler R (1992): Molecular organization of the uvomorulin-catenin complex. *J Cell Biol* 116: 989-999.

P

Pace HC, Brenner C (2003): Feminizing chicks: a model for avian sex determination based on titration of Hint enzyme activity and the predicted structure of an Asw-Hint heterodimer. *Genome Biol* 4: R18.

Park J, Wood MA, Cole MD (2002): BAF53 forms distinct nuclear complexes and functions as a critical c-Myc-interacting nuclear cofactor for oncogenic transformation. *Mol Cell Biol* 22: 1307-1316.

Pearson JD, DeWald DB, Mathews WR, Mozier NM, Zurcher-Neely HA, Henrikson RL, Morris MA, McCubbin WD, McDonald JR, Fraser ED, et al. (1990): Amino acid sequence and characterization of a protein inhibitor of protein kinase C. *J Biol Chem* 265: 4583-4591.

Pekarsky Y, Campiglio M, Siprashvili Z, Druck T, Sedkov Y, Tillib S, Draganescu A, Wermuth P, Rothman JH, Huebner K, Buchberg AM, Mazo A, Brenner C, Croce CM (1998): Nitrilase and Fhit homologs are encoded as fusion proteins in *Drosophila melanogaster* and *Caenorhabditis elegans*. *Proc Natl Acad Sci U S A* 95: 8744-8749.

Plateau P, Fromant M, Schmitter JM, (1990): Catabolism of Bis(5'-Nucleosidyl) Tetraphosphates in *Saccharomyces cerevisiae*. *J Bacteriol* 172: 6892-6899.

Polakis P (2000): Wnt signaling and cancer. *Genes Dev* 14: 1837-1851.

R

Razin E, Zhang ZC, Nechushtan H, Frenkel S, Lee YN, Arudchandran R, Rivera J (1999): Suppression of microphthalmia transcriptional activity by its association with protein kinase C-interacting protein 1 in mast cells. *J Biol Chem* 274: 34272-34276.

Riese J, Yu X, Munneryn A, Eresh S, Hsu SC, Grosschedl R, Bienz M (1997): LEF-1, a nuclear factor coordinating signaling inputs from wingless and decapentaplegic. *Cell* 88: 777-787.

Riggelman B, Schedl P, Wieschaus E (1990): Spatial organization of the *Drosophila* segment polarity gene armadillo is posttranscriptionally regulated by wingless. *Cell* 63: 549-560.

Robinson AK, de la Pena CE, Barnes LD (1993): Isolation and characterization of diadenosine tetraphosphate (Ap₄A) hydrolase from *Schizosaccharomyces pombe*. *Biochem Biophys Acta* 1161: 139-148.

Rottbauer W, Saurin AJ, Lickert H, Shen X, Burns CG, Wo ZG, Kemler R, Kingston R, Wu C, Fishman M (2002): Reptin and pontin antagonistically regulate heart growth in zebrafish embryos. *Cell* 111: 661-672.

Roz L, Gramegna M, Ishii H, Croce CM, Sozzi G (2002): Restoration of fragile histidine triad (FHIT) expression induces apoptosis and suppresses tumorigenicity in lung and cervical cancer cell lines. *Proc Natl Acad Sci U S A* 99: 3615-3620.

Rubinfeld B, Albert I, Porfiri E, Fiol C, Munemitsu S, Polakis P (1996): Binding of GSK3 beta to the APC-beta-catenin complex and regulation of complex assembly. *Science* 272: 1023-1026.

S

Sanger F, Nicklen S, Coulson AR (1992): DNA sequencing with chain-terminating inhibitors. *Biotechnology* 24: 104-108.

Sato S, Nakamura Y, Kaneko T, Katoh T, Asamizu E, Kotani H, Tabata S (2000): Structural analysis of *Arabidopsis thaliana* chromosome 5. X. Sequence features of the regions of 3,076,755 bp covered by sixty P1 and TAC clones. *DNA Res* 7: 31-63.

Schlüter H, Tepel M, Zidek W (1996): Vascular actions of diadenosine phosphates. *J Auton Pharmacol* 16: 357-362.

Seidle HF, Bieganowski P, Brenner C (2005): Disease-associated mutations inactivate AMP-lysine hydrolase activity of Aprataxin. *J Biol Chem* 280: 20927-20931.

Seraphin B (1992): The HIT protein family: a new family of proteins present in prokaryotes, yeast and mammals. *DNA Seq* 3: 177-179

Sevignani C, Calin GA, Cesari R, Sarti M, Ishii H, Yendamuri S, Vecchione A, Trapasso F, Croce CM (2003): Restoration of fragile histidine triad (FHIT) expression induces apoptosis and suppresses tumorigenicity in breast cancer cell lines. *Cancer Res* 63: 1183-1187.

Siegfried E, Wilder E, Perrimon N (1994a): Components of wingless signalling in *Drosophila*. *Nature* 367: 76-80.

Shtutman M, Zhurinsky J, Simcha I, Albanese C, D'Amico M, Pestell R, Ben-Ze'ev A (1999): The cyclin D1 gene is a target of the beta-catenin/LEF-1 pathway. *Proc Natl Acad Sci USA* 96: 5522-5527.

Siprashvili Z, Sozzi G, Barnes LD, McCue P, Robinson AK, Eryomin V, Sard L, Tagliabue E, Greco A, Fusetti L, Schwartz G, Pierotti MA, Croce CM, Huebner K (1997): Replacement of Fhit in cancer cells suppresses tumorigenicity. *Proc Natl Acad Sci USA* 94: 13771-13776.

Smith PK, Krohn RI, Hermanson GT, Mallia AK, Gartner FH, Provenzano MD, Fujimoto EK, Goetze NM, Olson BJ, Klenk DC (1985): Measurement of protein using bicinchoninic acid. *Anal Biochem* 150: 76-85.

Soma T, Kaganoi J, Kawabe A, Kondo K, Imamura M, Shimada Y (2006): Nicotine induces the fragile histidine triad methylation in human esophageal squamous epithelial cells. *Int J Cancer* 2006: [Epub ahead of print].

Sozzi G, Sard L, De Gregorio L, Marchetti A, Musso K, Buttitta F, Tornielli S, Pellegrini S, Veronese ML, Manenti G, Incarbone M, Chella A, Angeletti CA, Pastorino U, Huebner K, Bevilacqua G, Pilotti S, Croce CM, Pierotti MA (1997): Association between cigarette smoking and FHIT gene alterations in lung cancer. *Cancer Res.* 57: 2121-2123

Sozzi G, Veronese ML, Negrini M, Baffa R, Cotticelli MG, Inoue H, Tornielli S, Pilotti S, De Gregorio L, Pastorino U, Pierotti MA, Ohta M, Huebner K, Croce CM (1996): The FHIT gene 3p14.2 is abnormal in lung cancer. *Cell* 85: 17-26.

Su T, Suzui M, Wang L, Lin CS, Xing WQ, Weinstein IB (2003): Deletion of histidine triad nucleotide-binding protein 1/PKC-interacting protein in mice enhances cell growth and carcinogenesis. *Proc Natl Acad Sci USA* 100: 7824-7829.

T

Tetsu O, McCormick F (1999): Beta-catenin regulates expression of cyclin D1 in colon carcinoma cells. *Nature* 398: 422-426.

Towbin H, Stähelin T, Gordon J (1979): Electrophoretic transfer of proteins from polyacrylamide gels to nitrocellulose sheets: procedure and some applications. *Proc Natl Acad Sci USA* 76: 4350-4354.

V

Vartanian A, Prudovsky I, Suzuki H, Dal Pra I, Kisselev L (1997): Opposite effects of cell differentiation and apoptosis on Ap₃A/Ap₄A ratio in human cell cultures. *FEBS Lett* 415: 160-162.

Vartanian A, Alexandrov I, Prudowski I, McLennan A, Kisselev L (1999): Ap₄A induces apoptosis in human cultured cells. *FEBS Lett* 456: 175-180.

Vleminckx K, Kemler R, Hecht A (1999): The C-terminal transactivation domain of beta-catenin is necessary and sufficient for signaling by the LEF-1/beta-catenin complex in *Xenopus laevis*. *Mech Dev* 81: 65-74.

von Kries JP, Winbeck G, Asbrand C, Schwarz-Romond T, Sochnikova N, Dell'Oro A, Birchmeier W (2000): Hot spots in beta-catenin for interactions with LEF-1, conductin and APC. *Nat Struct Biol* 7: 800-807.

W

Wang Z, Kiledjian M (2001): Functional link between the mammalian exosome and mRNA decapping. *Cell* 107: 751-762.

Wedekind JE, Frey PA, Rayment I (1995): Three-dimensional structure of galactose-1-phosphate uridylyltransferase from *Escherichia coli* at 1.8 Å resolution. *Biochemistry* 34: 11049-11061.

Weiske J, Huber O (2005): The histidine triad protein Hint1 interacts with Pontin and Reptin and inhibits TCF-beta-catenin-mediated transcription. *J Cell Sci* 118: 3117-3119.

Weiske J, Huber O (2006): The histidine triad protein Hint1 triggers apoptosis independent of its enzymatic activity. *J Biol Chem manuscript*: M513452200.

Wodarz A, Nusse R (1998): Mechanisms of Wnt signaling in development. *Annu Rev Cell Dev Biol* 14: 59-88.

Wood MA, McMahon SB, Cole MD (2000): An ATPase/helicase complex is an essential cofactor for oncogenic transformation by c-Myc. *Mol Cell* 5:321-330.

Y

Yamada S, Pokutta S, Drees F, Weis WI, Nelson WJ (2005): Deconstruction of the Cadherin-Catenin-Actin Complex. *Cell* 123: 889-901.

Yap AS, Briher WM, Gumbiner BM (1997): Molecular and functional analysis of cadherin-based adherens junctions. *Annu Rev Cell Dev Biol* 13: 119-146.

Yost C, Farr GH, Pierce SB, Ferkey DM, Chen MM, Kimelman D (1998): GBP, an inhibitor of GSK-3, is implicated in *Xenopus* development and oncogenesis. *Cell* 93: 1031-1041.

Z

Zanesi N, Fidanza V, Fong LY, Mancini R, Druck T, Valtieri M, Rudiger T, McCue PA, Croce CM, Huebner K (2001): The tumor spectrum in FHIT-deficient mice. *Proc Natl Acad Sci USA* 98: 10250-10255.