

Supplement table 1

Abend et al.

Gene (Gene ID)	Cytoband	Gene's function ¹	Gene's mechanism ¹	Gene RIF ² and bibliography	Selected references
<i>regulator of proliferation and cell death</i>					
signal transducer and activator of transcription 3 (acute-phase response factor) (STAT3)	17q21.31	plays a key role in many cellular processes such as cell growth and apoptosis	STAT members are phosphorylated by receptor kinases, form homo-/heterodimers, translocate to the cell nucleus and act as transcription activators	impact on proliferation of breast cancer cells involved in progression of human gastric cancer	Shackelford et al., Breast Cancer Res. 2011 Jun 20;13(3):R65. Hsu et al., Carcinogenesis. 2012 Aug;33(8):1459-67.
ankyrin repeat domain 46 (ANKRD46)	8q22.2	functions in protein-protein interactions in a variety of cellular processes		potential biomarkers for gastric cancer and correlation between copy number and expression ANKRD46 is targeted by miR-21 and miR-21 knockdown inhibits proliferation, migration and tumor growth in human breast cancer cell lines	Cheng et al., BMC Med Genomics. 2012 May 4;5:14 Yan et al., Breast Cancer Res. 2011 Jan 10;13(1):R2.
fibroblast growth factor receptor 1 oncogene partner 2 (FGFR1OP2)	12p11.23			facilitats fibroblast-driven wound closure	Lin et al., Am J Pathol. 2010 Jan;176(1):108-21.
<i>mRNA processing and gene-environment interaction</i>					
heterogeneous nuclear ribonucleoprotein H1 (HNRNPH1)	5q35.3	It is an ubiquitously expressed heterogeneous nuclear ribonucleoprotein (hnRNPs) and influences pre-mRNA processing and other aspects of mRNA metabolism		Splicing factor hnRNPH drives an oncogenic splicing switch in gliomas relationship of heterogeneous nuclear ribonucleoproteins with prognosis in primary and metastatic colorectal cancer	Lefave et al, EMBO J. 2011 Sep 13;30(19):4084-97 Hope and Murray, Hum Pathol. 2011 Mar;42(3):393-402
<i>developmental processes</i>					
hairy/enhancer-of-split related with YRPW motif 2 (HEY2)	6q21	basic helix-loop-helix (bHLH)-type transcription factors, forms homo- or hetero-dimers and localize to the nucleus	interact with a histone deacetylase complex to repress transcription, involved in Notch signal transduction pathway.	required for embryonic cardiovascular development, neurogenesis and somitogenesis	
ubiquitin-like modifier activating enzyme 3 (UBA3)	3p24.3-p13	ubiquitin is an important cellular mechanism for targeting abnormal or short-lived proteins for degradation	belongs to ubiquitin-activating enzyme family, associates with AppBp1, forms a heterodimer, and activates NEDD8	regulates cell division, signaling and embryogenesis through activation of NEDD8	

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<i>transport of electrolytes, anions and molecules</i>					
Rh-related antigen, integrin-associated signal transducer (Cd47)	11q21	membrane protein, which is involved in the increase in intracellular calcium concentration that occurs upon cell adhesion to extracellular matrix.	encoded protein is also a receptor for the C-terminal cell binding domain of thrombospondin and blocks phagocytosis	CD47 is a commonly expressed molecule on all cancers, it blocks tumor cell phagocytosis	Willingham et al., Proc Natl Acad Sci U S A. 2012 Apr 24;109(17):6662-7
ATP-binding cassette, sub-family C (ABCC3)	17q22	probably transport of intestinal excretion of organic anions	member of the MRP subfamily which is involved in multi-drug resistance.	involved in stem cell-derived retinal pigment epithelial cells (hESC-RPE) maturation. impact on survival of neuroblastoma patients.	Juuti-Uusitalo et al., PLoS One. 2012;7(1):e30089. Epub 2012 Jan 17. Henderson et al., J Natl Cancer Inst. 2011 Aug 17;103(16):1236-51
NADPH dependent diflavin oxidoreductase 1 (NDOR1)	9q34.3	protein catalyzes the transfer of electrons from NADPH through FAD and FMN cofactors to potential redox partners.			
<i>less characterized genes</i>					
sciellin (SCEL)	13q22	precursor to the cornified envelope of terminally differentiated keratinocytes	may function in the assembly or regulation of proteins in the cornified envelope		
chromosome 6 open reading frame 62, (C6orf62)	6p22.3	protein coding			
chromosome 1 open reading frame 9, SUN domain containing ossification factor(SUCO), (C1ORF9)	1q24	protein coding			
serpin peptidase inhibitor, clade A (SERPINA1)	14q32.1	The serine protease inhibitor targets elastase, plasmin, thrombin, trypsin, chymotrypsin, and plasminogen activator.	serine protease inhibitor		

¹Gene description and mechanism of action as defined in NCBI Entrez Gene, April 2013. ²Based on review of Gene References Into Functions (RIF) and NCBI bibliography as well as additional literature searches in PubMed focusing on reports of thyroid cancer or cancer-related biological processes.