

Definitions and Alternative Nomenclature of Genetic Symbols Used in This Report

Throughout this report, genes are represented by their abbreviations in italics. In many cases, proteins and enzymes related to these genes have the same abbreviation, presented in roman type. Definitions, alternative genetic symbols, related proteins and enzymes, and polymorphisms and variant genotypes are listed alphabetically by gene abbreviation.

Gene symbol used in this report	Definition	Alternative gene symbol	Related protein/enzyme	Polymorphism/variant genotype
<i>5HTT</i>	serotonin transporter	<i>SLC6A4</i> , <i>5HTTLPR</i>	5HTT, SERT, SLC6A4	<i>LPR</i> ; <i>VNTR</i> ; 5HTTLPR
<i>ADPRT</i>	poly (ADP-ribose) polymerase family, member 1	<i>PARP1</i>	ADPRT; PARP1	<i>VAL762ALA</i> ; <i>PRO882LEU</i> ; <i>CYS908TYR</i>
<i>AGT</i>	<i>O</i> ⁶ -alkylguanine–DNA alkyltransferase		AGT	<i>ILE143VAL</i> ; <i>GLY160ARG</i>
<i>ANKK1</i>	ankyrin repeat and kinase domain containing 1		ANKK1, protein kinase PKK2	<i>GLU713LYS</i> (caused by <i>DRD2 *TAQ1A</i> system)
<i>APAF1</i>	apoptotic peptidase activating factor 1		APAF1	
<i>APEX1</i>	APEX nuclease (multifunctional DNA repair enzyme) 1		APEX1	<i>GLU148ASP (T11865G)</i>
<i>AREG</i>	amphiregulin (schwannoma-derived growth factor)	<i>SDGF</i>	AREG, SDGF, CRDGF (colorectum cell-derived growth factor)	
<i>ARP</i>	arginine-rich protein	<i>ARMET</i>	ARP, ARMET (arginine-rich mutated in early stage tumors)	
<i>ATM</i>	ataxia telangiectasia mutated	<i>TEL1</i>	ATM; TEL1 (telomere maintenance 1)	
<i>BAX</i>	BCL2-associated X protein		BAX	
<i>BRAF</i>	v-raf murine sarcoma viral onco homolog B1		BRAF, B-RAF proto-oncogene serine/threonine-protein kinase (p94)	
<i>BRCA2</i>	breast cancer 2, early onset		BRCA2, breast cancer susceptibility protein	<i>HIS372ASN (T27113G)</i> , <i>ILE3412VAL (G93268A)</i>
<i>C-FOS</i>	v-fos FBJ murine osteosarcoma viral oncogene homolog	<i>FOS</i>	FOS, C-FOS	
<i>C4A</i>	complement component 4A (Rodgers blood group)		C4A	haplotype
<i>C4B</i>	complement component 4B (Childo blood group)		C4B	haplotype
<i>CASPASE-3</i>	cysteine-aspartic acid protease-3		CASPASE-3	
<i>CASPASE-8</i>	cysteine-aspartic acid protease-8		CASPASE-8	

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<i>CCK</i>	cholecystokinin		CCK	<i>C-45T</i> promoter polymorphism in SP1 binding region of <i>CCK</i> gene
<i>CCKAR</i>	cholecystokinin A receptor	<i>CCK1-R</i>	CCKAR, CCK1-R (cholecystokinin-1 receptor)	<i>T779C</i> , <i>VAL365ILE</i>
<i>CCND1</i>	G1/S-specific cyclin D1		CCND1	<i>G870A</i> , <i>*A/*A</i> , <i>*G/*A</i> , <i>*G/*G</i>
<i>CCNH</i>	cyclin H		CCNH, cyclin-dependent kinase-activating kinase	<i>VAL270ALA</i>
<i>CD14</i>	CD14 molecule		CD14 molecule; CD14 antigen	<i>C-159T</i> (promoter polymorphism)
<i>CDK4</i>	cyclin-dependent kinase 4		CDK4, cell division kinase 4	
<i>CDKN2A</i>	cyclin-dependent kinase inhibitor 2A		CDKN2A, P16	
<i>C-HA-RAS</i>	v-Ha-ras Harvey rat sarcoma viral oncogene homolog	<i>C-HRAS</i> , <i>HRAS</i>	C-HRAS, HRAS1 proto-oncoprotein	
<i>CHFR</i>	checkpoint with forkhead and ring finger domains		CHFR, mitotic checkpoint protein	
<i>CHRNA3</i>	cholinergic receptor, nicotinic, $\alpha 3$		CHRNA3	
<i>CHRNA4</i>	cholinergic receptor, nicotinic, $\alpha 4$		CHRNA4, $\alpha 4$ nAChR, nicotinic acetylcholine receptor $\alpha 4$ subunit	SNP <i>RS3746372</i> (*1); haplotype
<i>CHRNA5</i>	cholinergic receptor, nicotinic, $\alpha 5$		CHRNA5, nicotinic acetylcholine receptor $\alpha 5$ subunit, $\alpha 5$ nAChR	SNP <i>RS16969968</i> (<i>CHRNA5</i>); SNPs <i>RS8023462</i> and <i>RS1948</i> (<i>CHRNA5/A3/B4</i> cluster)
<i>CHRNA7</i>	cholinergic receptor, nicotinic, $\alpha 7$		CHRNA7, nicotinic acetylcholine receptor $\alpha 7$ subunit, $\alpha 7$ nAChR	D15S1360 (a microsatellite polymorphic marker in <i>INTRON 2</i>) exhibited seven different dinucleotide repeat lengths (99, 109, 111, 113, 115, 117, and 125 bp), the major alleles are <i>*113</i> and <i>*115</i> (<i>*113/*113</i> , <i>*113/*115</i> , <i>*115/*115</i>)
<i>CHRN2</i>	cholinergic receptor, nicotinic, $\beta 2$ (neuronal)		CHRN2, nicotinic acetylcholine receptor $\beta 2$ subunit, $\beta 2$ nAChR	multiple SNPs; haplotype
<i>CHRN3</i>	cholinergic receptor, nicotinic, $\beta 3$		CHRN3	

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<i>CHRNB4</i>	cholinergic receptor, nicotinic, β 4		CHRNB4	
<i>C-MYC</i>	avian myelocytomatosis viral oncogene homolog	<i>MYC</i>	C-MYC, myc proto-oncogene protein	
<i>COMT</i>	catechol-O-methyltransferase		COMT	<i>A1947G</i> , *A, *G, <i>VAL158MET</i>
<i>COX-1</i>	cyclooxygenase-1		COX-1	
<i>COX-2</i>	cyclooxygenase-2		COX-2	
<i>CYP17A1</i>	cytochrome P-450, family 17, subfamily A, polypeptide 1		CYP17A1	
<i>CYP1A1</i>	cytochrome P-450, family 1, subfamily A, polypeptide 1		CYP1A1, MSPI	*MSPI (*A/*a, *a/*a), <i>ILE462VAL</i>
<i>CYP2A13</i>	cytochrome P-450, family 2, subfamily A, polypeptide 13		CYP2A13	<i>ARG257CYS</i> (<i>C3375T</i> , *C/*T, *T/*T)
<i>CYP2A6</i>	cytochrome P-450, family 2, subfamily A, polypeptide 6		CYP2A6	*1 (wild type), *1A, *1B, *2, *3, *4, *4A, *4B, *4C, *4D, *5, *6, *7, *8, *9, *10, *12, *16, *NULL, *DEL
<i>CYP2B6</i>	cytochrome P-450, family 2, subfamily B, polypeptide 6		CYP2B6	*5 (<i>C1459T=ARG487CYS</i>); *6 (<i>G516T=GLN172HIS</i>); *2 (<i>C64T=ARG22CYS</i>); *3 (<i>C777A=SER259ARG</i>); *4 (<i>A785G=LYS262ARG</i>)
<i>CYP2D6</i>	cytochrome P-450, family 2, subfamily D, polypeptide 6		CYP2D6	*3, *4A, *5
<i>CYP2E1</i>	cytochrome P-450, family 2, subfamily E, polypeptide 1		CYP2E1	*1C, *1D, *DRA1, *RSA1
<i>DAPK1</i>	death-associated protein kinase 1	<i>DAPK</i>	DAPK1, DAPK	
<i>DAT</i>	dopamine transporter	<i>DAT1</i>	DAT, DAT1	<i>VNTR</i>
<i>DDC</i>	dopa decarboxylase (aromatic l-amino acid decarboxylase)	<i>AADC</i>	DDC, AADC	haplotype
<i>DLC1</i>	deleted in liver cancer 1		DLC1	
<i>DRD1</i>	dopamine receptor D1		DRD1	*DDE1
<i>DRD2</i>	dopamine receptor D2		DRD2	*TAQ1A (*A), *TAQ1B, -141C *INS/*DEL, *FOK1, *INTRON 2, *MBO1

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<i>DRD4</i>	dopamine receptor D4		DRD4	<i>VNTR</i>
<i>DRD5</i>	dopamine receptor D5		DRD5	haplotype
<i>DβH</i>	dopamine beta hydroxylase		DβH	<i>G1368A, C1021T, *A allele (G444A)</i>
<i>E-CADHERIN</i>	cadherin 1, type 1, E-cadherin (epithelial)		E-CADHERIN, calcium-dependent adhesion protein, epithelial	
<i>EGFR</i>	epidermal growth factor receptor (erythroblastic leukemia viral (v-erb-b) onco homolog, avian)		EGFR	
<i>ELA2</i>	elastase, neutrophil expressed	<i>ELANE</i>	ELA2	
<i>EN2</i>	engrailed homeobox 2	<i>EN-2</i>	EN2	
<i>ENOS</i>	endothelial nitric oxide synthase	<i>NOS3</i>	ENOS, NOS3	<i>*A allele (a quadruple repeat of a 27 base-pair sequence in INTRON 4), GLU298ASP (*ASP298)</i>
<i>EPHX1</i>	gene of epoxide hydrolase 1, microsomal (xenobiotic)	<i>MEH</i>	EPHX1, MEH microsomal epoxide hydrolase	<i>EXON 3 SNP, EXON 4 SNP, EXONS 3-4 SNP haplotypes, (T → C) TYR113HIS (*H), (A → G) HIS139ARG</i>
<i>ERCC1</i>	excision repair cross-complementing rodent repair deficiency, complementation group 1 (includes overlapping antisense sequence)		ERCC1	
<i>ESR1</i>	estrogen receptor 1		estrogen receptor α	<i>*XBAL (c.454-351A → G), *PVULL (c.454-397T → C)</i>
<i>FAS</i>	Fas (TNF receptor superfamily, member 6)		FAS	
<i>FHIT</i>	fragile histidine triad		FHIT, <i>FRA3B</i>	
<i>FMS</i>	colony stimulating factor 1 receptor	<i>CSF1R, C-FMS, CD115, FIM2, CSFR</i>	CSF1R, C-FMS, CD115, FIM2, CSFR	
<i>GABARAP</i>	GABA receptor-associated protein		GABARAP	
<i>GABA_{B2}</i>	γ-aminobutyric acid type B receptor 2		GABA _{B2}	haplotype

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<i>GC</i>	group-specific component (vitamin D binding protein)		GC	*1S (416GLU, 420THR), *1F (416ASP, 420THR), *1S/*1F, *2 (416ASP, 420LYS), haplotype
<i>GPX</i>	glutathione peroxidase		GPX	
<i>GSTA1</i>	glutathione-S-transferase 1 α		GSTA1	
<i>GSTM1</i>	glutathione-S-transferase μ 1		GSTM1	*NULL, *DEL
<i>GSTP1</i>	glutathione-S-transferase π 1		GSTP1	ILE105VAL, *ILE/*ILE, *ILE/*VAL, ALA114VAL, *ALA/*ALA, *ALA/*VAL
<i>GSTT1</i>	glutathione-S-transferase θ 1		GSTT1	*NULL, *DEL
<i>H-CADHERIN</i>	cadherin 13, H-cadherin (heart)	<i>CDH13</i>	H-CADHERIN, CDH13	
<i>HER-2/NEU</i>	v-erb-b2 erythroblastic leukemia viral oncogene homolog 2, neuro/glioblastoma derived oncogene homolog (avian)	<i>ERBB2</i>	HER-2/NEU, erb B2 c-erb B2/neu protein, HER-2(human epidermal growth factor receptor 2)	
<i>HPRT</i>	hypoxanthine phosphoribosyltransferase		HPRT	
<i>IL-1β</i>	interleukin-1 β		IL-1 β	C-31T (TATA Box), *-31C, *-31T
<i>JUN</i>	jun oncogene		JUN	
<i>KRAS</i>	v-Ki-ras2 Kirsten rat sarcoma viral oncogene homolog		KRAS	
<i>LAMA3</i>	laminin, α 3		LAMA3	
<i>LAMB3</i>	laminin, β 3		LAMB3	
<i>LAMC2</i>	laminin, γ 2		LAMC2	
<i>LIG1</i>	ligase I, DNA, ATP-dependent		LIG1	ALA170ALA (A \rightarrow C), ASP802ASP (C \rightarrow T), ALA814ALA (C \rightarrow G)
<i>LIG4</i>	ligase IV, DNA, ATP-dependent		LIG4	ALA3ALA (C8T, cDNA), THR9ILE (C27T, cDNA)
<i>LKB1/STK11</i>	serine/threonine kinase 11		LKB1, STK11	
<i>LMYC</i>	v-myc myelocytomatosis viral onco gene homolog 1, lung carcinoma derived	<i>L-MYC, MYCL1</i>	L-MYC, LMYC, MYCL1	
<i>MAOA</i>	monoamine oxidase A		MAOA	silent C1460T (EXON 14), VNTR

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<i>MAOB</i>	monoamine oxidase B		MAOB	<i>A644G</i> (*A, *G)
<i>MBD4</i>	methyl-CpG binding domain protein 4		MBD4	<i>SER342PRO</i> (T → C), <i>GLU346LYS</i> (G → A)
<i>MGMT</i>	<i>O</i> ⁶ -methylguanine-DNA methyltransferase		MGMT	<i>LEU84PHE</i> , <i>ILE143VAL</i>
<i>MMP-1</i>	matrix metalloproteinase 1 (interstitial collagenase)		MMP-1	
<i>MMP-12</i>	matrix metalloproteinase 12 (macrophage elastase)		MMP-12	
<i>MPO</i>	myeloperoxidase		MPO	
<i>MSX1</i>	msh homeobox 1		MSX1	haplotype (intronic CA repeat), *X1.3/*X1.3, *X2.4/*X2.4, *2 (rare allele)
<i>MUC5AC</i>	mucin 5AC, oligomeric mucus/gel-forming		MUC5AC	
<i>MUTYH</i>	mutY homolog (<i>E. coli</i>)		MUTYH, mutY DNA glycosylase, A/G-specific adenine DNA glycosylase	<i>GLN335HIS</i> (G → C)
<i>MYO18B</i>	myosin XVIIIIB		MYO18B	
<i>NAT1</i>	<i>N</i> -acetyltransferase 1		NAT1, arylamine <i>N</i> -acetyltransferase 1	<i>1088</i> *A/*A (<i>T1088A</i>), <i>1095</i> *A/*A (<i>C1095A</i>)
<i>NAT2</i>	<i>N</i> -acetyltransferase 2		NAT2, arylamine <i>N</i> -acetyltransferase 2	<i>ILE114THR</i> (T → C), <i>LYS161LYS</i> (C → T), <i>LYS268ARG</i> (A → G), <i>ARG197GLN</i> (G → A), <i>TYR94TYR</i> (C → T), <i>GLY286GLU</i> (G → A), *4/*4 (wild type)
<i>NBS1</i>	Nijmegen breakage syndrome 1	<i>NBN</i>	NBS1, NBN, nibrin	<i>GLN185GLU</i> (C → G)
<i>N-MYC</i>	v-myc myelocytomatosis viral related oncogene, neuroblastoma derived (avian)	<i>NMYC</i> , <i>MYCN</i>	N-MYC, NMYC, MYCN, N-myc proto-oncogene protein	
<i>NORE1A</i>	RAS association (RALGDS/AF-6) domain family member 5	<i>RASFF5</i>	NORE1A, RASFF5	
<i>NRXN1</i>	neurexin 1		NRXN1	
<i>NRXN3</i>	neurexin 3		NRXN3	
<i>NTRK2</i>	neurotrophic tyrosine kinase, receptor, type 2		NTRK2	

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<i>OGG1</i>	8-oxoguanine DNA glycosylase		OGG1	<i>SER326CYS</i> (C → G), <i>326*CYS/*CYS</i> , <i>326*SER/*SER</i>
<i>OPRM1</i>	opioid receptor, μ1		OPRM1	<i>ASN40ASP</i> (<i>A118G</i>), <i>*ASP40</i> , <i>*ASN40</i>
<i>P14^{ARF}</i>	cyclin-dependent kinase inhibitor 2A (CDKN2A)	<i>P14</i>	P14, P14ARF (the alternate reading frame products of CDKN2A gene)	
<i>P16</i>	cyclin-dependent kinase inhibitor 2A (CDKN2A)	<i>P16INK4A</i>	P16, P16INK4A (the major product of CDKN2A gene)	
<i>P21</i>	cyclin-dependent kinase inhibitor 1A	<i>P21</i> , <i>CDNK1A</i> , <i>CIP1</i> , <i>WAF1</i> , <i>SDI1</i>	P21, CDNK1A, CIP1, WAF1, SDI1	<i>SER31ARG</i>
<i>P53</i>	tumor suppressor		P53	<i>ARG72PRO</i> (G → C), <i>72*ARG/*PRO</i> , <i>72*PRO/*PRO</i> , <i>*MSPI</i> (<i>INTRON 6</i>), 16 bp insertion (<i>INTRON 3</i>)
<i>P73</i>	tumor protein gene 73	<i>TP73</i>	P73, TP73	<i>*GC/*GC</i> , <i>*AT/*AT</i> , <i>*GC/*AT</i> (<i>G4A</i> , <i>C14T</i> in <i>EXON 2</i>)
<i>PARKIN</i>	Parkinson disease (autosomal recessive, juvenile) 2, parkin	<i>PARK2</i>	PARKIN (ligase)	
<i>PAX5 α</i>	paired box gene 5	<i>BSAP</i> (B-cell specific activator) α	PAX5 α (one of the products of PAX5 gene), BSAP (B-cell specific activator protein) α	
<i>PAX5 β</i>	paired box gene 5	BSAP (B-cell specific activator) β	PAX β (one of the products of PAX5 gene), BSAP (B-cell specific activator protein) β	
<i>PCMVCAT</i>	a plasmid construct containing the reporter gene <i>CAT</i> (chloramphenicol acetyltransferase) driven by CMV (cytomegalovirus) promoter		PCMVCAT, chloramphenicol acetyltransferase as a reporter	
<i>PLAP</i>	placental alkaline phosphatase	ALPP	PLAP, ALPP alkaline phosphatase, placental (Regan isozyme)	<i>*1/*1</i> , <i>*2/*2</i>
<i>POLD1</i>	polymerase (DNA directed), delta 1, catalytic subunit 125kDa		POLD1	<i>ARG19HIS</i> (G → A), <i>HIS119ARG</i> (A → G), <i>SER173ASN</i> (A → G)

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<i>PTEN</i>	phosphatase and tensin homolog		PTEN, deleted on chromosome 10	this gene may be deleted on chromosome 10 (10q23) with the development of cancers
<i>RAD23B</i>	RAD23 homolog B (<i>S. cerevisiae</i>)		RAD23B, UV excision repair protein RAD23 homolog B, XP-C repair complementing protein	<i>ALA249VAL (C → T)</i>
<i>RAD4</i>	RAD4 gene of <i>S. cerevisiae</i>		RAD4, <i>S. cerevisiae</i> DNA damage recognition and repair protein	
<i>RAD50</i>	RAD50 gene homolog (<i>S. cerevisiae</i>)		RAD50 (human)	<i>ARG1111ILE (G3374T, cDNA)</i>
<i>RAD51</i>	RAD51 homolog (<i>S. cerevisiae</i>)		RAD51	
<i>RAD52</i>	RAD52 homolog (<i>S. cerevisiae</i>)		RAD52	
<i>RAD54L</i>	RAD54 homolog (<i>S. cerevisiae</i>)	<i>S. cerevisiae</i> RAD50 gene homolog	RAD54L	<i>ARG374SER (G1222C, cDNA)</i>
<i>RASSF1A</i>	Ras association (RalGDS/AF-6) domain family member 1 (A isoform)		RASSF1A	
<i>RASSF2</i>	Ras association (RalGDS/AF-6) domain family member 2		RASSF2	
<i>RASSF4</i>	Ras association (RalGDS/AF-6) domain family member 4		RASSF4, tumor suppressor protein	
<i>RB</i>	retinoblastoma 1 tumor suppressor	RB1	RB, RB1	
<i>SERPINA1</i>	serpin peptidase inhibitor, clade A (α -1 antiproteinase, antitrypsin), member 1		SERPINA1, AAT protein	*M, *S, *Z, *NULL
<i>SERPINA3</i>	serpin peptidase inhibitor, clade A (α -1 antiproteinase, antitrypsin), member 3		SERPINA3, ACT protein	<i>PRO229ALA, LEU55PRO, MET389VAL, ALA-15THR</i> (signal peptide), <i>1258DELAA</i>
<i>SFTPB</i>	surfactant protein B		SFTPB; surfactant, pulmonary-associated protein B	<i>A-18C</i> (promoter), <i>A1013C, C1580T, A9306G, INTRON 4</i> variants, <i>THR131ILE</i>
<i>STK11</i>	serine/threonine kinase 11		STK11	
<i>TDG</i>	thymine-DNA glycosylase		TDG	
<i>TGFα</i>	transforming growth factor α		TGF α	

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<i>TGFβ1</i>	transforming growth factor β1		TGFβ1	SNP <i>RS1800469</i> (<i>C-509T</i> , promoter), SNP <i>RS2241712</i> (<i>G-10807A</i> , promoter), SNP <i>RS6957</i> (3'UTR), SNP <i>RS224178</i> (3'UTR), SNP <i>RS1982073</i> (<i>T29C</i> , <i>LEU10PRO</i> , <i>EXON 1</i>)
<i>TGFβ3</i>	transforming growth factor β3		TGFβ3	
<i>TH</i>	tyrosine hydroxylase		TH	VNTR
<i>TIMP-3</i>	tissue inhibitor of metalloproteinase 3		TIMP-3	
<i>TNFα</i>	tumor necrosis factor (TNF superfamily, member 2)	TNF	TNFα, TNF	<i>TNF2</i> (a promoter SNP, <i>G-308A</i>), SNPs <i>G-376A</i> and <i>G-238A</i> (promoter), <i>G489A</i> (<i>INTRON</i>), SNP <i>RS3091257</i> (3'UTR), SNP <i>RS769178</i> (3'UTR)
<i>TP</i>	thymidine phosphorylase		TP	
<i>TPH</i>	tryptophan hydroxylase	TPH1	TPH, TPH1	<i>C218A</i> , <i>A779C</i>
<i>TP53</i>	tumor protein		TP53	
<i>TRAIL-R1</i>	TNF-related apoptosis inducing ligand receptor 1	TNFRSF10A	TRAIL-R1, TNFRSF10A, death receptor 4	
<i>UGT1A</i>	UDP glucuronosyltransferase 1 family, polypeptide A1		UGT1A	
<i>XPC</i>	xeroderma pigmentosum, complementation group C	XPCC, XP3	XPC, XPCC, XP3	<i>ALA499VAL</i> (<i>C → T</i>), <i>LYS939GLN</i> (<i>A → C</i>), * <i>PAT</i> (poly AT ins/del polymorphism)
<i>XPD</i>	xeroderma pigmentosum, complementation group D	ERCC2	XPD, ERCC2	<i>ASP312ASN</i> (<i>G → A</i> , 312 * <i>G/*A</i>), <i>LYS751GLN</i> (<i>A → C</i> , 751 * <i>A/*C</i>)
<i>XPF</i>	xeroderma pigmentosum, complementation group F	ERCC4	XPF, ERCC4	<i>SER662PRO</i> (<i>T → C</i>), <i>ARG415GLN</i> (<i>G1244A</i> , <i>EXON 8</i> SNP <i>RS1800067</i>), <i>SER835SER</i> (<i>T2505C</i> , <i>EXON 11</i> SNP <i>RS1799801</i>)
<i>XPG</i>	xeroderma pigmentosum, complementation group G	ERCC5	XPG, ERCC5	<i>HIS1104ASP</i> (<i>G3507C</i> , SNP <i>RS17655</i>), <i>HIS46HIS</i> (<i>T335C</i> , SNP <i>RS1047768</i>), <i>CYS529SER</i> (SNP <i>RS2227869</i>)

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<i>XPV</i>	polymerase (DNA directed) eta	POLH	XPV POLH, human DNA polymerase η	
<i>XRCC1</i>	x-ray repair complementing defective repair in Chinese hamster cells 1		XRCC1	<i>ARG194TRP (C → T), ARG280HIS (G → A), ARG399GLN (G → A)</i>
<i>XRCC2</i>	x-ray repair complementing defective repair in Chinese hamster cells 2		XRCC2	
<i>XRCC3</i>	x-ray repair complementing defective repair in Chinese hamster cells 3		XRCC3	<i>THR241MET (T → C)</i>
<i>XRCC4</i>	x-ray repair complementing defective repair in Chinese hamster cells 4		XRCC4	<i>ALA247SER (G → T)</i>
<i>XRCC5</i>	x-ray repair complementing defective repair in Chinese hamster cells 5 (double-strand-break rejoining)	KU80	XRCC5, KU80	
<i>XRCC6</i>	x-ray repair complementing defective repair in Chinese hamster cells 6	KU70	XRCC6, KU70	